Asian Pacific Association for the Study of the Liver

2026 TOKYO
APASL Oncology

Treatment Dynamics of Liver Tumors

Term: April 2 • 3 2026
(Thursday) (Friday)

Program & Abstracts Book

Venue: Ito International Research Center
(Hongo Campus, The University of Tokyo)

Chairman : Shuntaro Obi M.D.Ph.D.
Professor, Department of Internal Medicine,
Teikyo University Chiba Medical Center, Japan

APASL Oncology 2026 Tokyo
Organizing Committee:
Department of Internal Medicine,
Teikyo University Chiba Medical Center

Congress Secretariat:
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Email: info@apasl-oncology2026tokyo.org
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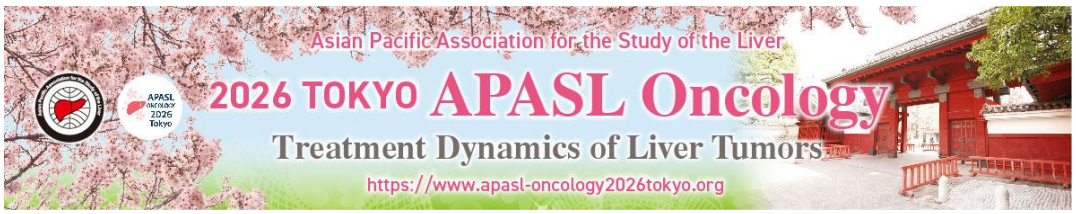

APASL Oncology 2026 Tokyo

"Treatment Dynamics of Liver Tumors"

April 2-3, 2026

Advancing Liver Cancer Care in the Asia–Pacific: Integration, Innovation, and Regional Collaboration

Table of Contents

Welcome Message

Dear Colleagues,

On behalf of the organizing committee, it is my great pleasure to welcome you to APASL Oncology 2026 in Tokyo.
This year's meeting expands the scope of liver oncology by integrating advances in hepatocellular carcinoma and biliary tract cancers while fostering multidisciplinary collaboration across hepatology, oncology, endoscopy, surgery, and translational science.
The program also places strong emphasis on nurturing the next generation of investigators and promoting regional collaboration through initiatives such as the A-HOC consortium.
We hope this meeting will provide an inspiring platform for scientific exchange and future collaboration across the Asia–Pacific region.

With highest regards,

Shuntaro Obi, MD. PhD.
Chairman of APASL ONCOLOGY 2026 Tokyo
Professor of Internal Medicine,
Teikyo University Chiba Medical Center, Japan

Presidential Vision

The Asia–Pacific region bears the greatest global burden of liver cancer. Yet within this diversity lies a powerful opportunity: to advance knowledge through collaboration, innovation, and shared clinical experience.
APASL Oncology 2026 aims to bring together experts across disciplines—including hepatology, surgery, oncology, interventional radiology, and endoscopy—to exchange ideas and shape the future of liver cancer care.
This meeting expands beyond hepatocellular carcinoma to include biliary tract cancers, highlights emerging systemic therapies, and introduces new educational formats such as video-based learning and young investigator sessions.
Through initiatives such as the A-HOC consortium, we also seek to build a collaborative research platform that will generate evidence unique to the Asia–Pacific region.
Together, we hope this meeting will inspire new partnerships and advance better outcomes for patients with liver cancer.

Program Highlights

APASL Oncology 2026 brings together leading experts from across the Asia–Pacific region to explore the rapidly evolving landscape of liver cancer research and clinical practice. This year's program expands beyond hepatocellular carcinoma to embrace a broader and more multidisciplinary perspective in liver oncology.

Expanding the Scope: From HCC to Biliary Tract Cancer

For the first time, the meeting highlights the dynamic treatment landscape of cholangiocarcinoma and biliary tract cancers. Dedicated sessions explore emerging systemic therapies and multidisciplinary strategies that are reshaping patient management.

Endoscopy Meets Oncology

A special focus is placed on the integration of endoscopic procedures into cancer care. Sessions on biliary drainage strategies—including ERCP and EUS-guided approaches—examine how optimal procedural techniques can improve oncologic outcomes.

Systemic Therapy for HCC in the Era of Multiple Options

The treatment landscape of hepatocellular carcinoma has rapidly evolved with multiple systemic therapy options. This program highlights clinical strategies and real-world perspectives from the Asia–Pacific region, where diverse treatment approaches continue to shape patient care.

Video Session: Learning from Real Surgical and Procedural Cases

A newly introduced video session provides practical insights into surgical and procedural techniques. Experts will share real-world cases and discuss common pitfalls and technical considerations that are essential for improving clinical practice.

Investing in the Next Generation

APASL Oncology 2026 introduces initiatives to support young investigators, including career development sessions and Young Investigator Award presentations, fostering the next generation of liver cancer researchers.

Building the Future: The A-HOC Initiative

The meeting also highlights the Asian Hepatocellular Carcinoma Outcomes Consortium (A-HOC), an international collaborative effort aimed at advancing research through large-scale real-world data and regional collaboration.

Invited Guest Speakers/Chairs/Scientific Committee

Dr. Masatoshi Akamatsu (Japan)
Dr. Jun Arai (Japan)
Dr. Taeang Arai (Japan)
Dr. Toru Arano (Japan)
Dr. Toshihiko Arizumi (Japan)
Dr. Yoshinari Asaoka (Japan)
Dr. Jinzhen Cai (China)
Dr. Itsuko Chih-Yi Chen (Taiwan)
Dr. Jae Hee Cho (Korea)
Dr. A. Kadir Dokmeci (Turkey)
Dr. Hiroaki Fujiwara (Japan)
Dr. Naoto Fujiwara (Japan)
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Dr. Ijichi Hideaki (Japan)
Dr. Kenji Hirano (Japan)
Dr. Atsushi Hiraoka (Japan)
Dr. Yoshihiro Hirata (Japan)
Dr. Yujin Hoshida (USA)
Dr. Kai-Wen Huang (Taiwan)
Dr. Yi-Hsiang Huang (Taiwan)
Dr. Yuji Iimuro (Japan)
Dr. Masafumi Ikeda (Japan)
Dr. Kenichi Ikejima (Japan)
Dr. Hiroyuki Isayama (Japan)
Dr. Toru Ishikawa (Japan)
Dr. Takeaki Ishizawa (Japan)
Dr. Hideki Iwamoto (Japan)
Dr. Amarsanaa Jazag (Mongolia)
Dr. Tatsuo Kanda (Japan)
Dr. Takumi Kawaguchi (Japan)
Dr. Yoshikuni Kawaguchi (Japan)
Dr. Shigehisa Kitano (Japan)
Dr. Takahiro Kodama (Japan)
Dr. Hirofumi Kogure (Japan)
Dr. Yukihiro Koike (Japan)
Dr. Yousuke Kouchi (Japan)
Dr. Masatoshi Kudo (Japan)
Dr. Youtaro Kudo (Japan)
Dr. Hidekatsu Kuroda (Japan)
Dr. Teiji Kuzuya (Japan)
Dr. George Lau (China)
Dr. Shin Maeda (Japan)
Dr. Hirokazu Makishima (Japan)
Dr. Hitoshi Maruyama (Japan)
Dr. Ryota Masuzaki (Japan)
Dr. Sabro Matsubara (Japan)
Dr. Tatsuya Minami (Japan)
Dr. Suguru Mizuno (Japan)
Dr. Naoki Morimoto (Japan)
Dr. Hiroaki Nagamatsu (Japan)
Dr. Hiroaki Nagano (Japan)
Dr. Hyato Nakagawa (Japan)
Dr. Yousuke Nakai (Japan)
Dr. Takuma Nakatsuka (Japan)
Dr. Shuntaro Obi (Japan)
Dr. Sadahisa Ogasawara (Japan)
Dr. Takamasa Ohki (Japan)
Dr. Hironao Okubo (Japan)
Dr. Masao Omata (Japan)
Dr. Masayuki Otsuka (Japan)
Dr. Motoyuki Otsuka (Japan)
Dr. Diana A. Payawal (Philippines)
Dr. Teerha Piratvisuth (Thailand)
Dr. Rungsun Rerknimitr (Thailand)
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Dr. Shiv K Sarin (India)
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Dr. Tomoharu Yamada (Japan)
Dr. Natsuyo Yamamoto (Japan)
Dr. Osamu Yokosuka (Japan)
Dr. Hideo Yoshida (Japan)

In alphabetical order

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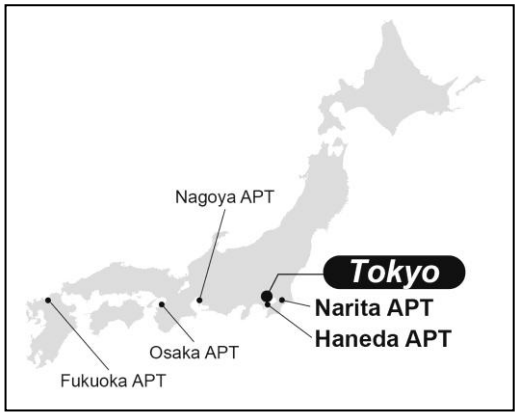
Dr. Ajay Duseja (India)
Dr. Qin Ning (China)
Dr. Shuntaro Obi (Japan)
Dr. Elizabeth Powell (Australia)
Dr. Hakan Şenturk (Turkey)
Dr. Ming-Lung Yu (Taiwan)
Dr. Jian Zhou (China)

Conference Information

Venue

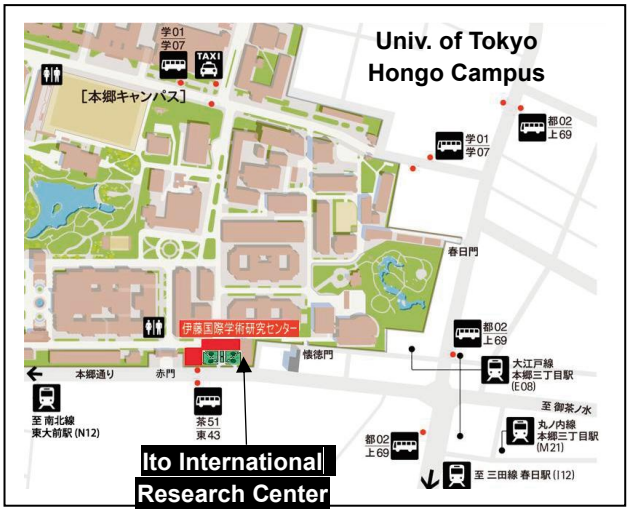
Ito International Research Center

(Hongo Campus, The University of Tokyo)
Address: 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8654, Japan
Tel: +81-3-5841-0779
URL: https://www.u-tokyo.ac.jp/adm/iirc/en/index.html



Access

[From Haneda Airport]
Take Tokyo Monorail Limited Express bound for "Hamamatsucho" and get off at "Hamamatsucho" Sta. (20 min.), change train to JR Yamanote Line bound for "Tokyo/Ueno" direction and get off at "Tokyo" Sta. (6 min.), change train to Tokyo Metro Marunouchi Line bound for "Ikebukuro" and get off at "Hongo-sanchome" Station (7 min.), 8 min. walk from "Hongo-sanchome" (Marunouchi Line) to the venue.
[From Narita Airport]
Take Keisei Narita Sky Access Line/Hokuso Line Limited Express Keisei Skyliner bound for "Keisei Ueno" and get off at "Keisei Ueno" Sta. (47 min.), walk to "Okachimachi" Sta. (10 min.), take Toei Oedo Line bound for "Iidabashi/Tochomae" and get off at "Hongo-sanchome" Sta. (2 min.), 6 min. walk from "Hongo-sanchome" (Oedo Line) to the venue.



Nearest station (Subway) : Time to the Venue
Hongo-sanchome (Marunouchi Line): 8 minutes' walk
Hongo-sanchome (Oedo Line): 6 minutes' walk
Yushima (Chiyoda Line): 15 minutes' walk
Todaimae (Nanboku Line): 12 minutes' walk

Registration Fee and Category

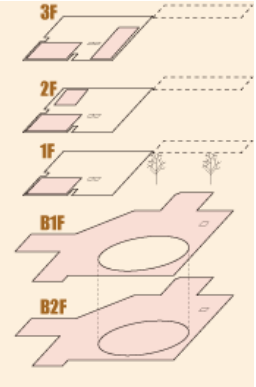
Category \ Term	Early Bird until February 28	Pre-Registration Until March 27	On Site
APASL Member	JPY 20,000	JPY 25,000	JPY 30,000
Non-Member	JPY 30,000	JPY 35,000	JPY 40,000
Accepted Abstract Submitter (APASL Member)	JPY15,000	JPY20,000	JPY25,000
Accepted Abstract Submitter (Non-Member)	JPY 25,000	JPY 30,000	JPY 35,000
Trainee / Resident	JPY 15,000	JPY 20,000	JPY 25,000
Medical Student / Medical Staff	JPY 3,000	JPY 5,000	JPY 10,000
Accompanying Person	JPY 5,000	JPY 5,000	JPY 5,000

JPY=Japanese Yen
*APASL Members who have paid 2026 Membership Fee can apply for discounted registration fee.

Onsite Registration/PC Pre-view Hours

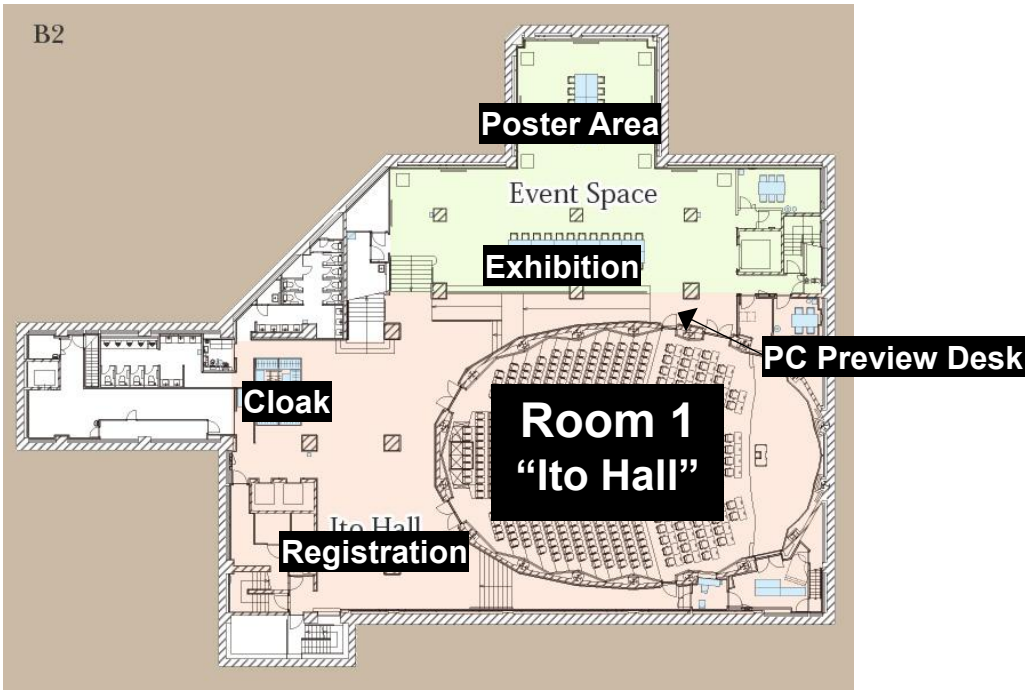
April 2 (Thursday) 8:15-18:00
April 3 (Friday) 8:15-17:00

Floor Plan: Ito International Research Center

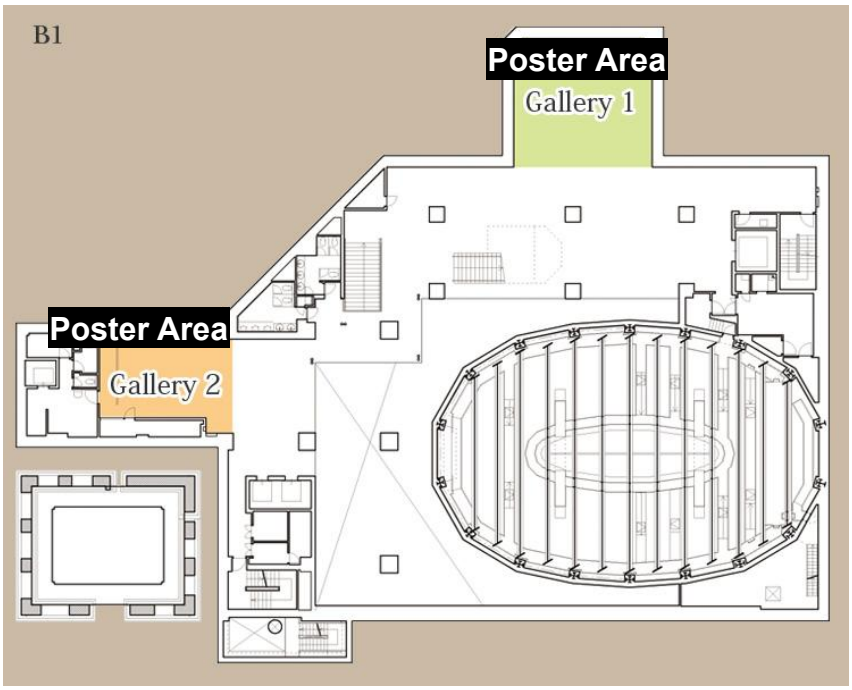


Registration, PC Preview Desk, Cloak: Foyer, B2 Floor
Room 1: “Ito Hall” B2 Floor
Room 2: “Seminar Room” 3rd Floor
Poster Area: “Gallery 1 & 2” B1 Floor, and “Event Space” B2 Floor
Speakers’ Ready Room: “Meeting Room” B2F
Members Lounge: “Faculty Club”, 2nd Floor
Secretariat Room: “Meeting Room 1”, 2nd Floor
Welcome Reception: “Event Space”, B2 Floor
Exhibition Area: Foyer, B2 Floor

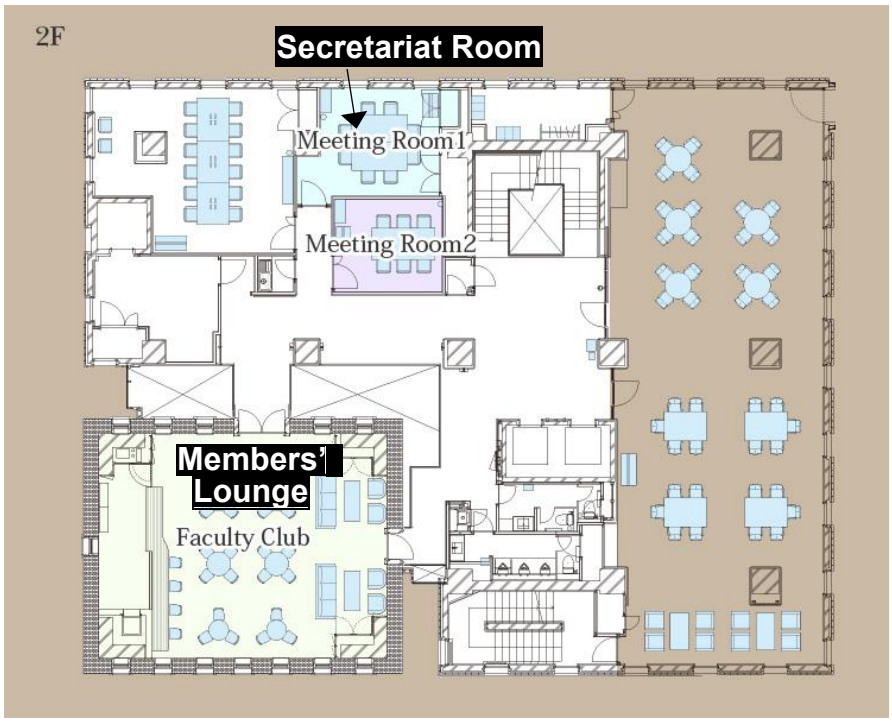
B2 Floor



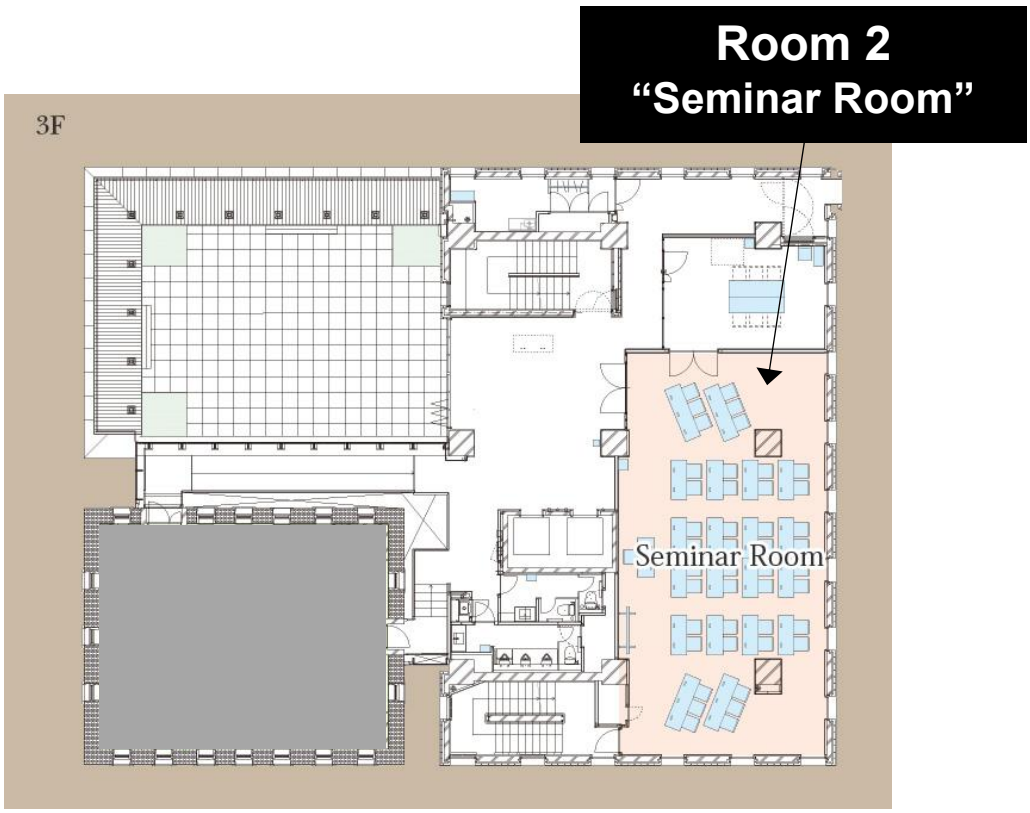
B1 Floor



2nd Floor



3rd Floor



Instruction for Oral Presentation

- Please complete your registration of presentation data at the Data Pre-View Desk, which will be located at the foyer on the B2 floor in front of the Room 1 “Ito Hall”, until 30 min. before your presentation time.
- The open hours of Data Pre-View Desk are as follows.

April 2 (Thursday) 8:15-18:00	April 3 (Friday) 8:15-17:00

- Please be seated at the “next speaker’s seat” at least 10 minutes before your presentation. The seat will be located near the podium.
- The slides which you have submitted in advance for the presentation are prepared on the computer of the podium.
- Your Presentation Time will be announced individually by E-mail.
- After presentation, the discussion time (a question-and-answer session) will be held according to the moderator’s instructions.
- The PC set at the podium is as below.
  ・OS：Windows 11 Pro
  ・PowerPoint：PowerPoint for Microsoft 365 MSO
- Please bring your data by USB memory stick.
- To avoid garbled characters, please use standard font which is originally installed by OS.
- Please put your name on your data file.
- If you bring your movies by data file, please prepare the file which can be played by standard Windows Media Player.
- Backup data by another media should be kept by the presenter.
- The projector’s screen resolution is set at 16:9 FULL HD. Please make your PPT data as such. (4:3 XGA is also projectable with a size smaller, black flamed on both left and right sides).
- Please operate your PPT data by yourself at the podium.
- You can use Presenter View of PPT only if you bring your own PC. It will take a few minutes to set up.
- **Awarding Ceremony: 16:35-16:45 on April 3 (Friday) at Room 1 “Ito Hall”**

<Disclosure of COI>
Regarding the disclosure of conflicts of interest on the second slide, please include one of the slides such as follows. The template is downloadable from the website of APASL Oncology 2026 Tokyo.
https://www.apasl-oncology2026tokyo.org/prg.html#prg-5

<If you bring your own PC>

- Please make sure that your PC has HDMI terminal for monitor output. (Some compact PC needs another connector. In case of that, please carry your own connector.)
- Macintosh and Keynote are acceptable only if you bring your own PC (Please carry your own connector).
- Please bring battery adapter to avoid battery off. Because sometimes a screen saver or power saving system could be a reason for battery off, please set your PC appropriately.

Instruction for Chairs

Please be seated at the “next chair’s seat” at least 10 minutes before the session starts. The seat will be located forward near the stage.
After presentation, the discussion time (a question-and-answer session) will be held according to the moderator’s instructions. The participants will ask questions using the microphone at the conference hall.

If you have any questions, please contact the secretariat below.
We would like to thank you all for your cooperation.

Contact: APASL Oncology 2026 Tokyo Congress Secretariat
Email: info@apasl-oncology2026tokyo.org
Tel: +81-3-6380-0102 Fax: +81-3-6380-0103
URL http://www.apasl-oncology2026tokyo.o

Instruction for Poster Presentation

- Presentation time for each poster: 4 min. presentation + 2 min. discussion = 6 min. total.
- Location: Poster Session will be performed at Gallery 1 & Gallery 2 (B1F), and Event Space (B2F).
- Schedule: Poster Presentation is scheduled as follows.

For Presenter on Day 1 April 2 (Thursday)

Poster Attachment: 8:00-10:00 on April 2 (Thursday)
Poster Viewing: 10:00-18:00 on April 2 (Thursday)
Poster Session: 18:00-19:00 on April 2 (Thursday)
Poster Removal: 19:00-20:30 on April 2 (Thursday)

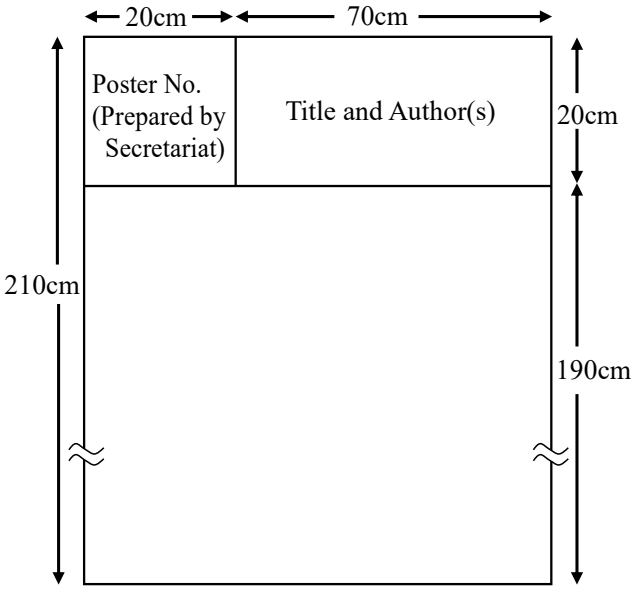
For Presenter on Day 2 April 3 (Friday)

Poster Attachment: 8:00-9:00 on April 3 (Friday)
Poster Viewing: 9:00-15:00 on April 3 (Friday)
Poster Session: 15:00-16:30 on April 3 (Friday)
Poster Removal: 16:30-17:30 on April 3 (Friday)

- For those who have not removed posters until above removal time, please accept that the secretariat will discard any posters that have remained.
- A panel width 90cm×length 210cm will be provided for each poster as the following sample.
- Poster number will be prepared by secretariat.
- Title and author's name are required to be prepared by each presenter.
- Pins for display will be provided at each poster panel.
- **Awarding Ceremony: 16:35-16:45 on April 3 (Friday) at Room 1 "Ito Hall"**

<Disclosure of COI>
Regarding the disclosure of conflicts of interest, please include one of the conflicts of interest disclosure slides using the template which can be downloaded from the website of APASL Oncology 2026 Tokyo. https://www.apasl-oncology2026tokyo.org/prg.html#prg-5

Poster Panel



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We would like to thank you all for your cooperation.

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Tel: +81-3-6380-0102 Fax: +81-3-6380-0103
URL http://www.apasl-oncology2026tokyo.org

Awards

Excellent papers will be awarded as “Presidential Award”, “Young Investigator Award”, and “Best Video Award”. The Awardees will be presented at the Awarding Ceremony for all presenters at 16:45-16:55 on Friday April 3rd at Room 1 “Ito Hall” B2F Ito International Research Center.

Presidential Award

For the most outstanding abstracts across all categories.

Young Investigator Award

For researchers **under 40 years old**, who will attend and present their work in person. These will be selected **from abstracts submitted by December 25, 2025**, to encourage early and high-quality submissions.

Best Video Award

For the most creative and technically outstanding video submission.
All awardees will be **honored during the Closing Ceremony** with official certificates and recognition.

Contact

APASL Oncology 2026 Tokyo Scientific Secretariat

Department of Internal Medicine, Teikyo University Chiba Medical Center, Japan

APASL Oncology 2026 Tokyo Congress Secretariat

c/o Academia Support Japan Email: info@apasl-oncology2026tokyo.org
Tel: +81-3-6380-0102 Fax: +81-3-6380-0103

APASL Oncology 2026 Tokyo Official Website

URL http://www.apasl-oncology2026tokyo.org

APASL Central Office (APASL Secretariat-Tokyo)

Asian Pacific Association for the Study of the Liver [APASL]
1-24-7-920, Shinjuku, Shinjuku-ku, Tokyo, 160-0022 Japan
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Memo

Sponsors and Support Organization

The Organizing Committee of the APASL Oncology 2026 Tokyo would like to express sincere gratitude to the following sponsors and organizations for supporting this conference.

Gold Sponsors

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Support Organizations

The Japan Society of Hepatology
Japan National Tourism Organization

APASL Oncology 2026 Tokyo Program at a Glance Day 1

April 2 (Thursday) 2026

	Room 1 (B2F Ito Hall)	Room 2 (3F Seminar Room)	Poster Area
09:00	8:30- Registration		
	9:00-9:10 **Opening Remarks**		
10:00	9:10-10:40 **Session 1** "Current Management of Intrahepatic & Hilar CCA (I/H-CCA): Combined Treatment Strategies of Biliary Drainage and Anti-Cancer Therapy"	9:10-10:00 **Oral Free Papers 1**	
		10:00-10:40 **Oral Free Papers 2**	
11:00	Coffee Break		
	11:00-11:50 **Session 2** "Beyond irAEs: When Hepatic Toxicity Signals Therapeutic Success?"	11:00-11:50 **Oral Free Papers 3**	
12:00			
	12:00-13:00 **Luncheon Seminar 1** [AbbVie GK]	12:00-13:00 **Luncheon Seminar 2** [Eisai Co., Ltd.]	
13:00			
	13:10-13:30 **Keynote Lecture 1** "APASL and APASL ONCOLOGY"		
14:00	13:30-14:35 **Session 3** "Biliary Drainage Before Chemotherapy: ERCP vs EUS-BD/A - The Gateway to Successful Treatment for I/H CCA"	13:30-14:02 **Late Breaker Session 1**	Poster Viewing
		14:02-14:35 **Late Breaker Session 2**	
	Coffee Break		
15:00	14:50-15:55 **Session 4** "MASLD-Related HCC: From Risk Identification to Pharmacologic Prevention" - Integrating Pathophysiology, Screening, and Intervention for the Next Era of HCC Prevention -"	14:50-15:10 **Late Breaker Session 3**	
		15:10-15:45 **Oral Free Papers 4**	
16:00		15:45-16:10 **Oral Free Papers 5**	
	15:55-16:15 **Special Session** "From Idea to Impact: How Young Hepatologists Build Clinical Research Careers - Launching the APASL - Oncology School: Educating the Next Leaders in Liver Cancer Research -"		
	16:15-16:55 **Keynote Lecture 2** "Medication for Prevention and Treatment"		
17:00			
	17:00-18:00 **Evening Seminar** [Gilead Sciences K.K.]		
18:00			18:00-19:00 **Poster Session**
19:00			
	19:00-20:30 **Welcome Reception** (Event Space, B2F)		

APASL Oncology 2026 Tokyo Program at a Glance Day 2

April 3 (Friday) 2026

	Room 1 (B2F Ito Hall)	Room 2 (3F Seminar Room)	Poster Area
	8:30- Registration		
09:00	9:00-10:30 **Session 5** "Systemic Therapy for HCC: Asia-Pacific Treatment Dynamics"	9:00-10:30 **Video Session**	Poster Viewing
10:00	Coffee Break		
11:00	10:45-11:50 **Session 6** "Surgical Resectability and Liver Transplantation for HCC: Redefining the Boundaries Across Asia"	10:45-11:17 **Oral Free Papers 6** 11:17-11:41 **Oral Free Papers 7**	
12:00	12:00-13:00 **Luncheon Seminar 3** [Chugai Pharmaceutical Co., Ltd.]		
13:00	13:10-13:30 **Keynote Lecture 3** "Overwhelming Number of HCC Cases with Portal Hypertension: Address a Big Challenge"		
14:00	13:30-14:45 **Session 7** "A-HOC Rising: Advancing Hepatocellular Carcinoma Care through Regional Collaboration"	13:30-13:55 **Oral Free Papers 8** 13:55-14:15 **Oral Free Papers 9** 14:15-14:45 **Oral Free Papers 10**	
	Coffee Break		
15:00	15:00-16:05 **Session 8** "Image-Guided Interventions for HCC: Regional Practice, Education, and Future Directions"	15:00-15:32 **Young Investigator Award 1** 15:32-16:05 **Young Investigator Award 2**	15:00-16:30 **Poster Session**
16:00	16:05-16:35 **Plenary Session**		
	16:35-16:50 **Awarding Ceremony, Closing Remarks**		
17:00			

As of March 7, 2026

*The program is subject to change.

APASL Oncology 2026 Tokyo

"Treatment Dynamics of Liver Tumors"

Scientific Program

APASL Oncology 2026 Tokyo Scientific Program

DAY 1, April 2 (Thursday) 2026

Room 1 “Ito Hall” B2F

9:00-9:10 **OPENING CEREMONY**

Opening Remarks: Dr. Shuntaro Obi, President of APASL Oncology 2026 Tokyo

9:10-10:40 **SESSION 1**

“Current Management of Intrahepatic & Hilar CCA (I/H-CCA): Combined Treatment Strategies of Biliary Drainage and Anti-Cancer Therapy”

Session focus

This session explores the evolving management of cholangiocarcinoma, covering systemic therapy, multidisciplinary strategies, and clinical challenges in optimizing treatment outcomes.

Moderators: Dr. Jae Hee Cho (Korea), Dr. Hiroyuki Isayama (Japan), Dr. Hirofumi Kogure (Japan)

S1-1 Biliary Drainage and Anti-tumor Therapy for I/H-CCA: Real-World Sequencing in Asia
Dr. Jae Hee Cho (Korea)

S1-2 Endoscopic Management of Biliary Obstruction in I/H-CCA
Dr. Hirofumi Kogure (Japan)

S1-3 IO-Based Chemotherapy and Matched Therapy in I/H-CCA: What’s New and When to Start?
Dr. Takashi Sasaki (Japan)

S1-4 Consideration of Treatment Dynamics of I/H CCA from Tokyo Criteria
Dr. Hiroyuki Isayama (Japan)

S1-5 Molecular Basis of Intrahepatic Cholangiocarcinogenesis and Its Therapeutic Implications
Dr. Hiroaki Fujiwara (Japan)

S1-6 Landscape of the Biliary Cancer-Field Elucidated by Minute Dissection-Based Molecular Mapping: Opening A New Path to Early Diagnosis
Dr. Yusuke Kouchi (Japan)

Discussion: Integrating Drainage, Pathology, and Systemic Therapy - What Is the Optimal Sequence?

10:40-11:00 **COFFEE BREAK**

11:00-11:45 **SESSION 2**

“Beyond irAEs: When Hepatic Toxicity Signals Therapeutic Success?”

Session focus

This session explores whether hepatic immune-related toxicity during immunotherapy represents a harmful adverse event or a biological signal of treatment response.

Moderators: Dr. Tatsuo Kanda (Japan), Dr. Sadahisa Ogasawara (Japan), Dr. Tomoharu Yamada (Japan)

S2-1 Beyond the Storm: Life After irAEs–The Hepatic Frontier
Dr. Sadahisa Ogasawara (Japan)

S2-2 Hepatic irAEs and Survival Benefit: What We Learned from 924 Patients
Dr. Tatsuo Kanda (Japan)

S2-3 Innovative Bridging Therapies for HCC: From Transarterial Chemoembolization to Immune Checkpoint Inhibitors
Dr. Tomoharu Yamada (Japan)

Discussion: irAE=Favorable Prognostic Marker or Selection Bias?

12:00-13:00 **LUNCHEON SEMINAR 1 (AbbVie GK)**

“Accelerating Treatment Dynamics: Pan-Genotypic DAA and Beyond”

Moderator: Dr. Naoki Morimoto (Japan)

LS1-1 Hepatocellular Carcinoma and Remaining Clinical Issues in the HCV Eradication Era
Dr. Atsushi Hiraoka (Japan)

LS1-2 Treatment, Retreatment, and Post-Treatment Challenges of Maviret for HCV
Dr. Nobuharu Tamaki (Japan)

13:10-13:30 **KEYNOTE LECTURE 1**

“APASL and APASL ONCOLOGY”

Session focus

This keynote lecture presents the vision and future direction of APASL and APASL Oncology in advancing liver disease and liver cancer research across the Asia–Pacific region. It highlights the importance of regional collaboration, innovation, and leadership in addressing the evolving challenges of liver oncology.

Moderator: Dr. Shuntaro Obi (Japan)

Speaker: Dr. Masao Omata (Japan)

13:30-14:35 **SESSION 3**

“Biliary Drainage Before Chemotherapy: ERCP vs EUS-BD/A - The Gateway to Successful Treatment for I/H CCA”

Session focus

Optimal biliary drainage is crucial before systemic therapy for biliary tract cancers. This session compares ERCP and EUS-guided drainage strategies and discusses their clinical impact on treatment success.

Moderators: Dr. Rungsun Rerknimitr (Thailand), Dr. Yousuke Nakai (Japan), Dr. Naoki Sasahira (Japan)

S3-1 Video Lecture 1: Step-by-step ERCP for Malignant Biliary Obstruction before Chemotherapy

Dr. Rungsun Rerknimitr (Thailand)

S3-2 Video Lecture 2: EUS-guided Biliary Drainage/Anastomosis: Technical Pearls and Pitfalls

Dr. Sabro Matsubara (Japan)

S3-3 Does Quality of Biliary Drainage Affect Safety and Efficacy of Chemotherapy?

Dr. Yousuke Nakai (Japan)

S3-4 ERCP vs. EUS-BD/A ~Which should be the First-line Drainage? (Pro-ERCP)

Dr. Suguru Mizuno (Japan)

S3-5 Which should be First-line Drainage? Pro-EUS
Dr. Kazuo Hara (Japan)

Discussion

14:35-14:50 **COFFEE BREAK**

14:50-15:55 **SESSION 4**

"MASLD-Related HCC: From Risk Identification to Pharmacologic Prevention –Integrating Pathophysiology, Screening, and Intervention for the Next Era of HCC Prevention–"

Session focus

With MASLD emerging as a major driver of hepatocellular carcinoma, this session highlights new insights into disease mechanisms, risk prediction, and potential strategies for prevention and early intervention.

Moderators: Dr. Yujin Hoshida (USA), Dr. Diana A. Payawal (Philippines), Dr. Takumi Kawaguchi (Japan)

S4-1 Epidemiologic Trends and Risk Factors for MASLD-related HCC in Asia
Dr. Diana A. Payawal (Philippines)

S4-2 Synergistic AI Approaches for Precision HCC Risk Stratification in MASLD: From Digital Pathology to Clinical Trajectory Prediction
Dr. Takuma Nakatsuka (Japan)

S4-3 Fibrosis, Stiffness Dynamics, and Cancer Risk: Lessons from MASLD Clinical Practice
Dr. Taeang Arai (Japan)

S4-4 Molecular Mechanisms of MASLD-related Hepatocarcinogenesis and Therapeutic Interception
Dr. Hayato Nakagawa (Japan)

S4-5 Pharmacologic Prevention of MASLD-related HCC: From SGLT2 Inhibitors to Next-Generation Metabolic Modulators
Dr. Takumi Kawaguchi (Japan)

Panel Discussion: "Integrating Translational Insights into Clinical Prevention"

15:55-16:15 **Special Session**

“From Idea to Impact: How Young Hepatologists Build Clinical Research Careers —Launching the APASL-Oncology School: Educating the Next Leaders in Liver Cancer Research—”

Session focus

This session provides guidance for early-career hepatologists on developing impactful clinical research careers, fostering international collaboration, and nurturing the next generation of liver cancer investigators.

Moderator: Dr. Shuntaro Obi (Japan)

SS-1 From Clinical Questions to Practice-Changing Evidence: Educating the Next Leaders in Liver Cancer Research in Asia-Pacific
Dr. Ryosuke Tateishi (Japan)

SS-2 Competing on the Global Stage: Strategies for Young Investigators in Hepatology
Dr. Yujin Hoshida (USA)

16:15-16:55 **Keynote Lecture 2**

“New Horizons in Pharmacologic Prevention and Systemic Therapy for Liver Cancer”

Session focus

This keynote session highlights emerging pharmacologic strategies that may reshape the prevention and treatment of liver cancer. From metabolic-targeted therapies in MASLD/MASH to precision oncology integrating genomic profiling and immunotherapy, the session explores new horizons in liver cancer therapeutics.

Moderator: Dr. Masao Omata (Japan)

KL2-1 FGF21 Analogs in MASLD/MASH: From Metabolic Remodeling to Fibrosis Reversal and HCC
Risk Modification
Dr. Motoyuki Otsuka (Japan)

KL2-2 Anti-cancer Medication on Horizon: Genomic Profiling and Immunotherapy Integration
Dr. Shigehisa Kitano (Japan)

17:00-18:00 **EVENING SEMINAR (Gilead Sciences K.K.)**

Moderator: Dr. Masao Omata (Japan)

ES Twilight of HCV-Related HCC: A Decade of Interferon-Free Revolution in Japan
Dr. Takahiro Kodama (Japan)

18:00-19:00 **POSTER SESSIONS at "Gallery 1&2" B1F, and "Event Space" B2F**

19:00-20:30 **WELCOME RECEPTION at "Event Space" B2F**

APASL Oncology 2026 Tokyo Scientific Program

DAY 1, April 2 (Thursday) 2026

Room 2 “Seminar Room” 3F

9:10-10:00 **FREE PAPER SESSION 1**

“Prevention and Surveillance of Hepatocellular Carcinoma Across Viral and Non-Viral Liver Diseases”

Moderators: Dr. Yoshinari Asaoka (Japan), Dr. Takeshi Hatanaka (Japan)

FPS1-1 10053

Implementing Community-Based Hepatitis B Screening and Hepatocellular Carcinoma Screening in Resource-Limited Settings: A Qualitative Evaluation of Thailand's EZ Liver Network

Dr. Passakorn Wanchaijiraboon (Thailand)

FPS1-2 10223

A Large-Center Comparison of Hepatocellular Carcinoma Characteristics in Hepatitis C Patients Treated with Direct-Acting Antivirals Versus Untreated Patients

Dr. Mohamed Abdel-Samiee (Egypt)

FPS1-3 10107

Reduced Performance of Alpha-fetoprotein in Sustained Virological Response-related and Non-viral Early Hepatocellular Carcinoma: Complementary Value of PIVKA-II

Dr. Yuji Ikeda (Japan)

FPS1-4 10131

Clinical Characteristics and Surveillance Impact on Non-Viral Hepatocellular Carcinoma: A 20-Year Observational Study

Dr. Katsuya Nagaoka (Japan)

FPS1-5 10118

Integrative Clinical and Molecular Risk Score for Prevention of HBV-related HCC

Dr. Hiroyuki Suzuki (USA)

FPS1-6 10120

Serum Biomarker-based Score to Evaluate HCC Risk in HCV-cured Patients

Dr. Hiroaki Kanzaki (USA)

10:00-10:40 **FREE PAPER SESSION 2**

“Contemporary and Emerging Issues in Hepatocellular Carcinoma”

Moderators: Dr. Kaoru Tsuchiya (Japan), Dr. Tomoharu Yamada (Japan)

FPS2-1 10123

Hepatocellular Carcinoma Stage, Treatment Patterns, and Survival Outcomes in a Contemporary Multicentre International Cohort

Dr. Yin Min Hwang (Singapore)

FPS2-2 10091

Development and Validation of a Deep Learning Model to Prognosticate Hepatocellular Carcinoma

Dr. Juequn Zhou (Singapore)

FPS2-3 10122

Young Onset Hepatocellular Carcinoma Presents at Advanced Stage with Limited Treatment Options

Dr. Amruthavarshini Nagabhushana (India)

FPS2-4 10136

Environmental Exposure to Cadmium, Lead, and Mercury as a Public Health Risk Factor for Hepatocellular Carcinoma

Dr. Ankush Kumar (India)

FPS2-5 10151

Feasibility and Safety of Hepatic Rehabilitation in HCC Patients with Decompensated Cirrhosis

Dr. Takumi Kawaguchi (Japan)

10:45-11:00 **COFFEE BREAK**

11:00-11:50 **FREE PAPER SESSION 3**

“Translational Insights in Biliary Tract Cancers: Tumor Biology, Biomarkers, and Clinical Implications”

Moderators: Dr. Takashi Sasaki (Japan), Dr. Natsuyo Yamamoto (Japan)

FPS3-1 10011

Aging-Driven Immunosuppressive Remodeling of the Tumor Microenvironment in

Gallbladder Cancer: Insights from Single-Cell Transcriptomics
Dr. Lei Kong (China)

FPS3-2 10144
KLF5 Mediates a Galectin1-FBP1-RAS/ERK Cascade to Drive Proliferation and Migration in Intrahepatic Cholangiocarcinoma
Dr. Xing Yu (China)

FPS3-3 10167
Lactylation of PPP1CA at K305 Promotes Lymph Node Metastasis in Intrahepatic Cholangiocarcinoma by Sustaining TGF-β Signaling
Dr. Yuheng Hu (China)

FPS3-4 10202
Epigenetic Silencing of PTEN as a Prognostic and Translational Biomarker in Periampullary Adenocarcinoma
Dr. Asgar Ali (India)

FPS3-5 10184
Prognostic Impact of Adipose Tissue Volume in Unresectable Biliary Tract Cancer Treated with Gemcitabine, Cisplatin, and Immunotherapy
Dr. Tsuyoshi Takeda (Japan)

FPS3-6 10172
Feasibility and Safety of Endoscopic Ultrasound-guided Tissue Acquisition for Biliary Lesions
Dr. Keito Nakagawa (Japan)

12:00-13:00 **LUNCHEON SEMINAR 2 (Eisai Co., Ltd.)**

“Future Multidisciplinary Treatment Strategies Based on Therapeutic Goals and Tumor Status”
Moderator: Dr. Masafumi Ikeda (Japan)

LS2-1 Deepening and Advancing Multidisciplinary Treatment for Hepatocellular Carcinoma: Tumor Status–Based Approaches Combining Lenvatinib and Interventional Radiology
Dr. Nobuhito Taniki (Japan)

LS2-2 Optimizing Drug Sequencing and Integrated Strategies in Hepatocellular Carcinoma: Maximizing the Therapeutic Potential of Lenvatinib in the ICI Era
Dr. Teiji Kuzuya (Japan)

13:30-14:02 **LATE BREAKER SESSION 1**

"Immunobiology and Translational Insights in Liver Cancer"
Moderators: Dr. Hideaki Ijichi (Japan), Dr. Ryota Masuzaki (Japan)

LBS1-1 10248
HLA-DR$^+$ Tumor Cells Mimic Antigen-presenting Cells to Mediate Immunosuppression in HBV-related Hepatocellular Carcinoma
Dr. Wenjing Yuan (China)

LBS1-2 10236
High Ammonia Promotes EHHADH-dependent Pyrimidine Degradation to Induce Inflammatory Cell Death in HCC
Dr. Jinhui Wei (China)

LBS1-3 10239
Sarcomatoid Transformation is Associated with Immunosuppressive Remodeling in Hepatocellular Carcinoma
Dr. Ryo Morisue (Japan)

LBS1-4 10254
Bile-based Liquid Biopsy for Diagnosis and Therapeutic Stratification of Biliary Strictures
Dr. Hiroshi Ohyama (Japan)

14:02-14:35 **LATE BREAKER SESSION 2**

"Precision Decision-Making and Treatment Strategies in Hepatobiliary Cancer"
Moderators: Dr. Yoshihiro Hirata (Japan), Dr. Hideo Yoshida (Japan)

LBS2-1 10246
Large Language Models Underperform Multidisciplinary Teams for Hepatocellular Carcinoma Treatment Decisions Despite Escalating Prompting Strategies: A Prospective Study
Dr. Amith Vishwanath (India)

LBS2-2 10272

Causal Machine Learning-Guided Personalized Immunochemotherapy Strategies in Intrahepatic Cholangiocarcinoma

Dr. Jun-Hao Mei (China)

LBS2-3 10232

NEO-ERA-01: A phase II Study of Neoadjuvant HAIC (GEMOX) Plus Adebrelimab and Lenvatinib in High-risk Resectable Intrahepatic Cholangiocarcinoma

Dr. Jianhua Rao (China)

LBS2-4 10250

Stage-dependent Liver Stiffness Resolution after HCV SVR: a Longitudinal 8-year Follow-up Study

Dr. Shuntaro Obi (Japan)

14:35-14:50 **COFFEE BREAK**

14:50-15:10 **LATE BREAKER SESSION 3**

“Precision Decision-Making and Treatment Strategies in Hepatobiliary Cancer”

Moderators: Dr. Yoshihiro Hirata (Japan), Dr. Hideo Yoshida (Japan)

LBS3-1 10241

Efficacy and Safety of Postoperative Adjuvant Donafenib Therapy in Patients with High-risk Recurrence after Radical Resection of Hepatocellular Carcinoma: A Multicenter Retrospective Study

Dr. Jianhua Rao (China)

LBS3-2 10273

The Risk of Decompensation in Steatotic Liver Disease-related Hepatocellular Carcinoma after Curative Treatment

Dr. Yuki Matsushita (Japan)

15:10-15:45 **FREE PAPER SESSION 4**

Stress Adaptation and Tumor Evolution in Hepatocellular Carcinoma

Moderators: Dr. Kazuya Okushin (Japan), Dr. Yasuo Tanaka (Japan)

FPS4-1 10094

MicroRNA-199a-5p Disrupts Unfolded Protein Response-mediated Stress Adaptation in

Hepatocellular Carcinoma Cells
Dr. Chaiyaboot Ariyachet (Thailand)

FPS4-2 10108
Dynamic Regulation of Membrane Fluidity Drives Tumor Evolution and Attenuates TNF alpha-Mediated Apoptosis in Hepatocellular Carcinoma
Dr. Boqiang Liu (China)

FPS4-3 10162
AARS1 Promotes Tumor Progression and Immune Evasion through ATF6 Lactylation-driven Tryptophan Metabolism in Hepatocellular Carcinoma
Dr. Yiming Wang (China)

FPS4-4 10178
Dfna5-dependent Hepatocyte Death Promotes Inflammatory TNF Signaling in Kupffer Cells to Drive Hepatocarcinogenesis
Dr. Tomoya Hamabe (Japan)

15:45-16:10 **FREE PAPER SESSION 5**

"Tumor–Immune Interactions and Translational Targets in Hepatocellular Carcinoma"
Moderators: Dr. Jun Arai (Japan), Dr. Naoki Morimoto (Japan)

FPS5-1 10100
Natural Killer Cell Drives Liver Cancer Evolution Through Cholesterol Metabolism Reprogramming
Dr. Liang Shi (China)

FPS5-2 10147
A Fe-Curcumin-based Strategy to Reinvigorate CAR-T Cells by Reversing Exhaustion and Senescence in Liver Cancer
Dr. Yuchan Xue (China)

FPS5-3 10119
Reverse-engineering Strategy Identified DDR1 as HCC Chemoprevention Target Post HCV Cure
Dr. Hiroaki Kanzaki (USA)

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DAY 2, April 3 (Friday) 2026

Room 1 “Ito Hall” B2F

9:00-10:30 **SESSION 5**

“Systemic Therapy for HCC: Asia-Pacific Treatment Dynamics”

Session focus

With an expanding range of systemic therapy options for hepatocellular carcinoma, treatment strategies are becoming increasingly complex. This session presents perspectives from across the Asia–Pacific region on first-line selection, treatment sequencing, and the emerging role of biomarkers in guiding personalized therapy.

Moderators: Dr. Yi-Hsiang Huang (Taiwan), Dr. Masatoshi Kudo (Japan), Dr. Ryosuke Tateishi (Japan)

S5-1 **Systemic Therapy for Unresectable Hepatocellular Carcinoma-2026 and Beyond**
Dr. George Lau (Hong Kong SAR, China)

S5-2 **Mainland China Perspective: Access, Sequence, and New Combination Strategies**
Dr. Lai Wei (China)

S5-3 **Taiwan Experience: Balancing TKI, ICI, and Real-world Constraints**
Dr. Yi-Hsiang Huang (Taiwan)

S5-4 **Systemic Therapy for Advanced Hepatocellular Carcinoma in the Era of Combination Immunotherapy: Real-world Treatment Sequences and Outcomes from the HERITAGE Study**
Dr. Yoshinari Asaoka (Japan)

S5-5 **How Do We Sequence Systemic Therapy in Daily Practice?**
Dr. Sadahisa Ogasawara (Japan)

S5-6 **Systemic Therapy Biomarkers: Translating Molecular Signatures into Clinical Decisions**
Dr. Takahiro Kodama (Japan)

S5-7 **The Evolving Landscape of Systemic Therapy**
Dr. Ryosuke Tateishi (Japan)

Discussion

10:30-10:45 **COFFEE BREAK**

10:45-11:50 **SESSION 6**

“Surgical Resectability and Liver Transplantation for HCC: Redefining the Boundaries Across Asia”

Session focus

Surgical resection and liver transplantation remain key curative options for hepatocellular carcinoma, yet their indications continue to evolve. This session explores how resectability and transplant eligibility are defined across Asia, highlighting emerging concepts such as borderline resectable HCC and strategies to optimize outcomes in liver transplantation.

Moderators: Dr. Itsuko Chih-Yi Chen (Taiwan), Dr. Etsuro Hatano (Japan), Dr. Kiyoshi Hasegawa (Japan)

S6-1 The Experience of Liver Transplantation for HCC in Qingdao
Dr. Cai Jinzhen (China)

S6-2 Optimizing Outcomes of Living Donor Liver Transplantation for Hepatocellular Carcinoma
Dr. Itsuko Chih-Yi Chen (Taiwan)

S6-3 How We Define Resectability of HCC in Practice
Dr. Junichi Shindo (Japan)

S6-4 The Concept of Borderline Resectable HCC: Japanese Perspective
Dr. Etsuro Hatano (Japan)

Discussion

12:00-13:00 **LUNCHEON SEMINAR 3 (Chugai Pharmaceutical Co., Ltd.)**

“Five-Year Experience of Atezolizumab plus Bevacizumab for HCC: Clinical Insights and Future Strategies”

Moderator: Dr. Masafumi Ikeda (Japan)

LS3-1 Optimizing Atezolizumab-Bevacizumab Therapy for HCC: Real-World Evidence from 5-Year Multicenter Analysis of 1,200 Cases
Dr. Joji Tani (Japan)

LS3-2 How to Optimize Atezolizumab plus Bevacizumab for Real-World HCC: Sequencing, Early Biomarkers, and On-Demand Add-On TACE
Dr. Teiji Kuzuya (Japan)

13:10-13:30 **KEYNOTE LECTURE 3**

"Overwhelming Number of HCC Cases with Portal Hypertension: Address a Big Challenge"

Session focus

Portal hypertension remains one of the greatest challenges in the management of hepatocellular carcinoma across the Asia–Pacific region. In this keynote lecture, Professor Shiv K. Sarin shares insights from decades of clinical experience on how portal hypertension influences treatment decisions and outcomes in patients with HCC.

Moderators: Dr. Masao Omata (Japan), Dr. Shuntaro Obi (Japan)
Speaker: Dr. Shiv K Sarin (India)

13:30-14:45 **SESSION 7**

"A-HOC Rising: Advancing Hepatocellular Carcinoma Care through Regional Collaboration"

Session focus

This session introduces the Asian Hepatocellular Carcinoma Outcomes Consortium (A-HOC), a collaborative initiative designed to advance liver cancer research through regional data sharing and multidisciplinary partnership across Asia. By connecting investigators and harmonizing clinical datasets, A-HOC aims to create new research opportunities, particularly for young investigators, and to build a sustainable platform for future collaborative studies in hepatocellular carcinoma.

Moderators: Dr. Amarsanaa Jazag (Mongolia), Dr. Motoyuki Otsuka (Japan), Dr. Ryousuke Tateishi (Japan)

S7-1 What is A-HOC? Consortium Vision, Structure, and Activities: APASL Oncology = Platform for A-HOC Expansion
Dr. Shuntaro Obi (Japan)

S7-2 Building a Unified HCC Dataset: Turkey's Contribution to A-HOC's Regional Evidence Platform
Dr. A. Kadir Dokmeci (Turkey)

S7-3 A-HOC Data: Creating New Research Opportunities for Young Investigators
Dr. Yasuto Takeuchi (Japan)

S7-4 **Country Spotlight: HCC Practice and Data Needs in Mongolia**
Dr. Amarsanaa Jazag (Mongolia)

S7-5 **Uniting Islands, Uniting Data: Indonesia's Role in the A-HOC Network**
Dr. Rino Gani (Indonesia)

S7-6 **Empowering Regional Collaboration and Education: Thailand's Role in A-HOC**
Dr. Teerha Piratvisuth (Thailand)

Discussion
Comment by Dr. Masao Omata (As founder)

14:45-15:00 **COFFEE BREAK**

15:00-16:05 **SESSION 8**

"Image-Guided Interventions for HCC: Regional Practice, Education, and Future Directions"

Session focus

Image-guided therapies continue to play a central role in hepatocellular carcinoma treatment. This session explores regional experiences in ablation, embolization, and radiation-based interventions, while highlighting innovations, training strategies, and future directions in interventional oncology.

Moderators: Dr. Kai-Wen Huang (Taiwan), Dr. Shuichiro Shiina (Japan), Dr. Toshihiro Tanaka (Japan)

S8-1 **Dissemination and Education of RFA and MWA in the Asia-Pacific Region**
Dr. Shuichiro Shiina (Japan)

S8-2 **Local Ablation for HCC: Training and Skill Advancement in Taiwan**
Dr. Kai-Wen Huang (Taiwan)

S8-3 **ReMAP-Based Transarterial Embolization: Toward Personalized IVR**
Dr. Toshihiro Tanaka (Japan)

S8-4 **The Evolution of Hepatic Arterial Infusion Chemotherapy for Advanced Hepatocellular Carcinoma: Multidisciplinary Strategies in the Era of Chemo-diversity**
Dr. Hideki Iwamoto (Japan)

S8-5 Heavy Ion Radiotherapy for HCC: A New Frontier in Interventional Oncology
Dr. Hirokazu Makishima (Japan)

Discussion

16:05-16:35 **PRESIDENTIAL PLENARY SESSION**

"Best Research from APASL Oncology 2026"

Session focus

This plenary session features the highest-scoring presentations selected from the conference. The Presidential Award and Young Investigator Award lectures highlight outstanding research and emerging leaders shaping the future of liver oncology.

Moderators: Dr. Yasuhito Tanaka (Japan), Dr. Keisuke Tateishi (Japan)

PS-1 10177 PRESIDENTIAL AWARD
Plasma TWEAK as a Predictive Biomarker of Response to Tremelimumab plus Durvalumab in Advanced Hepatocellular Carcinoma
Dr. Takeru Hirao (Japan)

PS-2 10130 PRESIDENTIAL AWARD
Surgical Benefit and Futility in Borderline Resectable Hepatocellular Carcinoma: A Multicenter Study
Dr. Norifumi Iseda (Japan)

PS-3 10003 YOUNG INVESTGATOR AWARD
The First Application and Feasibility Assessment of 5G-enabled Remote Robot-assisted Hepatobiliary and Pancreatic Surgery in Patients with Malignant Tumors
Dr. Xingru Wang (China)

16:35-16:50 **AWARDING & CLOSING CEREMONY**

APASL Oncology 2026 Tokyo Scientific Program

DAY 2, April 3 (Friday) 2026

Room 2 “Seminar Room” 3F

9:00-10:30 **VIDEO SESSION**

“Mastering Complex Hepato-Biliary Procedures: Pitfalls, Navigation, and Advanced Minimally Invasive Techniques”

Session focus

Seeing is learning. This special video session showcases expert techniques in complex hepatobiliary surgery and advanced minimally invasive procedures, highlighting operative pitfalls, anatomical navigation, and innovative approaches that are shaping the future of hepato-biliary intervention.

Moderators: Dr. Hiroaki Nagano (Japan), Dr. Masayuki Otsuka (Japan)

VS-1 10073 YOUNG INVESTGATOR AWARD

Pitfalls in Posterior Sectionectomy and S7 Segmentectomy Focusing on the Running Pattern of the Right Posterior Inferior Portal Branch (P6a) and Portal Vein Branching Anatomy

Dr. Gakushi Kitamura (Japan)

VS-2 10074 BEST VIDEO AWARD

Surgical Strategy for Laparoscopic Right Intersectional Plane Resection in Right Anterior/Posterior Sectionectomy and S7/S8 Segmentectomy, Based on the Courses of P6a and the Right Hepatic Vein

Dr. Yusuke Yamamoto (Japan)

VS-3 10004

Infrared Laser-guided Laparoscopic Portal Vein Drainage Area Anatomic Liver Resection Using ICG Positive Staining

Dr. Xingru Wang (China)

VS-4 10077

Optimizing Specimen Extraction in Laparoscopic Resection of Giant Liver Tumors Using a Pfannenstiel Incision

Dr. Rie Shibata (Japan)

VS-5 10143

Advanced Minimally Invasive Hepatectomy Through Standardized Hepatic Vein Control-Translating Laparoscopic Strategies to Robotic Surgery -

Dr. Taisuke Imamura (Japan)

VS-6 10069

Initial Experience with Robot-assisted Liver Resection Using the da Vinci SP System

Dr. Mei Nakamura (Japan)

VS-7 10090

EUS-Guided Portal Vein Sampling as a Novel Liquid Biopsy Approach for Pancreatic Cancer

Dr. Hiroki Yamana (Japan)

10:30-10:45 **COFFEE BREAK**

10:45-11:17 **FREE PAPER SESSION 6**

“Patient Selection and Risk Stratification for Systemic Therapy in Advanced Hepatocellular Carcinoma”

Moderators: Dr. Toru Arano (Japan), Dr. Tatsuya Minami (Japan)

FPS6-1 10038

Clinical Characteristics of Combination Immunotherapy in Elderly Patients with Unresectable Hepatocellular Carcinoma

Dr. Chikako Nagao (Japan)

FPS6-2 10064

Prognostic Value of Combined Child– Pugh Score and Modified Albumin– Bilirubin Grade in Unresectable Hepatocellular Carcinoma Treated with Atezolizumab plus Bevacizumab

Dr. Tomonao Taira (Japan)

FPS6-3 10106

Association of Lenvatinib Pharmacokinetics with mALBI in Hepatocellular Carcinoma and Evaluation of Efficacy and Safety

Dr. Yumi Otoyama (Japan)

FPS6-4 10139

Regional Lymph Node Metastasis in Hepatocellular Carcinoma Treated with Immune-based

Systemic Therapy: Prognostic Significance and Implications for Clinical Staging
Dr. Qian Chen (China)

11:17-11:50 **FREE PAPER SESSION 7**

"Combination and Multimodal Strategies for Advanced Hepatocellular Carcinoma with Vascular Invasion"
Moderators: Dr. Hiroaki Nagamatsu (Japan), Dr. Hiroyoshi Taniguchi (Japan)

FPS7-1 10097
Should Transarterial Chemoembolization Be Applied with Systemic Therapy for Hepatocellular Carcinoma with Hepatic Vein and/or Inferior Vena Cava Tumor Thrombus: A Multicenter Study
Dr. Long-Wang Lin (China)

FPS7-2 10160
Real-World Outcomes of Sequential Transarterial Chemoembolization followed by Atezolizumab-Bevacizumab in Patients with Advanced Hepatocellular Carcinoma
Dr. Soe Thiha Maung (Thailand)

FPS7-3 10183
Efficacy of Combined Three-Dimensional Conformal Radiotherapy and Hepatic Arterial Infusion Chemotherapy for Unresectable Hepatocellular Carcinoma with Major Vascular Invasion
Dr. Joji Tani (Japan)

13:30-13:55 **FREE PAPER SESSION 8**

"Surgical Decision-Making in Hepatocellular Carcinoma: Who, When, and How Far?"
Moderators: Dr. Yoshikuni Kawaguchi (Japan), Dr. Keiji Sano (Japan)

FPS8-1 10111
Prognostic Impact of the Oncological Resectability Criteria in Patients Undergoing Liver Resection for Hepatocellular Carcinoma
Dr. Hayato Abe (Japan)

FPS8-2 10078
Surgical Outcomes and Treatment Strategies for Solitary Giant Hepatocellular Carcinoma
Dr. Atomu Suzuki (Japan)

FPS8-3 10146

Association between Prophylactic Antibiotics and Post-ablation Infections in Hepatocellular Carcinoma Patients: A Retrospective Multicenter Cohort Study

Dr. Ting Luo (China)

13:55-14:15 **FREE PAPER SESSION 9**

"Locoregional Approaches in Hepatocellular Carcinoma: From Treatment Response to Hemodynamic Management"

Moderators: Dr. Yukihiro Koike (Japan), Dr. Ryota Masuzaki (Japan)

FPS9-1 10076

PIVKA-II Monitoring to Predict Response to the First Transarterial Chemoembolization (TACE) in Intermediate-Stage Hepatocellular Carcinoma

Dr. Chitchai Rattananukrom (Thailand)

FPS9-2 10158

Role of Transjugular Intrahepatic Portosystemic Shunt (TIPS) in Refractory Gastrointestinal Bleeding inHepatocellular Carcinoma Patients with Portal Vein Thrombosis: A Prospective Cohort Study

Dr. Atteyat Semeya (Saudi Arabia)

14:15-14:45 **FREE PAPER SESSION 10**

"Imaging and Radiation in Hepatocellular Carcinoma: From Diagnosis to Therapeutic Synergy"

Moderators: Dr. Takamasa Ohki (Japan), Dr. Toshihiro Tanaka (Japan)

FPS10-1 10029

Development of Novel Deep Multimodal Representation Learning-based Model for the Differentiation of Liver Tumors on B-Mode Ultrasound Images

Dr. Masaya Sato (Japan)

FPS10-2 10204

Dissociation Between Multiphasic CT-Defined Tumor Burden and Endoscopic Portal Hypertension Severity in Cirrhotic and Non-Cirrhotic Hepatocellular Carcinoma

Dr. Aldisa Puspitasari (Indonesia)

FPS10-3 10210

Stereotactic Body Radiotherapy Enhances the Efficacy of Nivolumab in Advanced Hepatocellular Carcinoma: A Comparative Cohort Analysis

Dr. Phool Chand (India)

14:45-15:00 **COFFEE BREAK**

15:00-15:32 **YOUNG INVESTIGATOR AWARD SESSION 1**

"Rising Stars in Liver Oncology: Mechanisms, Metabolism, and the Tumor Microenvironment"

Session focus

This session highlights innovative mechanistic and translational research led by emerging investigators in liver oncology, exploring tumor metabolism, immune regulation, and novel therapeutic strategies.

Moderators: Dr. Shin Maeda (Japan), Dr. Suguru Mizuno (Japan)

YIA1-1 10013

Repurposing Resmetirom Suppresses MASH-associated Hepatocellular Carcinoma, with Mechanistic Implications of MDK/LRP1-mediated Metabolic Reprogramming and Immunosuppression

Dr. Vanilla Xin Zhang (Hong Kong)

YIA1-2 10017

Transitional Hepatocytes and Immunosuppressive Macrophages Drive NASH-Associated Liver Cancer Revealed by Single-Cell Transcriptomics

Dr. Firdian Makrufardi (Indonesia)

YIA1-3 10047

Gemcitabine Modulates the Tumor Immune Microenvironment to Enhance Response to Immune-checkpoint Inhibitors in Biliary Tract Cancer

Dr. Kenji Nose (Japan)

YIA1-4 10065

Strategic Integration of Locoregional Interventions to Optimize Survival Outcomes following First-line ICI Combinations in Advanced Hepatocellular Carcinoma

Dr. Masaki Omori (Japan)

15:32-16:05 **YOUNG INVESTIGATOR AWARD SESSION 2**

"Rising Stars in Liver Oncology: Clinical Prediction, Risk Stratification, and Real-World Challenges"

Session focus

This session showcases young investigators addressing key clinical challenges in liver oncology, including biomarker development, treatment-related complications, and risk prediction in real-world practice.

Moderators: Dr. Shin Maeda (Japan), Dr. Suguru Mizuno (Japan)

YIA2-1 10020

Impact of Antihypertensive Drug Selection on Proteinuria Risk During Atezolizumab Plus Bevacizumab Therapy for Hepatocellular Carcinoma

Dr. Takashi Kitagataya (Japan)

YIA2-2 10060

Pretreatment Serum Heparin-Binding Protein as a Predictive Biomarker for Atezolizumab Plus Bevacizumab Therapy in Advanced Hepatocellular Carcinoma

Dr. Satoshi Narahara (Japan)

YIA2-3 10041

Novel Risk Score Incorporating Type-IV Collagen, Albumin, and Prothrombin Time (CAP score) to Predict 180-Day Surgery-Related Mortality After Liver Resection for Hepatocellular Carcinoma

Dr. Tomoaki Hayakawa (Japan)

YIA2-4 10070

Unexpected Rapid Progression of Hepatocellular Carcinoma After Radiofrequency Ablation

Dr. Takuma Kaneko (Japan)

APASL Oncology 2026 Tokyo Poster Session Program

DAY 1, April 2 (Thursday) 2026

Poster Area “Gallery 1&2” B1F, “Event Space” B2F

18:00-19:00 **Poster Free Paper Sessions**

Poster Group 1: Biliary Poster Session 1 18:00-18:30

“Epidemiology, Risk Factors, and Disease Biology of Cholangiocarcinoma”

Moderator: Dr. Toshihiko Arizumi (Japan)

BP1-1 10182

Divergent Chromosomal Architectures in Cholangiocarcinoma Cell Lines with Comparable Proliferation Rates: Implications for Genomic Heterogeneity

Dr. Ratana Leksomboon (Thailand)

BP1-2 10148

The Impact and Mechanisms of YES1 in Intrahepatic Cholangiocarcinoma Progression

Dr. Tao Han (China)

BP1-3 10019

Clinicopathological Features of Metabolic Dysfunction-Associated Steatotic Liver Disease-Related Intrahepatic Cholangiocarcinoma

Dr. Zhaohui Tang (China)

BP1-4 10056

Prognostic Impact of Etiologies on Intrahepatic Cholangiocarcinoma: An Analysis of a Nationwide Registry

Dr. Kazuya Okushin (Japan)

BP1-5 10161

Dose-response Association between Waist Circumference and Risk of Cholangiocarcinoma: A Nationwide Population-based Cohort Study

Dr. Joo-Hyun Park (Korea)

Poster Group 2: Biliary Poster Session 2 18:30-18:54

“Diagnosis, Endoscopic Strategies, and Supportive Care in Biliary Tract Diseases”

Moderator: Dr. Nobuo Toda (Japan)

BP2-1 10141

Clinical Utility of Peroral Cholangioscopy-Guided Biopsy in the Diagnosis of Biliary Lesions

Dr. Nobuhiro Katuskura (Japan)

BP2-2 10063

Optimal Biliary Drainage for Malignant Hilar Biliary Obstruction

Dr. Naminatsu Takahara (Japan)

BP2-3 10089

Selective Endoscopic Nasobiliary Drainage to Determine the Resection Range for Intraductal Papillary Neoplasm of the Bile Duct with an Indeterminate Primary Site: A Case Report

Dr. Junichi Kaneko (Japan)

BP2-4 10133

Case Report of Primary Hepatic Carcinoma Complicated with Cholangiolar Sarcomatoid Carcinoma

Dr. Jiawei Zhang (China)

Poster Group 3: Biliary Poster Session 3　18:00-18:36

“Systemic Therapy, Immunotherapy, and Real-World Outcomes in Biliary Tract Cancer”
Moderator: Dr. Kenji Hirano (Japan)

BP3-1　10173
Advances in the Management of Intrahepatic Cholangiocarcinoma and Temporal Changes in Prognosis: A Prospective Long-Term Real-World Data Analysis
Dr. Sumio Hirose (Japan)

BP3-2　10127
Hepatic Arterial Infusion Chemotherapy with New FP (NFP) for Unresectable Intrahepatic Cholangiocarcinoma: A Single-Center Retrospective Study
Dr. Hiroto Ota (Japan)

BP3-3　10067
Analysis of Prognostic Factors for ICI Combination Regimens in Unresectable Biliary Tract Cancer
Dr. Mai Kitahara (Japan)

BP3-4　10187
Immune Checkpoint Inhibitors Combined with Chemotherapy and Comprehensive Genomic Profiling Test for Advanced Biliary Tract Cancer in Our Hospital
Dr. Morito Ikeda (Japan)

BP3-5　10209
The Impact of Antibiotics on ICI Combination Chemotherapy in Advanced Biliary Tract Cancer
Dr. Shota Iwahara (Japan)

BP3-6　10045
Two Cases of Unresectable Combined Hepatocellular-Cholangiocarcinoma Treated with Immune Checkpoint Inhibitors
Dr. Yasuhide Motoyoshi (Japan)

Poster Group 4: Basic & Experimental Poster Session 1　18:00-18:24

“Cancer Metabolism, Cellular Stress, and Experimental Models in Hepatocellular Carcinoma”
Moderator: Dr. Yotaro Kudo (Japan)

BEP1-1 10026
SLC12A2-driven Suppression of Hepatic Lipolysis Shapes a Tumor-promoting Microenvironment in Metabolically Steatotic Livers
Dr. Yotaro Kudo (Japan)

BEP1-2 10196
Accumulation of Autophagy-specific Substrate p62/SQSTM1 is Associated with Multinucleation in Human Hepatocellular Carcinoma
Dr. Shunhei Yamashina (Japan)

BEP1-3 10117
Investigation of the Anti-tumor and Anti-HBV Effects of the Host Factor FAH
Dr. Shouichi Namikawa (Japan)

BEP1-4 10134
Ameliorative Role of Phytosterol Pre-Treatment in N-Nitrosodiethylamine Induced Oxidative Stress in Female Albino Rats
Dr. Rahul Kumar (India)

Poster Group 5: Basic & Experimental Poster Session 2 18:30-19:00

"Tumor Microenvironment and Immune Landscapes in Hepatocellular Carcinoma"
Moderator: Dr. Yotaro Kudo (Japan)

BEP2-1 10022
Withdrawn

BEP2-2 10109
Multi-omics Profiling Reveals the Rrognostic Features and Tumor Microenvironment of High-stemness HCC
Dr. Yu Luo (China)

BEP2-3 10145
ZIP1-CAF Shapes the Immunosuppressive Microenvironment to Drive Hepatocellular Carcinoma Progression
Dr. Jiangxi Liu (China)

BEP2-4 10132
Microenvironmental Analysis of Resistance to Atezo+Bev Therapy in Unresectable Hepatocellular Carcinoma: Involvement of High M2BP Expression and Inflammatory Cancer-Associated Fibroblasts
Dr. Katsuya Nagaoka (Japan)

BEP2-5 10176
Association of HAMP Expression and CD8+ T-cell Infiltration with Atezolizumab plus Bevacizumab Response in Hepatocellular Carcinoma
Dr. Shun Nakamura (Japan)

Poster Group 6: Basic & Experimental Poster Session 3 18:00-18:30

"Genomics, Epigenetics, and Circulating Biomarkers in Hepatocellular Carcinoma"
Moderator: Dr. Naoto Fujiwara (Japan)

BEP3-1 10192
Mutation Profiles of TERT, TP53, and CTNNB1 Genes from Circulating Cell Free DNA as Non-Invasive Prognostic Biomarkers in HBV-Induced Hepatocellular Carcinoma
Dr. Afzalun Nessa (Bangladesh)

BEP3-2 10201
Performance of Circulating 5-Hydroxymethylcytosine Epigenetic Signatures in Detecting Hepatocellular Carcinoma Among Patients with Cirrhosis
Dr. Rishabh Sharma (India)

BEP3-3 10010
Identification of Novel Prognostic Biomarkers and Molecular Pathogenesis Insights in Hepatocellular Carcinoma through Integrated Multi-Database Analysis
Dr. Md Shariful Islam (USA)

BEP3-4 10222
The VETC Associated Trabecular Subtypes in Non-cirrhotic HCC is Defined by Loss of Tumor Suppressor and Downregulation of Ribosomal Genes
Dr. Archana Rastogi (India)

BEP3-5 10197
Hepatocellular Carcinoma in Armenia: Primary Assessment of Molecular Alterations
Dr. Hasmik Ghazinyan (Armenia)

Poster Group 7: Basic & Experimental Poster Session 4 18:30-19:00

"Computational Oncology, Predictive Biomarkers, and Translational Insights in Hepatocellular Carcinoma"

Moderator: Dr. Hironao Okubo (Japan)

BEP4-1 10154
Global Research Landscape and Thematic Evolution of Immune Cell Metabolic Reprogramming in Liver Disease and Hepatic Oncology: A Bibliometric and Science Mapping Analysis
Dr. Ziteng Wang (China)

BEP4-2 10066
The Relationship between the Expression of Tumor Microenvironment-related Genes and the Gene Mutations of Hepatocellular Carcinoma from TCGA Data
Dr. Yoshinari Asaoka (Japan)

BEP4-3 10021
Integrative Machine Learning and Experimental Validation Identify MYBL2 as a Prognostic Biomarker and Therapeutic Target in Hepatocellular Carcinoma
Dr. Ya-Ling Yang (Taiwan)

BEP4-4 10203
Clinical Significance of Serum VEGF Levels in Patients with Unresectable Hepatocellular Carcinoma Treated with Durvalumab plus Tremelimumab
Dr. Yutaka Yasui (Japan)

BEP4-5 10225
Impact of Hepatocyte Nuclear Factor-1 Alpha Genetic Variants on Hepatocellular Carcinoma Susceptibility among Patients with and without Diabetes Mellitus
Dr. Mohamed Abdel-Samiee (Egypt)

Poster Group 8: Hepatitis & Chronic Liver Disease Poster Session 1 18:00-18:36

"Viral Hepatitis and Hepatocellular Carcinoma Risk: Long-Term Outcomes and Surveillance"

Moderator: Dr. Tatsuo Kanda (Japan)

HCP1-1 10042
Risk Factors for Hepatocellular Carcinoma Development after Direct-acting Antiviral Therapy in Hepatitis C: A Long-term Follow-up Study
Dr. Rino Nakamura (Japan)

HCP1-2 10138
HCC Development in HCV-Infected Patients after Virological Response
Dr. Narina Sargsyants (Armenia)

HCP1-3 10027
Early Detection of De Novo Hepatocellular Carcinoma by AFP-L3 Fraction Following SVR for HCV: A Case Report
Dr. Takahisa Sato (Japan)

HCP1-4 10081
A Case of Hepatocellular Carcinoma with Decompensated Hepatitis C-related Liver Cirrhosis that Achieved a Sustained Virological Response after Retreatment with Glecaprevir/Pibrentasvir
Dr. Satoru Kakizaki (Japan)

HCP1-5 10115
Ruptured Hepatocellular Carcinoma in an Untreated HCV Patient: Emergency Management, Viral Eradication, and Aggressive Recurrence
Dr. Kentaro Takahashi (Japan)

Poster Group 9: Hepatitis & Chronic Liver Disease Poster Session 2 18:30-19:00
"Autoimmune and Cholestatic Liver Diseases: Natural History, Prognosis, and Cancer Risk"
Moderator: Dr. Atsushi Tanaka (Japan)

HCP2-1 10015
Hepatocellular Carcinoma in Japanese Autoimmune Hepatitis: Management and Outcomes
Dr. Tomoko Tadokoro (Japan)

HCP2-2 10049
A Study on Hepatocellular Carcinoma with Autoimmune Hepatitis as Background Liver Disease
Dr. Hideo Yoshida (Japan)

HCP2-3 10142
Late-Onset Hepatic Failure (LOHF) Caused by Seronegative Acute-Onset Autoimmune Hepatitis Requiring Liver Transplantation
Dr. Keigo Misawa (Japan)

HCP2-4 10057
Validation of PBC-10 in Japanese Patients with Primary Biliary Cholangitis
Dr. Akihito Takeuchi (Japan)

HCP2-5 10025
Changes in Symptomatic Presentation at Diagnosis and Prognostic Impact in Primary Biliary Cholangitis
Dr. Akihito Takeuchi (Japan)

Poster Group 10: Hepatitis & Chronic Liver Disease Poster Session 3 18:00-18:30
"Metabolic, Alcohol-Related, and Lifestyle-Associated Liver Disease and HCC"
Moderator: Dr. Kenichi Ikejima (Japan)

HCP3-1 10124
Aetiology–Specific Risk of Hepatocellular Carcinoma in Metabolic Dysfunction–Associated Steatotic Liver Disease
Dr. Yu Xi Tan (Singapore)

HCP3-2 10087
Characteristics of Hepatocellular Carcinoma Arising from Alcohol-associated Steatotic Liver Disease
Dr. Yuri Ogasawara (Japan)

HCP3-3 10185
Intermittent Fasting, Liver Fibrosis, and Hepatocellular Carcinoma Risk in Non-Alcoholic Fatty Liver Disease: A Scoping Review
Dr. Inas Karimi (Indonesia)

HCP3-4 10159
Sarcopenia in Cirrhotic Patients: Prevalence, Prognostic Impact, and Clinical Outcomes
Dr. Atteyat Semeya (Saudi Arabia)

HCP3-5 10075
Acid-Suppressing Therapy and the Risk of Hepatic Encephalopathy in Cirrhosis: A Prospective Cohort Study
Dr. Keiichi Katayama (Japan)

Poster Group 11: Hepatitis & Chronic Liver Disease Poster Session 4 18:30-18:54
"Epidemiology, Global Trends, and Population-Based Studies in Liver Diseases"
Moderator: Dr. Amarsanaa Jazag (Mongolia)

HCP4-1 10174
Global Trends in Liver Cancer Attributable to Hepatitis B: Insights from the GlobalBurden of Disease 2023 Study
Dr. Ekram Hasanin (Libya)

HCP4-2 10125
Global Prevalence and Incidence of Primary Sclerosing Cholangitis: An Updated Meta-Analysis
Dr. Asvin Selvakumar (Singapore)

HCP4-3 10126
Genome-wide Association Study of TG/HDL Ratio in 424,865 UK Biobank Participants
Dr. Jordan Low (Singapore)

HCP4-4 10208
Treatment Outcomes of Triple Therapy for 816 NAFLD Patients in Mongolia
Dr. Amarsanaa Jazag (Mongolia)

Poster Group 12: Hepatitis & Chronic Liver Disease Poster Session 5 18:00-18:18
"Liver Injury, Drug-Induced Damage, and Rare Hepatic Disorders"
Moderator: Dr. Tatsuya Minami (Japan)

HCP5-2 10199
Hepatoprotective Drugs for the Prevention of Liver Injury among Patients at Risk for Drug-Induced Liver Injury or Chemotherapy-Induced Transaminitis: A Systematic Review and Meta- Analysis
Dr. Cheryl J. Toledano (Philippines)

HCP5-3 10163
Five-year Active Surveillance of Unresectable Hepatic Epithelioid Hemangioendothelioma Diagnosed by Repeat Liver Biopsy
Dr. Noriyo Yamashiki (Japan)

HCP5-4 10121
Efficacy of a Novel Ultra Slim Therapeutic Upper Gastrointestinal Endoscope for Pediatric Esophageal Varices A Case Report
Dr. Ryosuke Kawanishi (Japan)

Poster Group 13: Hepatitis & Chronic Liver Disease Poster Session 6 18:00-18:30
"Viral Hepatitis Control, Public Health, and Regional Perspectives"
Moderator: Dr. Masaya Sato (Japan)

HCP6-1 10216
Steep Declining Trends of Hepatitis Virus Prevalence in Mongolia over the last 20 years, a Nationwide Study
Dr. Amarsanaa Jazag (Mongolia)

HCP6-2 10219
Routes of New Viral Hepatitis Infections in Modern Mongolia
Dr. Amarsanaa Jazag (Mongolia)
HCP6-3 10212
Alcohol Consumption and Its Association with HCC in Mongolia according to A-HOC Study
Dr. Amarsanaa Jazag (Mongolia)

HCP6-4 10220
Association of HbA1c with Liver Steatosis and Fibrosis in Mongolia
Dr. Amarsanaa Jazag (Mongolia)

HCP6-5 10058
Stability and Variability of Symptom Burden in Primary Biliary Cholangitis: Insights from a Decade of Follow-Up
Dr. Akihito Takeuchi (Japan)

Poster Group 14: HCC Poster Session 1 18:00-18:30
"Epidemiology, Surveillance, and Real-World Cohorts in Hepatocellular Carcinoma"
Moderator: Dr. Shinpei Sato (Japan)

HP1-1 10191
A-HOC (APASL Hepatology/Oncology Consortium): A Foundational Dataset for Future Hepatology and Oncology Research
Dr. Hitoshi Mochizuki (Japan)

HP1-2 10205
A-HOC Study on 1108 Patients Under Surveillance for Liver Cancer in Mongolia
Dr. Amarsanaa Jazag (Mongolia)

HP1-3 10218
Clinical and Epidemiological Analysis of Liver Cancer Patients Under Primary Health Care Center Surveillance in Mongolia
Dr. Amarsanaa Jazag (Mongolia)

HP1-4 10012
Clinical Characteristics and Survival Outcomes of Hepatocellular Carcinoma at Dr. Moewardi Regional Tertiary Referral Hospital, Indonesia: A Retrospective Study
Dr. Triyanta Yuli Pramana (Indonesia)

PHP1-5 10179
Discrepancy between the Real Clinical Status of Patients with HCC and Expectations from HCC Surveillance: A Single Center Study
Dr. Jiwoong Jang (Korea)

Poster Group 15: HCC Poster Session 2 18:00-18:30
"Risk Stratification, Diagnosis, and Supportive Care in Hepatocellular Carcinoma"
Moderator: Dr. Masatoshi Akamatsu (Japan)

HP2-1 10217
Combined Assessment of Ferritin, AFP, and PIVKA-II in the Diagnosis of Hepatocellular Carcinoma
Dr. Amarsanaa Jazag (Mongolia)

HP2-2 10054
Clinical Impact of the aMAP Risk Score and Hepatocellular Carcinoma on Outcomes after Rifaximin Therapy for Hepatic Encephalopathy
Dr. Satoshi Takakusagi (Japan)

HP2-3 10214
Hepatic Encephalopathy among HCC Patients Monitored for 2 Years, A-HOC Study
Dr. Amarsanaa Jazag (Mongolia)

HP2-4 10018
Current Status of Hypozincemia and Zinc Supplementation in Patients with Hepatocellular Carcinoma at Our Hospital
Dr. Takeharu Asano (Japan)

HP2-5 10200
A Case of Mucosa-associated Lymphoid Tissue Lymphoma of the Liver Recurred with the Subsequent Palatal Lesion
Dr. Ryutoku Kondo (Japan)

Poster Group 16: HCC Poster Session 3 18:00-18:30
"Treatment Strategies, Clinical Course, and Rare Presentations of Hepatocellular Carcinoma"
Moderator: Dr. Takuma Teratani (Japan)

HP3-1 10113
Long-Term Clinical Course of Hepatocellular Carcinoma
Dr. Keisuke Hamamura (Japan)

HP3-2 10190
Systemic Therapy for Advanced Hepatocellular Carcinoma in a Single Center
Dr. Toru Arano (Japan)

HP3-3 10226
Treatment Modalities and Response Patterns in Hepatocellular Carcinoma: Real-World Data from a Turkish Cohort
Dr. Murat Kekilli (Turkey)

HP3-4 10224
Clinical and Etiologic Characteristics of Hepatocellular Carcinoma in a Turkish Cohort
Dr. Gulden Bilican (Turkey)

HP3-5 10180
Ectopic Retroperitoneal Hepatocellular Carcinoma Mimicking GIST with Portal Vein Tumour Thrombosis
Dr. Prabhath Dasanayaka (Sri Lanka)

APASL Oncology 2026 Tokyo Poster Session Program

DAY 2, April 3 (Friday) 2026

Poster Area “Gallery 1&2” B1F, “Event Space” B2F

15:00-16:30 **Poster Free Paper Sessions**

Poster Group 17: Radiology Poster Session 1　15:00-15:24

“Imaging, Biomarkers, and Advanced Radiation Techniques in Liver Oncology”

Moderator: Dr. Takamasa Ohki (Japan)

RP1-1　10024
Diversity of Imaging Features in Intrahepatic Mass-forming Cholangiocarcinoma Across Different Background Liver Conditions
Dr. Kazuto Kozaka (Japan)

RP1-2　10030
Clinical Feasibility of Automated Image–Based Registration–Supported Ultrasound–CT Fusion and Its Patient-Dependent Limitations
Dr. Ryo Yano (Japan)

RP1-3　10055
ADC Increase as a Biomarker of Tumor Shrinkage and PIVKA-II Decline after SBRT in Hepatocellular Carcinoma: A Prospective Study
Dr. Osamu Tanaka (Japan)

RP1-4　10086
Predictors of Compensatory Hepatic Hypertrophy following Carbon Ion Radiotherapy in Hepatocellular Carcinoma and its Association with Long-term Clinical Outcomes
Dr. Takeshi Hatanaka (Japan)

Poster Group 18: Radiology Poster Session 2　15:45-16:15

“Clinical Outcomes and Multimodal Radiotherapy in Hepatocellular Carcinoma”

Moderator: Dr. Hideo Yoshida (Japan)

RP2-1　10009
The Roll of Cyber-knife Treatment on Advanced Hepatocellular Carcinoma
Dr. Takamasa Ohki (Japan)

RP2-2　10052
Efficacy and Safety of Stereotactic Body Radiation Therapy for Hepatocellular Carcinoma in BCLC Stage A
Dr. Kodai Suzue (Japan)

RP2-3　10059
Stereotactic Body Radiation Therapy for Intrahepatic Lesions of Hepatocellular Carcinoma
Dr. Yasuki Niimura (Japan)

RP2-4　10085
Case Study of Advanced Hepatocellular Carcinoma Treated with Combined Radiation Therapy and Chemotherapy
Dr. Hideo Yoshida (Japan)

RP2-5　10114
Treatment Outcomes of B-RTO and Subsequent Changes in Hepatic Functional Reserve
Dr. Ryosuke Hayakawa (Japan)

Poster Group 19: Surgical Poster Session 1　15:00-15:30

“Surgical Techniques, Visualization, and Perioperative Management in Hepatobiliary Surgery”

Moderator: Dr. Keiji Sano (Japan)

SP1-1　10040
Evaluation of Stepwise Indocyanine Green Dosing for Hepatic Segment Visualization in a Mouse Model
Dr. Shuhei Kanda (Japan)

SP1-2　10082
Development of Ultra-Fine 3D Images of Intrahepatic Glissonean Structure
Dr. Kazuma Hasegawa (Japan)

SP1-3　10036
Routine Use of Intravenous Acetaminophen Safely Enhances Pain Control After Minimally Invasive Hepatectomies
Dr. Kei Furuya (Japan)

SP1-4　10048
A Predictive Nomogram for Postoperative Delirium after Hepatectomy for Hepatocellular Carcinoma: Development, Validation, and Clinical Utility Analysis
Dr. Shu Inagaki (Japan)

SP1-5　10034
Redox-Active Compound Accelerates Liver Regeneration and Attenuates Acute Injury in Mouse Models: Relevance to Liver Tumor Resection
Dr. Hyun Ae Woo (Korea)

Poster Group 20: Surgical Poster Session 2　15:45-16:15

“Multidisciplinary and Conversion Surgery for Advanced Hepatocellular Carcinoma”

Moderator: Dr. Ryota Masuzaki (Japan)

SP2-1　10072
Conversion Surgery for Hepatocellular Carcinoma following Multidisciplinary Treatment
Dr. Masayuki Honda (Japan)

SP2-2　10175
A Case of Conversion Surgery for a Huge Unresectable Hepatocellular Carcinoma with a Pathological Complete Response after Short-term Immune Checkpoint Inhibitor Therapy Ceased by Liver Dysfunction
Dr. Hiroe Toyoda (Japan)

SP2-3　10195
A Case of Advanced Hepatocellular Carcinoma Responded to Durvalumab Monotherapy, Leading to Conversion Surgery
Dr. Hiroto Ota (Japan)

SP2-4　10104
A Case of Retroperitoneal Metastasis of Hepatocellular Carcinoma Resected Laparoscopically
Dr. Tatsunori Nadaya (Japan　　)

SP2-5　10193
Multidisciplinary Management for Recurrence after Liver Resection for Hepatocellular Carcinoma
Dr. Osamu Aramaki (Japan)

Poster Group 21: Surgical Poster Session 3 15:00-15:30

"Long-Term Outcomes, Transplantation, and Rare Surgical Scenarios in Hepatobiliary Malignancies"

Moderator: Dr. Takeaki Ishizawa (Japan)

SP3-1 10080
Characteristics of HCV-Related Hepatocellular Carcinoma Patients Achieving Long-Term Cancer-Free Survival after Repeated Hepatectomy in SVR Status
Dr. Yuji Iimuro (Japan)

SP3-2 10149
Cure by Liver Transplantation of HCV-related Decompensated Cirrhosis with Hepatocellular Carcinoma Developing 14 Years after IFN-induced SVR
Dr. Rintaro Hamazaki (Japan)

SP3-3 10206
ALPPS followed by Salvage LDLT for Recurrent HCC
Dr. Alp Atasoy (Turkey)

SP3-4 10215
Immunosuppressive Medication Non-adherence in Liver Transplantation Adult Recipients in Vietnam
Dr. Nguyen Thai Van Anh (Viet Nam)

SP3-5 10023
A Resected Case of Gallbladder Carcinoma Difficult to Differentiate from Metastatic Gastric Cancer to the Gallbladder
Dr. Kenji Hirano (Japan)

Poster Group 22: Local Therapy Poster Session 15:45-16:27

"Local and Locoregional Therapies for Hepatocellular Carcinoma: Outcomes, Comparisons, and Pitfalls"

Moderator: Dr. Hitoshi Maruyama (Japan)

LTP-1 10155
Percutaneous Radiofrequency Ablation in Early-stage Hepatocellular Carcinoma
Dr. Shinpei Sato (Japan)

LTP-2 10035
EUS-Guided Ethanol Injection for Hepatocellular Carcinoma Inaccessible by Percutaneous Approach: A Successful Case of Local Tumor Control
Dr. Takuro Nishiwaki (Japan)

LTP-3 10037
Efficacy and Safety of Stereotactic Body Radiation Therapy for Hepatocellular Carcinoma in the Caudate Lobe: A Comparative Study with Radiofrequency Ablation Authors
Dr. Yuki Tamura (Japan)

LTP-4 10181
A Propensity Score-Matched Comparison of Particle Therapy and Transarterial Chemoembolization for Hepatocellular Carcinoma
Dr. Tomoharu Yamanaka (Japan)

LTP-5 10068
Exploring the Efficacy of Systemic Inflammatory Markers in Predicting Outcomes Post Transarterial Chemoembolization (c TACE & deb TACE)
Dr. Rajata Prabhakar Pande (India)

LTP-6 10033
Objective Response, Survival, and Downstaging After Yttrium-90 Radioembolization in Intermediate and Advanced Hepatocellular Carcinoma
Chieh-Ling Yen (Taiwan)

LTP-7 10186
Widespread Peritoneal Seeding after Popping Phenomenon during Microwave Ablation for Hepatocellular Carcinoma: A Case Report
Takumi Yanai (Japan)

Poster Group 23: Systemic Therapy Poster Session 1 15:00-15:24
"Global Trends and Evidence Synthesis in Systemic Therapy for HCC"
Moderator: Dr. Tatsuya Minami (Japan)

STP1-1 10014
Superiority of ICI-Based Regimens Over TKIs in Advanced HCC: A Systematic Review and Meta-Analysis
Dr. Chih-Ming Lin (Taiwan)

STP1-2 10088
Comparative Outcomes of Immunotherapy plus Transarterial Therapy versus Systemic Therapy Alone in Hepatocellular Carcinoma: A Systematic Review
Dr. DewiPrasetyaningtyas (Indonesia)

STP1-3 10016
COVID-19 Pandemic's Impact on the Global Disease Burden of HBV-related Hepatocellular Carcinoma in the Elderly
Dr. Yuwei Wang (China)

STP1-4 10031
COVID-19 Pandemic did not Affect the Treatment Uptake of Immunotherapy as the Treatment for Advanced Hepatocellular Carcinoma (HCC)
Dr. Vicki wing-ki Hui (Hong Kong)

Poster Group 24: Systemic Therapy Poster Session 2 15:45-16:21
"Clinical Outcomes of Immune Checkpoint Inhibitor–Based Therapy"
Moderator: Dr. Hiroyoshi Taniguchi (Japan)

STP2-1 10062
Early Clinical Outcomes of Nivolumab plus Ipilimumab Combination Therapy for Advanced Hepatocellular Carcinoma
Dr. Taro Watabe (Japan)

STP2-2 10189
Initial Experience with Nivolumab plus Ipilimumab for Unresectable Hepatocellular Carcinoma, Including Predictions of Efficacy and Safety
Dr. Hironao Okubo (Japan)

STP2-3 10105
Effects and Side Effects for Unresectable Hepatocellular Carcinoma Treated by Atezolizumab plus Bevacizumab
Dr. Masatoshi Akamatsu (Japan)

STP2-4 10156
Efficacy and Safety of Atezolizumab plus Bevacizumab in Advanced Hepatocellular Carcinoma with Child-Pugh Class B: A Single-Center Study
Dr. Mayuko Kondo (Japan)

STP2-5 10092
Efficacy of Immunotherapy for Hepatocellular Carcinoma in the Elderly
Dr. Kojiro Kobayashi (Japan)

STP2-6 10211
Bevacizumab only Treatment Outcomes After Invasive Treatment of HCC Classified by Hepatitis Virus Type, Gender, and Age Group
Dr. Amarsanaa Jazag (Mongolia)

Poster Group 25: Systemic Therapy Poster Session 3 15:00-15:30
"Predictive Biomarkers and Response Modifiers in Systemic Therapy"
Moderator: Dr. Koji Uchino (Japan)

STP3-1 10166
A Pretreatment Serum Cytokine Score Predicts Response to First-line Atezolizumab/Bevacizumab in Unresectable Hepatocellular Carcinoma
Dr. Kazuki Nagai (Japan)

STP3-2 10188
Predictive Factors for Response to Dual Immune Checkpoint Inhibitor Therapy in Advanced Hepatocellular Carcinoma
Dr. Yutaro Hori (Japan)

STP3-3 10061
Evaluation of Liver and Spleen Volume Changes during Systemic Therapy for Hepatocellular Carcinoma
Dr. Koji Uchino (Japan)

STP3-4 10112
Effects of Combination Therapy with Tremelimumab and Durvalumab on Skeletal Muscle Mass and Cardiac Function in Patients with Unresectable Hepatocellular Carcinoma
Dr. Hideki Nagumo (Japan)

STP3-5 10079
Intratumoral Vascular Lake Formation in Patients with Hepatocellular Carcinoma Treated with Atezolizumab plus Bevacizumab or Lenvatinib
Dr. Takuma Kaneko (Japan)

Poster Group 26: Systemic Therapy Poster Session 4 15:45-16:27
"Combination Strategies: Systemic Therapy with Locoregional Treatment"
Moderator: Dr. Jun Arai (Japan)

STP4-1 10110
Outcomes of Locoregional Therapy followed by Combination Immunotherapy for Unresectable Hepatocellular Carcinoma
Dr. Takeshi Okamoto (Japan)

STP4-2 10152
Continuing or Switching Systemic Therapy Combined with Locoregional Therapy Defines a Personalized Strategy for Oligoprogression in Hepatocellular Carcinoma: A Multicenter Retrospective Study
Dr. Hongli Yu (China)

STP4-3 10044
Clinical Outcomes of TACE/TAI Using Cisplatin Combined with Lenvatinib as Second-line Therapy After Failure or Intolerance to Immune Checkpoint Inhibitors
Dr. Masaki Yoshikawa (Japan)

STP4-4 10093
Two Cases of Unresectable Hepatocellular Carcinoma Treated with LEN-TACE for Local Control during Dual Immune Checkpoint Inhibitor Therapy
Dr. Yusuke Masuda (Japan)

STP4-5 10198
The Evaluation of Clinical Impact of Additional TACE to Lenvatinib for HCC Patients
Dr. Jun Arai (Japan)

STP4-6 10168
The Impact of Scheduled LEN-TACE on Tumor Microenvironment for BCLC-B HCC
Dr. Jun Arai (Japan)

STP4-7 10099
Lenvatinib plus Drug-eluting Bead Transarterial Chemoembolization for Large Hepatocellular Carcinoma beyond the up to 7 Criteria
Dr. Mariko Irizato(Japan)

Poster Group 27: Systemic Therapy Poster Session 5 15:00-15:30
"Systemic Therapy in Special Populations and High-Risk Settings"
Moderator: Dr. Masaya Sato (Japan)

STP5-1 10002
Toxicity Turned Tolerance: Hematologic Adverse Events Managed Successfully in Hepatocellular Carcinoma with VP4 Portal Vein Tumor Thrombus under Atezolizumab-bevacizumab: A Case Report from Vietnam
Dr. Phuong Thi Dinh (Viet Nam)

STP5-2 10170
Efficacy and Safety of Lenvatinib for Unresectable Hepatocellular Carcinoma in Patients with Severe Renal Impairment
Dr. Takashi Nishimura (Japan)

STP5-3 10084
A Super-Elderly Male with Multiple Hepatocellular Carcinoma Achieving Long-Term Survival by Repeated Percutaneous Ablation Combined with Lenvatinib
Dr. Maki Tobari (Japan)

STP5-4 10129
Desired Outcome of the STRIDE Regimen in an Advanced HCC Patient with Multiple Poor Prognostic Factors Outside HIMALAYA Trial Criteria: A Case Report
Dr. Ngan Nguyen (Viet Nam)

STP5-5 10039
Successful Transcatheter Aortic Valve Implantation Enabling Continuation of Systemic Chemotherapy in a Patient with Hepatocellular Carcinoma and Severe Aortic Stenosis: A Case Report
Dr. Kaho Miyazaki (Japan)

Poster Group 28: Systemic Therapy Poster Session 6 15:00-15:24
"Adverse Events and Safety Signals of Systemic Therapy"
Moderator: Dr. Tomoharu Yamada (Japan)

STP6-1 10050
Subconjunctival Hemorrhage and Corneal Graft Failure following Atezolizumab plus Bevacizumab Treatment for Hepatocellular Carcinoma: A Case Report
Dr. Tomoharu Yamada (Japan)

STP6-2 10150
Progressive Multifocal Leukoencephalopathy During Atezolizumab Plus Bevacizumab Therapy for Hepatocellular Carcinoma: A Case Report
Dr. Tamami Abe (Japan)

STP6-3 10071
A Case of Hepatocellular Carcinoma with Rectal Fistula Induced by Lenvatinib in a Patient with Crohn's Disease
Dr. Shigeki Yano (Japan)

STP6-4 10164
Stepwise Immune Re-Sensitization Induced by Short-Term VEGF Inhibition Enhances Antitumor Efficacy of Repeated Durvalumab Re-Challenge in Advanced Hepatocellular Carcinoma: A Case Report
Dr. Teiji Kuzuya (Japan)

Poster Group 29: Systemic Therapy Poster Session 7 15:45-16:27
"Exceptional Responders and Personalized Sequential Therapy"
Moderator: Dr. Yoshinari Asaoka (Japan)

STP7-1 10000
Exceptional Long-term Survival with Low-dose FP Regimen Hepatic Arterial Infusion Chemotherapy after Immune and TKI Failure in Advanced Hepatocellular Carcinoma: A Case Report from Vietnam
Dr. Huy Van Nguyen (Viet Nam)

STP7-2 10153
Evaluation of the Efficacy of Sequential Therapy with New FP and Atezolizumab plus Bevacizumab in Unresectable Hepatocellular Carcinoma
Dr. Akihiro Deguchi (Japan)

STP7-3 10157
5-fluorouracil plus Cisplatin Versus Cisplatin in Hepatic Arterial Infusion Chemotherapy for Advanced Hepatocellular Carcinoma: A Multicenter Randomized Controlled Trial
Dr. Hidetoshi Nakagawa (Japan)

STP7-4 10043
Near-Complete Response to Nivolumab + Ipilimumab in HCC With IVC Invasion: An Exceptional Outcome Beyond Trial Eligibility
Dr. Naoki Takamura (Japan)

STP7-5 10194
Dramatic Complete Response to Atezolizumab Plus Bevacizumab in Advanced Hepatocellular Carcinoma with Massive Liver Involvement
Dr. Yutaka Yata (Japan)

STP7-6 10140
Selective Control of Pulmonary Metastases by Chemotherapy in Hepatitis C-related Hepatocellular Carcinoma: A Case Report
Dr. Yoshie Kadota (Japan)

STP7-7 10028
Dual Tumor Response to Sequential Immune Checkpoint Inhibitors in Synchronous HCC and ESCC: A Case Report
Dr. Kotaro Matsumoto (Japan)

Poster Group 30: Late Breaker Poster Session 1 15:00-15:30

"Systemic Therapy Outcomes and Treatment Sequencing in HCC"

Moderator: Dr. Yoshinari Asaoka (Japan)

LBP1-1 10245
Recurrence After Achieving a Drug-Free State Following Response to Systemic Therapy in Hepatocellular Carcinoma: A Retrospective Case Series
Dr. Takanobu Kanaya (Japan)

LBP1-2 10258
An Analysis of Progression Patterns After Response to Atezolizumab/Bevacizumab in Unresectable Hepatocellular Carcinoma
Dr. Haruka Anzai (Japan)

LBP1-3 10270
Real-World Outcomes and Characteristics of Responders in Advanced Hepatocellular Carcinoma Treated with Durvalumab/Tremelimumab
Dr. Takuya Yonemoto (Japan)

LBP1-4 10238
Real-World Early Experience with Ipilimumab Plus Nivolumab (IPINIVO) for Advanced Hepatocellular Carcinoma
Dr. Wataru Ueno (Japan)

LBP1-5 10269
Lessons Learned from 1,716 Hepatobiliary Cancers: Real World Outcomes of Immune Checkpoint Inhibitor Therapy
Dr. Shinya Takaoka (Japan)

Poster Group 31: Late Breaker Poster Session 2 15:00-15:36

"Locoregional Therapy and Multimodal Strategies"

Moderator: Dr. Shinpei Sato (Japan)

LBP2-1 10234
Exploring the Value of Imaging Indicators in Predicting TACE Refractoriness in Hepatocellular Carcinoma Based on Contrast-Enhanced CT
Dr. Ying Lei (China)

LBP2-2 10233
Trans Arterial Chemoembolization Combined with Immunotherapy for BCLC Stage B Hepatocellular Carcinoma: A Systematic Review and Meta-analysis
Dr. Andree Kurniawan (Indonesia)

LBP2-3 10252
Safety and Recurrence Patterns of Ablation After Immune Checkpoint Inhibitor Therapy for Hepatocellular Carcinoma
Dr. Yasuyuki Komiyama (Japan)

LBP2-4 10243
Clinical Response of Brain Metastasis from Hepatocellular Carcinoma Treated with a Multimodal Approach Using Lenvatinib and Radiotherapy: A Case Report
Dr. Quang Vinh Dang (Viet Nam)

LBP2-5 10242
Hepatocellular Carcinoma with Submandibular and Sternal Manubrial Metastases: Tumor Growth Rate Based Dynamic Assessment and Regorafenib Combined with a Tonifying Eliminating Harmonizing Strategy
Dr. Huijie Li (China)

LBP2-6 10271
Triple Trouble: A Case of Hepatocellular Carcinoma in a Patient with Previous Renal and Colonic Malignancies
Dr. Cleo Christille Lynn G. Lom-oc (Philippines)

Poster Group 32: Late Breaker Poster Session 3 15:45-16:15
"Precision Imaging, Biomarkers, and Prognostic Models"
Moderator: Dr. Tomoharu Yamada (Japan)

LBP3-1 10251
A CT-Based Hybrid Model for Predicting CK19-Positive Hepatocellular Carcinoma and Assessing Prognosis: A Multicenter Study
Dr. Yawen Wang (China)

LBP3-2 10263
Development of a Novel Erythrocyte-Related Risk Score for Prognosis Prediction in Hepatocellular Carcinoma Patients
Dr. Huiwen Yan (China)

LBP3-3 10262
Anemia Predicts Poor Prognosis in HBV-Related Hepatocellular Carcinoma: a Large-Scale Retrospective Study
Dr. Huiwen Yan (China)

LBP3-4 10253
Assessment of Liver Fibrosis Severity in Patients Infected with Hepatitis B and C Viruses
Dr. Dolgormaa Batsaikhan (Mongolia)

LBP3-5 10227
Level of IL-6 is Directly Correlated with the Severity of Hepatitis B
Dr. Mohamed Shafi Mahboob Ali (Malaysia)

Poster Group 33: Late Breaker Poster Session 4 15:00-15:42
"Epidemiology, Viral Hepatitis, and Population-Based Studies"
Moderator: Dr. Shuntaro Obi (Japan)

LBP4-1 10244
The Mongolian and the Southeast Asian Cluster: Mapping the 2022 Liver Cancer Epidemic Across Asia
Dr. Ulil Albab Habibah (Indonesia)

LBP4-2 10264
Temporal Trends in Hepatocellular Carcinoma Mortality in a Historically High-Risk Region of Japan: A Population-Based Study from Yamanashi Prefecture
Dr. Hiroyuki Amano (Japan)

LBP4-3 10256
Long-term Trends in Incidence, Stage, and Survival of Hepatitis B Virus-Related Hepatocellular Carcinoma: A Prospective Cancer Registry Analysis from 2006 to 2024
Dr. Shuntaro Obi (Japan)

LBP4-4 10266
Increasing Proportion but Stable Incidence of Non-B Non-C Hepatocellular Carcinoma in the Post-DAA Era: A Real-World Cohort Study
Dr. Hiroyuki Amano (Japan)

LBP4-5 10265
Efforts to Combat Hepatitis C in a Leading High-Prevalence Prefecture in Eastern Japan
Dr. Hiroyuki Amano (Japan)

LBP4-6 10229
Advancing Toward WHO's HCV Zero Goals: Performance Evaluation of the Elecsys HCV Duo for Simultaneous Antibody and Core Antigen Detection
Dr. Yosuke Hirotsu (Japan)

LBP4-7 10249
Identification of Patients with Positive Hepatitis Virus Markers by Hepatitis Medical Care Coordinators
Dr. Keiji Kaneko (Japan)

Poster Group 34: Late Breaker Poster Session 5 15:00-15:24
"Translational and Molecular Oncology in Liver and Biliary Cancers"

Moderator: Dr. Naoto Fujiwara (Japan)

LBP5-1 10257
Single-Cell Profiling Reveals Novel Insights into Vessel Co-Option in Human Colorectal Liver Metastases
Dr. Lolita Dokshokova (Denmark)

LBP5-2 10259
Unbiased Single-Cell Transcriptome-Proteome Co-Profiling Reveals Post-Transcriptional Buffering in Rare CSF-CTCs
Dr. Liyong He (China)

LBP5-3 10268
Research on Targeted TGF-beta Pathway Inhibitors in Hepatocellular Carcinoma
Dr. Liang Shi (China)

LBP5-4 10267
Research on Targeted FGFR4 Inhibitors in Hepatocellular Carcinoma
Dr. Yuting Chen (China)

Poster Group 35: Late Breaker Poster Session 6 15:45-16:15
"Herbal Medicine, Metabolism, and Integrative Oncology"
Moderator: Dr. Kenichi Ikejima (Japan)

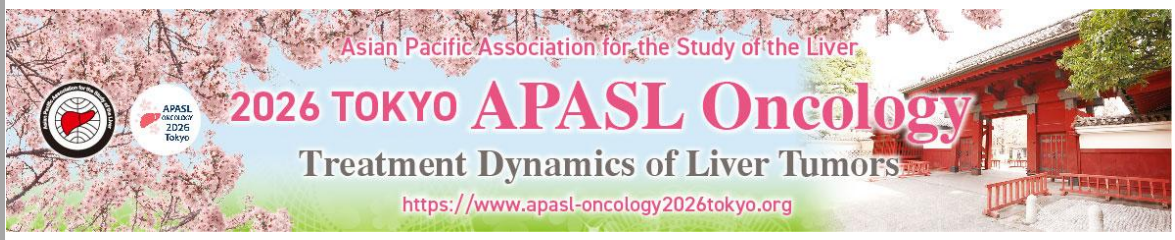
LBP6-1 10237
Development of a Novel Flavonoid Derivative with a Potent Anti-steatosis Activity in HepG2 Cells for Therapeutic Use in Metabolic Dysfunction Associated Steatotic Liver Disease (MASLD)
Dr. Jaslan Densumite (Thailand)

LBP6-2 10247
A Systematic Evaluation of Network Pharmacology Approaches for Elucidating Mechanisms and Therapeutic Effects of Herbal Medicines
Dr. Won-Yung Lee (Korea)

LBP6-3 10255
The Mechanism of Compound Kushen Injection in Regulating Phosphatidylcholine-Mediated NK Cell Suppression of Liver Cancer Ascites
Dr. Hao Liu (China)

PLBP6-4 10261
Efficacy of Yangyin Fuzheng Jiedu Prescription for Hepatocellular Carcinoma with Portal Vein Tumor Thrombosis: An Evaluation Using Five Propensity Score Methods
Dr. Wanxin Shi (China)

LBP6-5 10260
Yangyin Fuzheng Jiedu Prescription Improves Survival in HBV Related Hepatocellular Carcinoma Patients with Anemia: A Promising Herbal Formula Under Translation
Dr. Wanxin Shi (China)



APASL Oncology 2026 Tokyo

"Treatment Dynamics of Liver Tumors"

Abstracts

Keynote Lectures

Dr. Masao Omata
President / Department of Gastroenterology, Yamanashi Prefectural (Central & Kita) Hospitals, Kofu, Japan
Professor Emeritus, The University of Tokyo, Japan

APASL and APASL Oncology

Drs K Okuda and L Powell started APASL in 1978, half a century ago. Since then, the APASL Meeting has been held annually. In 2006, we took several actions: Bi-annual to Annual meeting, inauguration of Single Topic Conference (STC), and an official journal “Hepatology International” (Springer Nature). With these actions, we have been able to exchange knowledge and information on liver and biliary diseases. I was involved with this specific area of liver diseases for over half a century. In this presentation, I will discuss what has been accomplished and what should be expected in the future.

Dr. Motoyuki Otsuka
Professor, Department of Gastroenterology and Hepatology,
Academic Field of Medicine, Density and Pharmaceutical Sciences, Okayama University, Japan

FGF21 Analogs in MASLD/MASH: From Metabolic Remodeling to Fibrosis Reversal and HCC Risk Modification

Metabolic dysfunction–associated steatotic liver disease (MASLD) and its inflammatory phenotype (MASH) are rapidly becoming leading drivers of hepatocellular carcinoma (HCC). Beyond steatosis and inflammation, fibrosis stage is the dominant determinant of liver-related outcomes and a critical substrate for tumor-permissive remodeling through extracellular matrix deposition, chronic wound-healing signaling, and altered paracrine and immune crosstalk. Accordingly, therapeutic strategies capable of reversing fibrosis may have implications beyond liver function, potentially modifying long-term oncogenic risk.

Fibroblast growth factor 21 (FGF21) is an endocrine hepatokine that signals via FGFRs in a β-Klotho–dependent manner and coordinates systemic lipid and glucose metabolism. Long-acting FGF21 analogs have shown encouraging activity in MASLD/MASH by improving cardiometabolic parameters and liver injury surrogates, supporting the concept that upstream metabolic remodeling can reshape downstream fibrogenic pathways. This presentation will summarize the current landscape of FGF21 biology and the clinical development of FGF21 analogs, highlighting mechanistic links from metabolic stress to stellate cell activation, extracellular matrix dynamics, and hepatic tumorigenesis.

A particular focus will be the emerging concept that modulation of hepatic stellate cell (HSC) fate—including cellular senescence programs and their secretory phenotypes—may influence the fibrotic niche and, by extension, cancer risk. Whether FGF21-based therapies can attenuate maladaptive HSC senescence, promote fibrosis resolution, and translate into reduced HCC incidence remains an important and testable hypothesis that warrants rigorous clinical validation with long-term outcomes.

Dr. Shigehisa Kitano
Director, Department of Advanced Medical Development
The Cancer Institute Hospital of Japanese Foundation for Cancer Research (JFCR), Japan

Anti-cancer Medication on Horizon: Genomic Profiling and Immunotherapy Integration

Advances in next-generation sequencing have enabled comprehensive genomic profiling (CGP), which identifies actionable genomic alterations and supports precision oncology across multiple malignancies. Concurrently, immune checkpoint inhibitors targeting PD-1/PD-L1 and CTLA-4 have significantly advanced systemic cancer therapy. However, durable responses are currently limited to a subset of patients, underscoring the need to integrate molecular information with immunotherapy strategies.

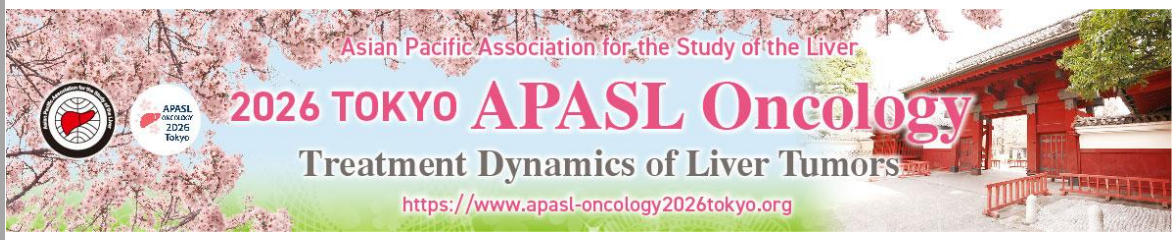
Genomic features such as high tumor mutational burden, microsatellite instability, and alterations in DNA damage repair pathways may increase tumor immunogenicity and help predict responsiveness to immune checkpoint blockade. These insights have driven the development of combination strategies integrating targeted therapies with immunotherapy to enhance antitumor immune responses. Furthermore, advances in sequencing technologies and bioinformatic prediction have enabled the identification of tumor-specific neoantigens derived from somatic mutations. Personalized neoantigen vaccines represent a promising therapeutic approach. They are designed to induce highly specific T-cell responses against tumor cells. This approach has the potential to augment the clinical benefit of immunotherapy.

Integrating genomic profiling with established immunotherapy and emerging immune-based approaches may further refine patient selection and facilitate the development of next-generation precision cancer therapies.

Dr. Shiv K. Sarin
Professor of Eminence,
Chancellor and Director
Institute of Liver and Biliary Sciences, New Delhi,
India

Overwhelming Number of HCC cases with Portal Hypertension: Address a Big Challenge

TBA



APASL Oncology 2026 Tokyo

"Treatment Dynamics of Liver Tumors"

Abstracts

Sessions

Dr. Jae Hee Cho
Department of Internal Medicine, Gangnam Severance Hospital,
Yonsei University College of Medicine, Korea

Biliary Drainage and Anti-tumor Therapy for I/H-CCA: Real-World Sequencing in Asia

The management of intrahepatic (I-CCA) and hilar cholangiocarcinoma (H-CCA) has undergone a substantial transformation with the integration of immune checkpoint inhibitors into gemcitabine–cisplatin–based chemotherapy. As overall survival in advanced biliary tract cancer increasingly exceeds one year, clinical decision-making must extend beyond the simple selection of systemic agents and incorporate a longitudinal strategy that aligns biliary drainage durability with evolving anti-tumor therapy.

In the Asia-Pacific region, where cholangiocarcinoma burden and etiologic heterogeneity are particularly high, this concept of real-world sequencing reflects the bidirectional interaction between maintaining biliary patency and sustaining effective systemic treatment. A pragmatic total bilirubin threshold of ≤5.0 mg/dL following adequate drainage permits safe initiation of dose-adjusted gemcitabine-based chemotherapy while avoiding unnecessary delays that may compromise oncologic outcomes. For surgical candidates, lower bilirubin levels remain preferable to reduce postoperative hepatic insufficiency. With prolonged survival under chemo-immunotherapy, stent-demanding time frequently extends beyond 18 months, shifting the clinical focus from initial stent patency to long-term reintervention feasibility and cumulative procedural success. In high-grade malignant hilar obstruction, side-by-side bilateral metal stenting offers practical advantages over stent-in-stent configurations by facilitating easier revision in patients expected to survive longer under modern systemic therapy.

Anatomical distinctions further influence sequencing decisions, as hilar tumors often require immediate decompression before systemic therapy, whereas intrahepatic tumors may allow initial systemic treatment unless central biliary compression develops. Recurrent biliary obstruction remains a major cause of chemotherapy interruption and dose reduction; therefore, strategies that facilitate repeat access, including exchangeable stents and EUS-guided biliary drainage after failed ERCP, are increasingly incorporated into long-term planning. First-line treatment consists of gemcitabine–cisplatin combined with immunotherapy, while gemcitabine–cisplatin plus S-1 remains an alternative option in selected Asian practice settings. Upon disease progression, therapeutic selection should prioritize actionable molecular alterations identified through genomic profiling, with cytotoxic regimens reserved for biomarker-negative disease. Early implementation of liquid biopsy-based next-generation sequencing reduces diagnostic delay and ensures readiness for timely transition to targeted therapy at the time of progression.

In conclusion, real-world sequencing in I/H-CCA requires integrated planning that accounts for anatomy, tumor biology, anticipated survival, and procedural durability. Maintaining biliary patency is essential to sustain uninterrupted systemic therapy, whereas anticipated systemic longevity mandates drainage strategies optimized for durability and reintervention, providing a practical framework for improving outcomes in contemporary Asia-Pacific practice.

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2. Kelley RK, Ueno M, Yoo C, et al. Pembrolizumab plus gemcitabine and cisplatin vs gemcitabine and cisplatin in advanced biliary tract cancer (KEYNOTE-966). The Lancet. 2023.
3. Isayama H, Hamada T, et al. TOKYO criteria 2024 for assessment of clinical outcomes of endoscopic biliary drainage. Digestive Endoscopy. 2024.
4. Angsuwatcharakon P, et al. Updated Asia-Pacific consensus statement on endoscopic management in malignant hilar biliary obstruction. 2024.
5. Lamarca A, Palmer DH, Wasan HS, et al. Second-line FOLFOX vs active symptom control for advanced biliary tract cancer (ABC-06). The Lancet Oncology. 2021.

Dr. Hirofumi Kogure
Professor & Chairman, Division of Gastroenterology and Hepatology,
Department of Medicine, Nihon University School of Medicine,
Japan

Endoscopic Management of Biliary Obstruction in Intrahepatic and Hilar Cholangiocarcinoma

Cholangiocarcinoma (CCA) arising from intrahepatic bile ducts and the hepatic hilum represents one of the most challenging biliary malignancies in clinical practice. The majority of patients present at an unresectable stage, making effective biliary drainage a cornerstone of palliative management. Adequate relief of biliary obstruction is essential not only to alleviate jaundice but also to preserve hepatic function prior to systemic chemotherapy, thereby improving quality of life and potentially extending survival.

This lecture focuses on the endoscopic approach to biliary decompression in intrahepatic and hilar CCA, with particular emphasis on technical strategies required to manage these anatomically complex obstructions. Hilar CCA is classified according to the Bismuth-Corlette system, and the extent of ductal involvement profoundly influences the choice of drainage strategy. ERCP remains the first-line modality; however, the optimal number of stents and the selection of target segments for drainage remain debated. Unilateral versus bilateral stenting, and the importance of draining an adequate liver volume (≥50%), will be discussed with reference to current evidence and international guidelines.

Stent selection is a critical determinant of procedural success and long-term patency. Plastic stents placed in a conventional transpapillary fashion are limited by relatively short patency, whereas the inside stent technique—in which a plastic stent is deployed entirely within the bile duct without traversing the papilla—has gained attention as a means of preserving the sphincter of Oddi, reducing duodenobiliary reflux, and potentially lowering the risk of cholangitis. Additionally, fully covered self-expandable metal stents offer the theoretical advantage of removability and repositionability, making them an attractive option in the hilar setting where precise placement is paramount, and re-intervention may be anticipated. The merits, limitations, and evolving evidence for each of these approaches will be critically examined.

The role of EUS-guided biliary drainage, including hepaticogastrostomy and hepaticoduodenostomy, as a rescue strategy following failed ERCP will also be addressed.

The integration of biliary drainage with modern oncological treatments—including gemcitabine plus cisplatin-based chemotherapy and immune checkpoint inhibitors—underscores the need for a multidisciplinary approach. This lecture aims to provide a practical, evidence-based framework to guide endoscopists in optimizing outcomes in this demanding clinical setting.

Dr. Takashi Sasaki
Division Director of Minimally Invasive Treatment,
Department of Hepato-Biliary-Pancreatic Medicine,
Cancer Institute Hospital, Japanese Foundation for Cancer Research,
Japan

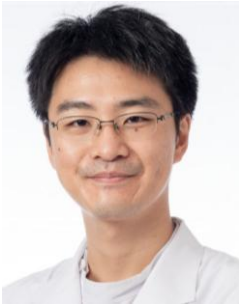
IO-Based Chemotherapy and matched therapy in I/H-CCA: What’s New and When to Start?

IO-based chemotherapy became the standard of care for the treatment of advanced cholangiocarcinoma. There are two regimens which demonstrated efficacy against this cancer: gemcitabine/cisplatin/durvalumab and gemcitabine/cisplatin/pembrolizumab. Furthermore, the efficacy of gemcitabine/cisplatin/S-1 has been demonstrated in Japan, and it is also considered one of the standard treatments for advanced cholangiocarcinoma. These three regimens can be used equally in Japan, but there is currently no evidence regarding their appropriate use. Precision medicine for advanced cholangiocarcinoma is another topic for advanced cholangiocarcinoma. The matched therapy based on genetic alteration is recommended to choose in the second-line setting. Approximately 40% of cholangiocarcinoma theoretically have matched therapies, but some drugs have not been covered by insurance yet in Japan. FGFR2 fusion, IDH1 mutation, BRAF mutation, HER2 amplification are the major genetic alteration associated with treatment. Additionally, there are also promising treatments for KRAS mutations and BRCA mutations. Matched therapy has also been confirmed to prolong prognosis, and together with IO therapy, it is expected to improve treatment outcomes for advanced cholangiocarcinoma.

Dr. Hiroyuki Isayama
Professor & Chairperson, Department of Gastroenterology,
Graduate School of Medicine, Juntendo University,
Japan

Consideration of Treatment Dynamics of I/H CCA from Tokyo Criteria

Endoscopic management of intrahepatic and hilar cholangiocarcinoma is still challenging. There are many unresolved issues in various statues, drainage area, number of the stent, stent selection, prevention of the post-procedural cholangitis, maintenance of drainage during the patients’ life, etc. Previously, endoscopists had focused on the time to recurrent biliary obstruction (TRBO) of the first stent because of expected short patients’ survival. However, since recent development of chemotherapy prognosis of the unresectable cases are prolonged. The chance of re-intervention is increasing currently. In addition, conversion surgery was another option in the unresectable cases received chemotherapy. Consideration of this situation, exchangeable stent was favorable. Previously, uncovered self-expandable metallic stent (U-SEMS) was recommended as firstline stent because of long TRBO, but it was not able to exchange. Current strategies for the management of hilar stricture employs plastic stent or covered SEMS. On the other hand, “Tokyo criteria 2024” is the proposal of standard evaluation system of endoscopic biliary drainage. Concept of Tokyo criteria is evaluating the strategies rather than TRBO of each stent, and the evaluation items are suitable for goal of the patient care. Evaluation of the various situations and procedures is other feature of Tokyo criteria. In this lecture, I will try to explain current management of hilar biliary obstruction and features of Tokyo criteria 2024.



Dr. Hiroaki Fujiwara
Chief researcher, Division of Gastroenterology,
The Institute of Medical Science, Asahi Life Foundation

Molecular Basis of Intrahepatic Cholangiocarcinogenesis and Its Therapeutic Implications

Intrahepatic cholangiocarcinoma (ICC) is a highly heterogeneous malignancy characterized by diverse genomic alterations and limited effective therapeutic options. Among these alterations, mutations in isocitrate dehydrogenase (IDH) have attracted considerable attention because of their relatively high frequency and unique biological consequences. Mutant IDH enzymes produce the oncometabolite 2-hydroxyglutarate, which induces widespread epigenetic dysregulation and is thought to contribute to early tumorigenic processes. Nevertheless, the process of biliary carcinogenesis remains unclear.

Previously, we reported that IDH mutation activates glycolytic activity in intrahepatic biliary epithelial cells (Scientific Reports, 2019). The glycolysis-related gene PFKP, a potential driver of this metabolic shift, was also found to be highly expressed in human IDH-mutant ICC. These findings led us to hypothesize that elucidating the functional roles of this mutation in biliary carcinogenesis may facilitate the identification of novel mutation-specific therapeutic targets. However, introduction of IDH mutations alone was insufficient to establish an in vivo tumor model.

In vivo models of IDH-mutant ICC are scarce, as existing models rely on genetic combinations that are uncommon in human tumors. Recently, several recurrent co-mutational patterns associated with IDH-mutant ICC have been identified through genomic studies. Based on these findings, we combined selected cooperative genetic alterations to establish a new human-relevant in vivo model of IDH-mutant ICC. Using this platform, we aimed to elucidate the process of biliary carcinogenesis and to identify novel therapeutic target relevant to human ICC.

Dr. Yusuke Kouchi
[1]Associate Professor (Pathology) Department of Molecular Pathology, Chiba University Graduate School of Medicine
[2]Genome Analysis Center, Yamanashi Central Hospital

Landscape of the Biliary Cancer-Field Elucidated by Minute Dissection-Based Molecular Mapping: Opening A New Path to Early Diagnosis

Early detection of biliary tract cancer (BTC) remains a major clinical challenge, as most patients are diagnosed at an advanced stage, limiting opportunities for curative intervention. Morphologically, BTC is frequently accompanied by mucosal “dysplasia” adjacent to invasive carcinoma, yet the biological significance of this finding has remained unclear. While cancer genomic studies have expanded our knowledge of BTC, they have largely relied on analyses of invasive carcinoma alone, leaving the genomic architecture of dysplasia and the surrounding biliary epithelium unexplored. To address this gap, we applied minute dissection–based molecular mapping to 14 surgically resected BTC cases (perihilar, n=6; distal, n=6; cystic duct, n=2). Following detailed histological mapping, multiregional sampling was performed across invasive carcinoma, dysplasia, and background epithelium. Between 9 and 23 regions were analyzed per case (total 199). From each region, approximately 4,000 tiny tissue pieces were dissected, enabling genomic analysis directly aligned with histopathological features. Targeted deep sequencing was performed using a 67-gene in-house panel tailored to pancreatobiliary cancer, and copy number alterations were assessed by digital PCR. This approach revealed two molecular types of BTC: cases with dysplasia and those without. In dysplasia-associated cases (11 of 14), founder mutations shared with invasive carcinoma were consistently detected across morphologically defined dysplasia and, in some cases, extended into adjacent epithelium. Together, these findings delineated a broad, clonally related genomic field enriched for tumor suppressor gene alterations, designated as a Pre-malignant Cushion. These founder events were dominated by tumor suppressor gene mutations, most notably TP53. Within this group, invasive carcinoma acquired additional somatic mutations and/or copy number alterations on top of the shared founder background, supporting the notion that invasion arises within a pre-established molecular substrate. In contrast, cases without dysplasia showed genetic alterations confined to the invasive carcinoma, with no detectable changes in the surrounding epithelium.

Collectively, our findings demonstrate that a broad, TP53-driven Pre-malignant Cushion represents a precursor substrate for BTC in a substantial subset of patients. By shifting the clinical focus from the invasive carcinoma alone to the surrounding molecularly altered epithelium, this framework suggests a new diagnostic paradigm: cholangioscopy-directed assessment combined with bile-based detection of TP53 alterations may enable identification of high-risk individuals before overt development of invasive cancer. Recognition of this Pre-malignant Cushion opens a path toward earlier diagnosis, risk stratification, and proactive surveillance in BTC.

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Beyond the Storm: Life After irAEs - The Hepatic Frontier

Immune checkpoint inhibitors have reshaped the treatment landscape of many solid tumors, including hepatocellular carcinoma (HCC). At the same time, immune-related adverse events (irAEs) have emerged as a new clinical reality. Among them, immune-related liver injury (irLI) occupies a central place in HCC, where most patients already have underlying chronic liver disease. The challenge is not limited to managing an acute event. It extends to how we care for patients after the storm has passed.

The incidence of irLI varies by regimen and is higher with combination therapy. With the recent approval of nivolumab plus ipilimumab for advanced HCC in Japan, attention to hepatic safety has become even more important. Dual immune checkpoint blockade can produce meaningful and durable responses, yet it is also associated with a higher frequency of hepatic adverse events. In patients with cirrhosis or advanced fibrosis, even moderate irLI may trigger hepatic decompensation. Careful baseline assessment of liver function and close monitoring during treatment are therefore essential.

Diagnosis of irLI is often complex. Elevation of liver enzymes may reflect immune-mediated hepatitis, tumor progression, viral reactivation, biliary complications, or other drug-induced injury. Histological findings are diverse and may include lobular hepatitis, bile duct injury, or mixed inflammatory patterns. Recently published Japanese clinical guidelines provide practical recommendations for grading, diagnostic workup, and corticosteroid-based management. They emphasize early recognition, exclusion of alternative causes, and multidisciplinary collaboration.

Management strategies depend on severity. Mild cases may be observed with close follow-up. Moderate to severe injury generally requires corticosteroids, and refractory cases may need additional immunosuppression. The decision to resume immunotherapy must balance antitumor benefit against the risk of recurrent liver injury.

Despite increasing clinical experience, the mechanisms underlying irLI remain incompletely understood. The interaction between pre-existing liver inflammation, tumor microenvironment, and systemic immune activation likely shapes susceptibility and severity. Deeper mechanistic insight may allow risk stratification and more individualized treatment strategies.

As immunotherapy becomes standard in advanced HCC, our focus must move beyond response rates. Life after irAEs, particularly in the hepatic setting, demands vigilance, structured management, and continued investigation at this evolving frontier.

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Hepatic irAEs and Survival Benefit: What We Learned from 924 Patients

It is unclear that there are associations between the occurrence of abnormal liver function tests, an immune-related adverse event (irAE) caused by immune checkpoint inhibitors (ICIs), and treatment efficacy. The association between the incidence of these hepatic irAE occurrences and treatment response in patients treated with ICIs was examined. In the present study, 924 patients treated with ICIs to determine the relationship between the incidence of irAEs and overall survival (OS) with and without the continuation of ICIs due to hepatic irAEs were included. Of 924 treated, 36.6% developed all types of irAEs. Median OS for patients with or without irAEs were 34.3 months or 13.1 months, respectively ($p = 2.49 \times 10\text{-}14$). In total, 6.7% patients developed hepatic irAE; 31 discontinued and 31 continued ICI. Of note, median OS with and without the continuation of ICI therapy due to hepatic irAEs was 54.3 months and 11.5 months, respectively ($p = 0.00589$). We further compared the difference of liver function tests among the two groups. Although aminotransferases are higher among discontinued group, stigmata of impending hepatic failure were no different among these two groups. Elevation of aminotransferases was higher in the discontinuation group than that in the continuation group. Analysis of the pattern of elevation of liver enzymes showed that the hepatocellular pattern was the dominant type in the discontinuation group rather than that in the continuation group. There is no difference of change of ALT levels (maximum/basal values) between both groups. In conclusion, of patients who developed hepatic irAEs, OS was longer in the continued treatment group than in the discontinued treatment group. Most patients who developed hepatic irAEs and stopped the treatment had higher aminotransferase, but often lacks the stigmata of impending hepatic failure such as prothrombin time prolongation or gradual elevation of total bilirubin. Multi-disciplinary cooperation, including hepatologists, may be important for OS improvement by the prolonged use of ICIs. In the near future, artificial intelligence (AI)-based methods may further refine risk stratification. Prospective studies will be needed to confirm the further association between hepatic irAE and OS.

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Innovative Bridging Therapies for HCC: From Transarterial Chemoembolization to Immune Checkpoint Inhibitors

Liver transplantation (LT) is a life-saving treatment for patients with end-stage liver disease and hepatocellular carcinoma (HCC), yet recurrence remains a major clinical challenge, affecting 8–20% of recipients. The rapid advancement of systemic therapies, particularly immune checkpoint inhibitors (ICIs), has provided new opportunities for downstaging and bridging to LT. However, the use of ICIs in the transplant setting introduces a complex dilemma due to the risk of acute and potentially fatal allograft rejection.

In the pre-transplant setting, ICIs are increasingly utilized to achieve tumor shrinkage and establish eligibility for curative LT. Despite successful outcomes, allograft rejection occurs in approximately 26% of cases according to systematic reviews. The risk of rejection is strongly influenced by the interval between the last ICI administration and LT. A washout period of more than 50–90 days is recommended to reduce rejection rates below 10%. This persistent risk is attributed to the prolonged half-life of anti-PD-1 antibodies and the persistence of memory T cells in the allograft.

Post-transplant management of HCC recurrence remains clinically challenging. While ICIs offer superior response rates compared to tyrosine kinase inhibitors (TKIs), their use in the post-LT setting can trigger fatal rejection, especially in grafts expressing PD-L1. This process results in immune-mediated injury to hepatocytes and graft failure. Currently, TKIs such as lenvatinib remain the standard of care for post-transplant recurrence due to their manageable safety profile.

The integration of ICIs into transplant oncology requires careful balancing of therapeutic efficacy against rejection risk, with appropriate washout intervals and close monitoring essential for optimizing patient outcomes.

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ERCP or EUS for Biliary Drainage Before Chemotherapy: Evidence and Practice Consideration

The purpose of biliary drainage before chemotherapy in non hilar and hilar malignant biliary obstruction (MBO) is to prioritize ≥50% viable liver volume drainage via cross-sectional imaging assessment to avoid atrophic segments. Randomized trials demonstrate self-expandable metal stents (SEMS) outperform plastic stents (PS), with higher successful drainage (70.4% vs. 46.3%), longer median survival (126 vs. 49 days), and reduced re-obstruction, despite comparable complications. Innovations like long slim SEMS, multi-hole fully covered SEMS, and side-by-side vs. stent-in-stent techniques enhance patency (e.g., 267 days median) and re-intervention success, particularly during chemotherapy.

For complex cases, experts advocate multi-segmental approaches (ERCP + EUS-BD) targeting left/right lobes, with EUS-guided hepaticogastrostomy/duodenostomy (HGS/HDS) as backups for inaccessible segments, achieving high technical success (84-100%) and lower recurrent biliary obstruction (RBO) rates vs. percutaneous transhepatic biliary drainage (PTBD). Covered/multi-hole SEMS reduce tumor ingrowth/migration, while PS or slim SEMS suit chemotherapy candidates due to replaceability.

Future directions highlight protocol refinements like on-demand plastic exchanges, radiofrequency ablation through stents, and novel multi-hole designs for prolonged patency in longer survivors. Overall, the presentation stresses multidisciplinary planning, limited contrast injection, and technique selection balancing patency, risks, and costs to optimize outcomes in MBO

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EUS-guided Biliary Drainage/Anastomosis: Technical Pearls and Pitfalls

Biliary drainage for unresectable perihilar or intrahepatic cholangiocarcinoma is often challenging because of the complex anatomy of the perihilar bile ducts, variability in stricture location, and tumor-related characteristics. Recent advances in chemotherapy, including the introduction of immune checkpoint inhibitors (ICI), have improved the prognosis of unresectable cholangiocarcinoma. To maximize the therapeutic benefit of ICI-chemotherapy, however, interruption of treatment due to stent-related complications requiring endoscopic reintervention should be avoided as much as possible. In addition, the use of antibiotics may attenuate the efficacy of ICI, highlighting the importance of selecting drainage strategies that minimize the risk of cholangitis. Given this heterogeneity, the biliary drainage strategy should be determined on a case-by-case basis.

Although ERCP-guided biliary drainage (ERCP-BD) remains the standard approach, EUS-guided biliary drainage or anastomosis (EUS-BD/A), including hepaticogastrostomy (HGS), hepaticoduodenostomy (HDS), and bridging stenting, represents a useful alternative. In high-volume centers, ERCP-BD alone, EUS-BD alone, or a combination of both approaches can be selected.

The representative indication for EUS-BD has traditionally been salvage therapy for failed or difficult ERCP cases, such as unsuccessful biliary cannulation, failure to selectively access target branches, or an inaccessible papilla. In addition, primary indications for EUS-BD, with or without ERCP-BD, should also be considered. First, cases with impaired communication among multiple intrahepatic bile ducts are important candidates. In such cases, ERCP-BD targeting all desired branches is often difficult, and reintervention for recurrent biliary obstruction or cholangitis is also challenging. Second, hypervascular or soft tumors should be considered. In ERCP-BD, stents placed across the stricture may cause tumor bleeding or intrastent tumor ingrowth, whereas EUS-BD stents are positioned in patent bile ducts away from the stricture, reducing these risks.

From a technical standpoint, EUS-BD for perihilar strictures is more demanding than for distal biliary strictures. In EUS-HGS or HDS, the short distance between the puncture site and the stricture often makes guidewire manipulation toward the deeper bile duct difficult, resulting in challenges during device insertion. Stent positioning is another concern. With partially covered metal stents, overly deep insertion can occlude side branches, which is particularly problematic in perihilar strictures where only limited liver segments can be drained. Conversely, shallow insertion increases the risk of bile leakage due to exposure of the uncovered portion into the peritoneal cavity. Although plastic stents do not occlude side branches, insufficient insertion may result in stent migration.

In this lecture, I present technical tips and pitfalls of EUS-BD/A for perihilar strictures.

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Does Quality of Biliary Drainage Affect Safety and Efficacy of Chemotherapy?

In patients with malignant biliary obstruction (MBO) undergoing chemotherapy for advanced biliary tract cancer (BTC), endoscopic retrograde cholangiopancreatography (ERCP) is the first-line option for biliary drainage. In cases of hilar MBO, several endoscopic drainage strategies are available, including unilateral versus bilateral drainage and the use of plastic versus metal stents. The recent introduction of immune checkpoint inhibitors (ICIs) has increased the number of long-term survivors with BTC and expanded the possibility of conversion surgery in patients with initially unresectable disease. Although evidence regarding the impact of biliary drainage strategies on chemotherapy outcomes remains limited, drainage of more than 50% of the liver volume—often requiring bilateral drainage—has been associated with improved survival. While bilateral metal stent placement as first-line drainage offers a longer time to recurrent biliary obstruction (TRBO), it is also associated with a higher likelihood of requiring percutaneous transhepatic biliary drainage as a reintervention. Moreover, metal stents may hinder subsequent conversion surgery. According to the Tokyo Criteria 2024 for endoscopic biliary drainage, treatment goals should not be determined solely by initial TRBO, and plastic stents placed above the papilla are recommended as first-line drainage. However, plastic stents are prone to occlusion and require repeated exchanges, and several questions remain unresolved, including the optimal strategy for on-demand versus scheduled stent exchange and the potential impact of antibiotic use on the efficacy of ICIs. Therefore, an individualized biliary drainage algorithm is needed to further optimize chemotherapy outcomes in patients with BTC.

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ERCP vs. EUS-BD/A ~Which should be the First-line Drainage? (Pro-ERCP)

Background and Objectives

Intrahepatic cholangiocarcinoma (I/H CCA) frequently involves the biliary hilum or adjacent intrahepatic bile ducts, often resulting in obstructive jaundice. Effective and safe biliary decompression is a critical prerequisite for the initiation of systemic chemotherapy and is closely associated with improved patient outcomes. Endoscopic ultrasonography-guided biliary drainage/anastomosis (EUS-BD/A) has recently emerged as a reliable salvage option following unsuccessful transpapillary drainage via endoscopic retrograde cholangiopancreatography (ERCP). Although recent studies have proposed EUS-BD/A as a potential primary drainage modality, ERCP-based approaches retain several important advantages that merit careful consideration when selecting the optimal drainage strategy.

Comparison of Procedural Outcomes

First, ERCP utilizes the physiological route through the major papilla, thereby minimizing the risk of bile leakage compared with the transmural access required for EUS-BD/A. In addition, the risk of peritoneal dissemination remains a concern in EUS-guided procedures. Historically, ERCP replaced percutaneous transhepatic biliary drainage (PTBD) as the standard approach largely due to concerns regarding needle-tract seeding. Similar oncologic caution should therefore be applied to EUS-guided biliary drainage, particularly in patients with potentially aggressive malignancies such as I/H CCA.

Second, ERCP offers superior versatility for addressing the complex anatomy of the right intrahepatic biliary system. Although EUS-guided hepaticoduodenostomy (EUS-HDS) has been reported as a technique for right-sided drainage, stable and selective access to the right anterior segmental branches remains technically demanding. In contrast, ERCP enables selective cannulation and multi-segmental drainage, which is often required in I/H CCA due to its characteristic hilar involvement.

Technical and Diagnostic Considerations

Several technical limitations of EUS-BD/A also persist. Currently, there is a lack of dedicated devices specifically designed for EUS-guided biliary interventions. Complications such as stent migration or dislodgement can lead to severe bile peritonitis, occasionally necessitating urgent surgical or radiological management. Moreover, although the use of specialized guide sheaths has been proposed to facilitate endobiliary biopsy during the initial EUS-BD session, the diagnostic yield, safety, and standardization of biopsies performed via an endosonography-created route (ESCR) remain insufficiently validated.

Conclusion

In summary, while EUS-BD/A plays an increasingly important role as a salvage modality for biliary drainage in patients with I/H CCA, ERCP should remain the preferred primary approach when transpapillary access is feasible. Its lower potential risk of peritoneal seeding, superior accessibility to right-sided biliary segments, and well-established safety profile support its continued role as the first-line biliary drainage strategy in this patient population.

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Which should be the First-line Drainage? Pro-EUS

ERCP remains the gold standard for primary biliary drainage in patients with biliary tract cancer. However, ERCP has several limitations, including the risk of post-ERCP pancreatitis and the need to place stents across the biliary stricture (tumor). Placement of multiple stents beyond a tight stricture is technically challenging, and traversing the tumor may increase the risk of tumor-related bleeding.

EUS-guided biliary drainage (EUS-BD) is not recommended for resectable disease because of the risk of bile leakage, but it may be effective in selected patients with unresectable disease and multiple biliary strictures. A key advantage of EUS-BD is the absence of post-ERCP pancreatitis. While ERCP often fails in cases of complete biliary obstruction, EUS-BD enables drainage of the dilated bile duct. In addition, because stents can be placed without crossing the stricture, precise stent exchange is feasible, and combination with ERCP may further improve biliary drainage.

EUS-BD is unsuitable for patients with ascites. Therefore, from a long-term clinical perspective, performing EUS-BD as **primary drainage before the development of ascites,** with ERCP added when necessary, may be a reasonable strategy. In **Bismuth type IV** hilar strictures, EUS-guided hepaticogastrostomy (EUS-HGS) alone may result in inadequate drainage, and EUS-guided hepaticoduodenostomy (EUS-HDS) should be considered at the initial procedure.

Because combination therapy with ERCP is often ultimately required, biliary drainage strategies should be planned with a long-term perspective.

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MAFLD-Related Hepatocellular Carcinoma: From Mechanistic Insight to Risk-Stratified Prevention

Metabolic dysfunction–associated fatty liver disease (MAFLD) has rapidly emerged as a dominant driver of hepatocellular carcinoma (HCC), reflecting the global rise in obesity, insulin resistance, and type 2 diabetes mellitus. As viral hepatitis–related HCC declines in regions with effective antiviral programs, MAFLD now represents the fastest growing etiology of primary liver cancer. Importantly, MAFLD-associated HCC exhibits distinct clinical and biological characteristics, including a substantial proportion—up to 30–40%—occurring in the absence of cirrhosis. This paradigm shift challenges traditional surveillance frameworks that are largely cirrhosis-centric.

The pathobiology of MAFLD-related HCC is rooted in chronic metabolic stress. Insulin resistance promotes hepatic lipotoxicity, mitochondrial dysfunction, and excessive reactive oxygen species production, leading to genomic instability. Persistent inflammatory signaling through TNF-α, IL-6, and NF-κB pathways sustains hepatocyte injury and compensatory proliferation. Concurrent activation of hepatic stellate cells and extracellular matrix remodeling generates a fibrogenic microenvironment that facilitates oncogenesis. Additional modulators include gut microbiome dysbiosis with endotoxin-mediated Toll-like receptor activation and host genetic variants such as PNPLA3 I148M, which independently increase HCC susceptibility. Collectively, MASLD-HCC may be conceptualized as a metabolically driven malignancy arising from chronic inflammatory and fibrotic signaling rather than viral oncogenic integration.

Risk stratification remains central to clinical management. Advanced fibrosis (F3–F4) is the strongest determinant of HCC risk, but diabetes independently confers a two- to four-fold increased incidence even after adjusting for fibrosis stage. Older age, male sex, visceral adiposity, and persistent metabolic dysfunction further amplify risk. Noninvasive assessment tools—including FIB-4, transient elastography, and enhanced liver fibrosis (ELF) scoring—provide pragmatic strategies for identifying patients who warrant surveillance. Current practice guidelines recommend semiannual ultrasound with or without alpha-fetoprotein in MAFLD cirrhosis, while emerging evidence supports individualized consideration of surveillance in selected patients with advanced fibrosis.

Beyond detection, prevention is increasingly recognized as a realistic objective. Sustained weight reduction of ≥10% is associated with histologic improvement and fibrosis regression, which may attenuate oncogenic progression. Pharmacologic interventions targeting metabolic and inflammatory pathways demonstrate promising chemopreventive signals. Metformin and statins have shown consistent associations with reduced HCC risk in large observational cohorts. GLP-1 receptor agonists and SGLT2 inhibitors improve steatosis, insulin resistance, and fibrogenic activity, with accumulating data suggesting potential reductions in HCC incidence. Novel thyroid hormone receptor-β agonists and antifibrotic agents further expand the therapeutic horizon.

In summary, MAFLD-related HCC represents a shifting oncologic landscape characterized by metabolic pathogenesis, heterogeneous fibrosis-dependent risk, and opportunities for proactive intervention. Integrating mechanistic insight with risk-stratified surveillance and metabolic therapy may fundamentally redefine liver cancer prevention in the coming decade.

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Synergistic AI Approaches for Precision HCC Risk Stratification in MASLD: From Digital Pathology to Clinical Trajectory Prediction

In clinical management of metabolic dysfunction-associated steatotic liver disease (MASLD), identifying patients at high risk for hepatocellular carcinoma (HCC) is a major challenge. While liver fibrosis is the most established risk factor, conventional staging systems often lack the precision to account for the diverse clinical courses observed in individual patients. This presentation discusses two complementary approaches developed using the STEALTH study (the STEAtotic Liver registry for invesTigating clinical outcomes including HCC), a nationwide multicenter registry in Japan. These models aim to refine HCC risk stratification through both pathological and clinical dimensions by applying artificial intelligence methodologies.

The first approach uses a deep learning model to analyze H&E-stained digital pathology from liver biopsies. A crucial aspect of this study is that the biopsies were performed at the time of initial MASLD diagnosis, often several years before HCC development. The objective was to identify subtle histological features in the background liver tissue that predispose patients to future malignancy. The model identifies specific cellular alterations that extend beyond traditional fibrosis staging. Saliency mapping indicates that features such as nuclear atypia, a high nuclear-cytoplasmic ratio, and changes in lipid droplet morphology within the background liver serve as early indicators of malignant potential. This allows for the identification of high-risk signatures even in patients with mild fibrosis, who might otherwise be considered at low risk under current surveillance guidelines.

In addition to these pathological insights, we developed a machine learning-based model to provide a non-invasive tool for predicting individualized HCC risk in a clinical setting. Using longitudinal data from the STEALTH registry, this model calculates personal risk trajectories over time based on routine parameters such as platelet count, albumin, and age. This approach successfully differentiates distinct risk levels among patients categorized within the same advanced fibrosis stage, addressing the limitations of linear statistical models in capturing the multifactorial nature of MASLD.

These two methodologies, derived from a robust Japanese cohort, provide a dual-layered strategy for HCC prevention. While digital pathology offers insights into the hidden pathophysiology of the background liver long before carcinogenesis, the clinical model provides a practical tool for real-time risk assessment. Together, these tools support a transition toward more personalized surveillance and early intervention for patients with MASLD.

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Fibrosis, Stiffness Dynamics, and Cancer Risk: Lessons from MASLD Clinical Practice

Metabolic dysfunction–associated steatotic liver disease (MASLD) has emerged as one of the most prevalent causes of chronic liver disease worldwide and may progress to metabolic dysfunction–associated steatohepatitis (MASH) and advanced fibrosis, ultimately leading to cirrhosis and hepatocellular carcinoma (HCC). Across disease stages, fibrosis severity is the principal determinant of liver-related outcomes, including HCC risk.

Recent phase 2 and 3 trials of incretin-based therapies have demonstrated histological improvements in steatohepatitis and fibrosis in patients with MASH. Consistent with these findings, in our real-world cohort of patients with MASLD and type 2 diabetes mellitus (T2DM) treated with semaglutide or tirzepatide, significant longitudinal reductions in liver stiffness were observed alongside improvements in body weight, glycemic control, and liver enzymes.

These advances underscore the importance of accurately identifying advanced fibrosis for both prognostic assessment and therapeutic intervention. Using data from a nationwide, multicenter cohort of biopsy-confirmed MASLD, we evaluated the performance of a stepwise non-invasive risk stratification pathway in Japanese patients, incorporating FIB-4 followed by second-line assessment with the enhanced liver fibrosis (ELF) test or vibration-controlled transient elastography (VCTE). This approach demonstrated effective risk stratification for advanced fibrosis and supports the use of ELF as a pragmatic option where VCTE is not readily available. Importantly, in individuals with T2DM, a high-risk population for disease progression and HCC, advanced fibrosis may be misclassified as low risk at the initial FIB-4 step, thereby limiting subsequent risk refinement within conventional sequential pathways. Extending second-line ELF or VCTE assessment beyond the intermediate-risk category may improve detection of advanced fibrosis within this stepwise screening framework.

As pharmacotherapies for MASH begin to enter clinical practice, non-invasive tests will need to expand their role beyond risk stratification to support the identification of patients with at-risk MASH (stage ≥F2) eligible for therapeutic intervention, as well as the longitudinal monitoring of treatment response. Whether improvements in non-invasive fibrosis surrogates observed during therapy translate into modification of long-term clinical outcomes remains to be determined in prospective studies.

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Molecular Mechanisms of MASLD-related Hepatocarcinogenesis and Therapeutic Interception

MASLD–related HCC arises through multiple pathways shaped by chronic metabolic stress. Two principal carcinogenic routes have been proposed. One is the classical inflammation-driven pathway, where hepatocyte injury from lipotoxicity and oxidative stress leads to persistent inflammation, fibrosis progression, and eventual malignant transformation. The other is a more direct route in which oxidative and metabolic stress themselves promote genomic instability and oncogenic signaling, even in the absence of marked inflammation. A distinctive feature of MASLD-associated hepatocarcinogenesis is the sustained metabolic stress that imposes strong selective pressure on hepatocytes. This environment favors clonal expansion of hepatocytes that gain survival advantages through metabolic reprogramming, including altered lipid handling, redox adaptation, and resistance to cell death. Given this multifactorial complexity, MASLD-HCC requires an integrated approach that captures both cellular metabolism and the surrounding microenvironment. We have therefore undertaken studies using AI-based pathology, multi-omics profiling, and metabolic characterization of hepatocytes to stratify heterogeneous MASLD patients and identify actionable pathways for precision medicine. In this presentation, I will introduce part of our recent work elucidating the mechanisms of MASLD-related hepatocarcinogenesis.

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Pharmacologic Prevention of MASLD-related HCC: From SGLT2 Inhibitors to Next-generation Metabolic Modulators

MASLD is becoming a leading cause of hepatocellular carcinoma (HCC). Therefore, establishing chemopreventive strategies for MASLD-related HCC is an urgent unmet need. While lipophilic statins, aspirin, and metformin show potential, their use specifically for chemoprevention requires further validation regarding safety and optimal dosing.

Currently, Sodium-glucose cotransporter 2 inhibitors (SGLT2i) are pivotal in modifying the natural history of MASLD. Our translational research identified that SGLT2 is expressed in hepatocytes of patients with chronic liver disease, where it interacts with metabolic and inflammatory factors. Mechanistically, our multi-omics analysis revealed that SGLT2i suppresses HCC cell proliferation by modulating metabolic reprogramming, specifically altering mitochondrial oxidative phosphorylation and fatty acid metabolism. Clinically, our nationwide database study demonstrated that SGLT2i significantly improved fibrosis markers and reduced major life-threatening events, including esophageal varices and extrahepatic cancer, compared to DPP-4 inhibitors.

In addition to SGLT2i, the therapeutic horizon is rapidly expanding. Next-generation incretin-based therapies, including GLP-1 receptor agonists and dual GLP-1/GIP receptor agonists, have demonstrated profound efficacy in weight loss and improvement of hepatic fibrosis. Moreover, glucagon receptor/GLP-1 receptor agonists and FGF-21 analogs are emerging as potent agents. These therapies not only improve systemic metabolism but also target mitochondrial function and reduce lipotoxicity, thereby directly mitigating hepatic fibrosis, the strongest predictor of hepatocarcinogenesis.

Looking further ahead, the era of molecular precision medicine approaches. Emerging data indicate that microRNAs (miRNAs) are master regulators of hepatic fibrosis and carcinogenesis, controlling gene expression related to inflammation and cell proliferation. Therapeutic modulation of specific miRNAs using synthetic mimics or inhibitors represents a novel frontier to halt the transition from steatohepatitis to HCC.

In conclusion, the pharmacologic prevention of MASLD-related HCC is evolving from observational associations to mechanistic-based interventions. The integration of SGLT2 inhibitors, emerging incretin receptor agonists, glucagon receptor agonists, and FGF-21 analogs, as well as future molecular targets, holds the promise of a comprehensive, personalized preventive strategy.

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Systemic Therapy for Unresectable Hepatocellular Carcinoma-2026 and Beyond

In Asia-Pacific region, hepatocellular carcinoma (HCC) is a serious health threat attributing to over 600,000 deaths each year and account for over seventy percent of global cases. Clinically, the major unmet needs are recurrence after curative intent surgery or local ablation and disease progression in those with hepatocellular carcinoma not eligible for resection. In this regard, new targeted therapy and immune-checkpoint inhibitors (ICIs) have been registered as systemic therapy to address these issues. The gravity of chronic hepatitis B and C as etiology of HCC in Asia-Pacific region, is of great relevance as the response to ICIs has been suggested to be much higher, as compared to targeted therapy. In the future, further implementation of ICIs and other form of immunotherapy are expected to bring a new paradigm to the management of HCC. New insight and hence management strategy related to immune-mediated adverse events with the use of immunotherapy is also enabling one to optimize therapeutic approach to our patients with HCC. In 2026 and beyond, one is expected to see an increasing use of systemic therapy, especially those related to the ICIs to answer the unmet needs in the management of HCC, i.e. disease progression in those patients with unresectable HCC and TACE-treated patients and HCC recurrence after local ablative surgery or radiofrequency ablation and liver transplantation. With the proper use of systemic therapy, preferably with multi-disciplinary team approach with the aid of AI in the future, new hope is brought upon to prolong the overall survival with quality life to our patients with HCC. As HCC is a heterogenous disease, with variable treatment responses despite comparable clinicopathologic features, such as disease stage, tumor burden, and underlying etiology, one expects AI-driven clinical, radiological, histological and omics data analysis will allow “tailored-made” management be brought to our patients. In the future, we should aim not just to control disease progression but to bring “cure” to our patients with HCC.

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Mainland China Perspective: Systemic Therapy for Hepatocellular Carcinoma: Access, Sequence, and New Combination Strategies

The burden of hepatocellular carcinoma (HCC) in Mainland China remains distinct from Western populations. With over 80% of cases due to Hepatitis B Virus (HBV) and a high prevalence of late-stage diagnosis (CNLC Stage IIb/IIIa), the China perspective emphasizes aggressive, multi-modal strategies to achieve downstaging and prolonged survival.

As of 2026, the accessibility of systemic therapy in Mainland China has reached a new milestone through the National Reimbursement Drug List (NRDL) and the newly implemented Commercial Health Insurance Innovative Drug Catalog. The NRDL (Basic Coverage): Includes established combinations such as Atezolizumab + Bevacizumab and domestic "me-better" drugs like Sintilimab + Bevacizumab biosimilar (IBI305) and Camrelizumab + Rivoceranib. These are now available to >95% of the population at significantly reduced costs. This new pathway (2025/2026) allows for the introduction of high-value breakthroughs—such as next-generation CAR-T therapies and novel dual-specific antibodies—without the immediate deep price cuts required by the NRDL, bridging the gap between global innovation and local affordability.

Regarding combination strategies, Mainland China has pioneered the "triple-combination" and "quadruple-combination" paradigms, moving beyond the global standard of care to address high tumor burdens. Major strategies include 1) Systemic plus Systemic focusing on high ORR and manageable safety, such as PD-1 + TKI (e.g., Camrelizumab + Rivoceranib); 2) Systemic plus Locoregional focusing on high conversion rates for unresectable HCC, such as TACE/HAIC + PD-1 + TKI; 3) Peri-operative focusing on reducing recurrence in high-risk resectable patients, such as Neoadjuvant Camrelizumab + Rivoceranib. The CARES-009 and TALENTACE trials have been pivotal in establishing these combinations as a standard for intermediate and advanced stages in the Chinese population.

With multiple first-line options, the sequencing of therapy has become a complex clinical decision. First-Line : Immuno-oncology (IO) combinations (e.g., Atezo/Bev, Durva/Treme, or Camre/Rivo) are now preferred. In China, HAIC-inclusive combinations are increasingly used as first-line for patients with bulky tumors or portal vein tumor thrombus (PVTT). Second-Line and Beyond: following progression on IO-VEGF, the choice shifts to TKIs like Regorafenib or Apatinib, or switching the IO backbone. The "re-challenge" with different checkpoint inhibitors is a topic of intense ongoing research in Chinese centers.

In the future, the focus is shifting toward: 1) Biomarker-Driven Selection: utilizing liquid biopsies and genomic profiling to predict response to IO vs. TKI; 2) novel mechanisms: Investigating TIGIT, LAG-3, and bispecific antibodies (e.g., Rilvegostomig) to overcome resistance; 3) the "Cure" Intent: Leveraging high Objective Response Rates (ORR) from combination therapies to convert "unresectable" to "resectable," aiming for long-term survival rather than mere palliation.

Therefore, Mainland China strategies must remain HBV-centric; the synergy between antiviral therapy and intensified systemic combinations is mandatory. Unlike Western palliative goals, Mainland China perspective uses systemic therapy as a bridge to surgery/ablation (Conversion Therapy).

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Taiwan Experience: Balancing TKI, ICI, and Real-world Constraints

The treatment landscape for advanced hepatocellular carcinoma (aHCC) in Taiwan has entered a sophisticated era defined by the integration of immunotherapy combinations. However, clinical practice remains heavily dictated by the specific reimbursement framework of the Taiwan National Health Insurance (NHI) system. Under current regulations, eligibility for first-line (1L) systemic therapy is strictly defined: patients must be TACE-refractory (failing three procedures within 12 months) or present with advanced disease characterized by macrovascular invasion (VP2–VP4) or extrahepatic spread. While the inclusion of 1L immune checkpoint inhibitor (ICI) combinations—such as Atezolizumab plus Bevacizumab and Tremelimumab plus Durvalumab—marks a significant milestone, a major "real-world constraint" persists: the absence of NHI reimbursement for second-line (2L) therapy following ICI failure. Currently, 2L Regorafenib is reimbursed exclusively for patients who previously failed 1L Sorafenib. In real-world practice, Lenvatinib is the most common 2L choice following ICI progression, though sequential ICI-after-ICI strategies are occasionally attempted despite the lack of formal coverage.

The absence of universal biomarkers for ICI selection further necessitates a nuanced clinical approach. To bridge these systemic gaps, the "Taiwan Strategy" frequently employs a multimodal approach—synergizing systemic agents with locoregional treatments such as TACE or advanced external radiotherapy, including Proton Beam Therapy and Carbon Ion Radiotherapy (CIRT). The Taiwan experience highlights a high-standard clinical environment defined by a "reimbursement cliff" post-ICI failure.

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Systemic Therapy for Advanced Hepatocellular Carcinoma in the Era of Combination Immunotherapy: Real-world Treatment Sequences and Outcomes from the HERITAGE Study

Background: Since 2023, the combination of durvalumab plus tremelimumab (DT) has joined atezolizumab plus bevacizumab (AB) as a first-line systemic therapy for advanced hepatocellular carcinoma (HCC). This study aimed to evaluate the real-world utilization, treatment sequences, and therapeutic outcomes of systemic therapies in Japan using the HERITAGE (Hepatoma Registry of Integrating and Aggregating EHR) database.

Methods: The HERITAGE study is a multicenter registry of patients receiving systemic therapy at institutions affiliated with the Japan Liver Cancer Association. We analyzed 1st, 2nd, and 3rd-line treatments initiated between January 2023 and December 2024. Objective response rate (ORR) and disease control rate (DCR) were calculated based on RECIST v1.1 for evaluable cases. Second-line efficacy was analyzed for sequences with more than 10 cases.

Results: A total of 1,016 patients (1,388 treatment lines) were enrolled. The distribution of agents (AB / DT / durvalumab [D] / lenvatinib [LEN] / sorafenib [SOR] / cabozantinib / ramucirumab / regorafenib) was as follows:

- 1st-line: 604 / 120 / 48 / 237 / 7 / 0 / 0 / 0
- 2nd-line: 63 / 54 / 9 / 124 / 8 / 8 / 2 / 1
- 3rd-line: 12 / 22 / 2 / 19 / 4 / 12 / 6 / 1

Efficacy Outcomes:

- 1st-line (ORR/DCR): AB (30%/76%), DT (31%/62%), D (22%/58%), LEN (33%/76%).
- 2nd-line (ORR/DCR) by Sequence: AB after DT: 29%/79%

AB after LEN: 24%/64%
DT after AB: 7%/41%
DT after LEN: 33%/42%
LEN after AB: 23%/59%
LEN after DT: 17%/75%

Conclusion: Following its introduction, DT is being utilized in both first-line and subsequent settings. While treatment outcomes appear to vary depending on the specific sequence of AB, DT, and LEN, the current sample sizes for certain sequences remain limited. As the importance of optimal treatment sequencing grows in the era of combination immunotherapy, further accumulation and analysis of real-world data are essential.

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How Do We Sequence Systemic Therapy in Daily Practice?

Systemic therapy for advanced hepatocellular carcinoma (HCC) has evolved substantially in recent years. Since 2020, combination immunotherapy has become the standard first-line approach. Atezolizumab plus bevacizumab, nivolumab plus ipilimumab, and durvalumab plus tremelimumab are now widely used. In several Asian countries, camrelizumab plus rivoceranib and sintilimab plus bevacizumab biosimilar are incorporated into routine practice. Despite regional differences, the underlying strategy is shared: PD-1 or PD-L1 blockade combined with either VEGF inhibition or CTLA-4 blockade.

The difficulty emerges after disease progression. No clear sequencing strategy has been established beyond first-line combination therapy. VEGF-targeted tyrosine kinase inhibitors, including sorafenib, lenvatinib, regorafenib, and cabozantinib, remain key options. Rechallenge with immune checkpoint inhibitors or alternative immune-based regimens may also be considered. Yet most available evidence derives from single-arm studies or real-world analyses, and direct comparative data are limited. As a result, treatment decisions are guided by prior drug exposure, toxicity profiles, pattern and pace of progression, and clinical judgment.

HCC presents a distinct challenge because it arises in the context of chronic liver disease. Preserving hepatic functional reserve is therefore central to any sequencing strategy. Tumor progression, cumulative treatment effects, and immune-related liver injury can all compromise liver function. Once ALBI grade deteriorates or Child–Pugh class declines, therapeutic options become restricted. Sequencing is not solely about selecting the next active agent; it is about sustaining liver function to keep future treatments feasible.

In daily practice, a pragmatic framework is useful. Initiate combination immunotherapy in patients with preserved liver function and adequate performance status. At progression, select an agent with a different mechanism of action and reassess liver function carefully before each transition. Monitor ALBI score and overall clinical status throughout treatment. Avoid compromising hepatic reserve early in the disease course. The objective extends beyond achieving response; it is to preserve the opportunity for subsequent therapy.

Prospective studies are needed to define optimal sequencing. Until such data are available, careful evaluation and measured decision-making remain fundamental in the management of advanced HCC.

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Systemic Therapy Biomarkers: Translating Molecular Signatures into Clinical Decisions

The approval of multiple immune-based regimens for advanced hepatocellular carcinoma (HCC), including atezolizumab plus bevacizumab (Atez/Bev), durvalumab plus tremelimumab (Dur/Tre), and nivolumab plus ipilimumab (NIV/IPI), has created new opportunities for personalized therapy while simultaneously increasing the need for robust biomarkers that can guide optimal regimen selection. Our recent studies integrate tumor-intrinsic biology, circulating biomarkers, and systemic immune profiling to construct a translational framework for precision immunotherapy in HCC.

At the tumor level, we demonstrated that aberrant activation of the NRF2 pathway induces a metabolically driven, immunologically COLD microenvironment characterized by p62 accumulation, COX2/PGE2 signaling, and restricted lymphocyte infiltration. These findings reveal a mechanistic basis for resistance to immune checkpoint–based combination therapy and identify the NRF2–COX2 axis as a targetable pathway with potential therapeutic implications across current systemic regimens.

Complementing these tumor-intrinsic mechanisms, our work on circulating Carbonic Anhydrase IX (CAIX) established this marker as a non-invasive predictor of resistance to Atez/Bev. Elevated plasma CAIX reflects hypoxia-driven tumor biology and correlates with poor outcomes, while CAIX itself represents a candidate therapeutic target. This study highlights how blood-based biomarkers can capture dynamic features of tumor physiology that influence response to immunotherapy.

To understand systemic immune correlates of treatment efficacy, we performed single-cell transcriptomic and TCR repertoire profiling of peripheral blood mononuclear cells from patients receiving Atez/Bev or Dur/Tre. This analysis identified distinct immunological programs associated with each regimen. Responders to Atez/Bev exhibited coordinated activation of monocytes and NK cells, suggesting an innate cytotoxic mechanism of action. In contrast, responders to Dur/Tre showed activation of monocytes and reprogramming of $CD8^+$ memory T cells into an effector-ready state, consistent with CTLA-4–mediated enhancement of T-cell priming. TCR repertoire features, including baseline diversity and clonal expansion, further emerged as potential predictors uniquely relevant to regimens containing CTLA-4 blockade, thereby offering mechanistic insight that likely extends to NIV/IPI as well.

Taken together, these three studies provide complementary perspectives demonstrating that therapeutic responsiveness in HCC is shaped by tumor metabolic pathways, circulating biomarkers reflecting hypoxia and aggressiveness, and systemic immune architecture that differs across treatment classes. Integrating these multidimensional signatures enables a biomarker-guided approach to selecting among Atez/Bev, Dur/Tre, and NIV/IPI, advancing the development of precision immunotherapy strategies for HCC.

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The Evolving Landscape of Systemic Therapy

Hepatocellular carcinoma (HCC) is still one of the most common causes of cancer death in the Asia–Pacific region. Among treatment options for HCC, including liver resection, transplantation, ablation, transarterial chemoembolization (TACE), and radiation therapy, systemic therapy has changed quickly in recent years. The role of systemic therapy is also moving earlier in the disease course, not only for advanced cancer but also around surgery and locoregional therapy.

For first-line treatment of unresectable or advanced HCC, immune checkpoint inhibitor (ICI)–based combination therapy is now the main standard. Atezolizumab plus bevacizumab showed a clear survival benefit compared with sorafenib and has been widely adopted in many Asia–Pacific countries. Another important option is the combination of durvalumab and tremelimumab (the STRIDE regimen), which does not require anti-VEGF therapy and can be useful in patients with a high bleeding risk or portal hypertension. Recently, nivolumab plus ipilimumab has been approved and has shown promising objective response rates and duration of response. In addition, several regimens developed and tested mainly in Asia have become important, such as sintilimab plus a bevacizumab biosimilar, camrelizumab plus rivoceranib, and tislelizumab monotherapy. These trials reflect the strong contribution of the Asia–Pacific region to global HCC research.

Second-line therapy remains necessary because many patients eventually progress after first-line treatment. In addition to tyrosine kinase inhibitors (TKIs) such as regorafenib and cabozantinib, which are supported by phase III data, lenvatinib is also widely used as a second-line regimen in Japan. Switching regimens among ICI-based combinations is also attempted in Japanese clinical practice, which is partially supported by observational studies.

Systemic therapy is also expanding into earlier stages. Combination strategies with TACE are being actively studied, and recent trials suggest improved progression-free survival when immunotherapy and anti-VEGF therapy are added to TACE, although the benefit in overall survival is still limited. In the adjuvant setting after curative resection or ablation, the benefit of ICI-based therapy has not been established despite early treatment responses. Neoadjuvant approaches using immunotherapy before surgery or transplantation are still investigational but are attracting attention, especially in high-risk patients. Overall, the treatment landscape of HCC in the Asia–Pacific region is becoming more complex, and careful sequencing and patient selection are increasingly important.

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The Experience of Liver Transplantation for HCC in Qingdao

Background: Liver transplantation (LT) remains the definitive treatment for selected patients with hepatocellular carcinoma (HCC). However, recurrence and post-transplant complications like graft-versus-host disease (GVHD) continue to challenge long-term survival. This study summarizes the clinical outcomes, surgical innovations, and recent research breakthroughs from a high-volume transplant center.

Methods: We retrospectively reviewed 1,897 LT cases performed by our team, including 760 cases (40.2%) for hepatic malignancies. Key strategies evaluated included: 1) Preoperative down-staging using TACE, Y-90, or immune checkpoint inhibitors (ICIs). 2) Surgical techniques such as modified piggyback LT with vena cava plasty to minimize tumor compression. 3) Induction therapy with rabbit anti-thymocyte globulin (rATG) to prevent GVHD and manage patients previously treated with ICIs.

Results: The analysis of 1,897 LT cases, including 760 for hepatic malignancies, demonstrated a significant improvement in clinical outcomes, with the 5-year overall survival (OS) rate reaching 51.23% for the 2014-2020 cohort and the 1-year OS rising to 88.43% in recent years (2021-2022). By implementing the UNOS-DS criteria for preoperative down-staging, a success rate of over 80% was achieved, resulting in a remarkable 2-year post-LT survival rate of 95% and a low recurrence rate of 7.9%. Surgical innovation, specifically the modified piggyback LT with vena cava plasty, effectively reduced intraoperative blood loss and addressed complex cases involving severe adhesions. Furthermore, the application of ATG donor pre-treatment significantly lowered the incidence of acute graft-versus-host disease (GVHD) from 0.95% to 0.14% between 2020 and 2025. Complementing these clinical advancements, multi-omic research identified a CAF-stemness-governed molecular classification, providing a robust model for predicting high-risk recurrence beyond traditional Milan criteria and offering new insights into the personalized management of HCC patients.

Conclusion: A multidisciplinary approach—incorporating effective down-staging, individualized immunosuppression (e.g., rATG induction), and surgical refinements—significantly improves outcomes for HCC patients undergoing LT. Molecular subtyping further provides a foundation for personalized post-transplant management.

Keywords: Liver Transplantation; Hepatocellular Carcinoma; Down-staging; ATG Induction; Graft-versus-Host Disease (GVHD); Molecular Subtyping

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Optimizing Outcomes of Living Donor Liver Transplantation for Hepatocellular Carcinoma

With the recent advances in surgical techniques, locoregional and medical therapies in the management of HCC, prognosis of patients with HCC has tremendously improved. Liver transplantation has undoubtedly become the definitive standard treatment in providing the longest overall and recurrence-free survival when performed within one of many validated criteria. In Asia, where LDLT has been more widely accepted and has flourished, we have continuously explored and produced innovative surgical techniques that have effectively expanded not only the donor pool but likewise extended recipient indications for LDLT. In recent 5 years, rather than excluding locally advanced HCC or with unfavorable histopathology, we have started to selectively utilize proton beam or Yttrium-90 radioembolization as an alternative locoregional therapy to bridge or downstage locally advanced or aggressive HCC to improve recurrence-free survival.

Our experience has demonstrated that down-staged HCC patients have similar survival outcomes to that of patients who initially fit the criteria. Attempts to achieve complete pathological response by loco-regional therapy before transplant may further improve recurrence-free survival. Powerful modern locoregional therapies like proton beam and Y-90 combined with target and/or immunotherapy may effectively bridge or downstage locally advanced or aggressive HCC in preparation for timely LDLT, with promising survival outcomes in patients with otherwise dismal prognoses.

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How We Define Resectability of HCC in Practice

With the recent introduction of new systemic agents, there has been active discussion regarding the concept of “conversion surgery”, as a part of a multidisciplinary treatment approach for advanced hepatocellular carcinoma (HCC). However, due to the unique characteristics of HCC, clinical decisions are not as straightforward as they are for other types of cancer. Thus, it is important to acknowledge that the concept of cure is generally challenging in the context of HCC, even following curative-intent surgery. Nevertheless, evidence suggests that surgery is a potent therapeutic option for HCC and offers survival benefits for selected cases with advanced disease. The most important step in discussing the concept of conversion is defining the resectability of HCC. In this talk, our approach in defining oncological resectability of HCC, which relates to the probability of a successful surgical intervention will be discussed.

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The Concept of Borderline Resectable HCC: Japanese Perspective

In HCC, as in pancreatic cancer, the concept of borderline resectable has been discussed. We proposed following the three groups: resectable-(R), borderline resectable-(BR), and unresectable (UR)-HCCs. Resectable two groups were sub-divided according to the value of indocyanine green clearance of remnant liver (ICG-Krem) and presence of macrovascular invasion (MVI); BR-HCC was defined as resectable HCCs with MVI and/or ICG-KremC0.03–¥0.05, and R-HCC was the remaining (Yoh T et al. World J Surg, 2023). Furthermore, we modified the classification of the R- and BR-HCC, using macrovascular invasion, tumor size, and future liver remnant/modified albumin-bilirubin scores (Nakamura I et al. Hepatology Res, 2024). Finally, the “Japanese Expert Consensus 2023” report by the Working Group of the Joint Project of the Japan Liver Cancer Association (JLCA) and the Japanese Society of Hepato-Biliary-Pancreatic Surgery proposed a new definition of the oncological resectability of HCC (Akahoshi K et al. Liver Cancer, 2024). Resectability is defined by the number of tumors, largest tumor diameter, degree of vascular invasion, and extent of extrahepatic spreads. BR1 includes cases with more than 3 but no more than 5 tumors; a maximum tumor diameter of more than 3 cm but less than 5 cm; or macroscopic vascular invasion of Vp2-3, Vv2, or B2-3, which is a tumor condition with a poor prognosis when treated with resection alone, but resection as part of multidisciplinary treatment is expected to improve prognosis.

Furthermore, the “Working Group on the Definition of Conversion” as a Japan Liver Cancer Association project proposed standardized definitions for “conversion surgery,” “neoadjuvant therapy,” and “ablation as conversion therapy,” while recommending that transarterial chemoembolization should not be classified as conversion therapy due to its limited curative potential (Ichida A et al. in submitted). Neoadjuvant therapy was defined that treatment is performed after a treatment plan and surgery date have been decided for cases that are originally eligible for curative resection. Neoadjuvant therapy is used when preoperative treatment is performed after a schedule has been decided for BR1 and BR2 cases that are eligible for curative resection in the hope of further improving the prognosis. Phase II study of Lenvatinib plus hepatic intra-arterial infusion chemotherapy (HAIC) with cisplatin followed by surgical resection in patients with BR-HCC with macrovascular invasion (LEOPARD-Neo study) is ongoing.

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What is A-HOC? Consortium Vision, Structure, and Activities: APASL Oncology Platform for A-HOC Expansion

Background: Hepatocellular carcinoma (HCC) remains a major health challenge in the Asia–Pacific region, which accounts for the majority of global cases. Given the diverse etiologies, treatment environments, and healthcare systems across the region, real-world, multi-ethnic, and multi-institutional evidence is essential for understanding disease behavior and optimizing management strategies. The Asian Hepatocellular Carcinoma Outcomes Consortium (A-HOC) was established to harmonize clinical data and foster regional collaboration. APASL Oncology provides an ideal platform to accelerate this initiative and expand its scientific and clinical influence.

Objectives: This presentation aims to: (1) outline the vision, mission, and structural framework of A-HOC; (2) present updated consortium-wide data as of December 2025; and (3) illustrate how coordinated regional collaboration advances HCC research, supports high-quality evidence generation, and ultimately informs improved patient care.

Methods: A-HOC integrates anonymized real-world clinical data from participating countries and institutions through a unified registry system. Investigators input standardized demographic, clinical, treatment, and outcome variables, enabling robust large-scale analyses and meaningful cross-regional comparisons. This structure supports both descriptive epidemiology and hypothesis-driven research across the consortium.

Consortium Status (Dec 2025): A-HOC currently includes 29 institutions across 9 countries/regions, with 53 contributing researchers and 9,214 enrolled HCC cases. The registry is approaching 10,000 cases, positioning A-HOC among the largest multi-national real-world HCC datasets in the region.

Key Findings: The dataset demonstrates substantial regional variability in patient characteristics; however, when prognosis is analyzed within each BCLC stage, no significant differences are observed. This suggests that standardized staging allows meaningful cross-regional evaluation and underscores the importance of collaborative efforts to refine clinical practice and optimize care strategies.

Conclusion: As A-HOC nears the 10,000-case milestone, it exemplifies the strength of coordinated regional research efforts. Continued collaboration across Asia–Pacific will further enhance evidence generation and support advances in HCC care. APASL Oncology continues to serve as a key driver for A-HOC’s expansion and broader global engagement.

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Building a Unified HCC Dataset: Turkey’s Contribution to A-HOC’s Regional Evidence Platform

Hepatocellular carcinoma (HCC) is a leading cause of cancer-related deaths worldwide. Early diagnosis, clinical staging, and management strategies are essential for improving outcomes.
The baseline demographic and clinical characteristics of patients play a crucial role in understanding the progression of HCC. A total of 9 centers from Türkiye participated in the A-HOC study, and 509 HCC cases have been submitted up to September 2025. We analyzed data from 438 patients diagnosed with HCC in this cohort. The data were collected from multipl institutions and included demographic, clinical, and laboratory characteristics at the time of diagnosis.
Median age at diagnosis was 62.0 years (IQR: 55.7 – 68.0). A significant majority of the study population were male (n=336, 76.7%).
The majority of patients had cirrhosis (n=367, 85.9%), with the most common etiology being Hepatitis B virus (HBV) infection (n=270, 69.2%). Other etiologies included Hepatitis C virus (HCV, n=41, 10.5%), non-alcoholic fatty liver disease (NAFLD, n=45, 11.5%), and alcohol use (n=9, 2.3%). Of the patients, 139 (32.0%) had diabetes mellitus, and 49 (17.1%) had fatty liver disease. A large Turkish cohort reported 82% cirrhosis and HBV as the most common cause (~54%), followed by HCV and NAFLD—again in alignment with our findings, though your HBV proportion is somewhat higher. Increasing rates of NAFLD-related HCC have also been observed in recent literature, reflecting global shifts in risk factor profiles, though in our cohort NAFLD still accounted for a minority (~11.5%).
Clinical complications such as ascites and esophageal varices were common, affecting 42.9% (n=185) and 52.2% (n=188) of patients, respectively. Hepatic encephalopathy was observed in 11.2% (n=48) of patients. The median FIB-4 score, which is used to assess liver fibrosis, was 4.01, and the median FAST score was 4.57 The median maximum tumor size was 4.9 cm (IQR: 2.9 – 8.7). The number of nodules was also reported, with a median value of 2.0. According to the BCLC staging system, the distribution of patients across stages was as follows: stage 0 (n=18, 4.3%), stage A (n=133, 31.5%), stage B (n=110, 26.1%), stage C (n=119, 28.2%), and stage D (n=42, 10.0%).
On the other hand, one Turkish cohort reported BCLC stage distributions—B (13.8%), C (14%), and D (24.1%)—again emphasizing significant proportions of advanced disease at diagnosis.
In many studies, median AFP values spanning ~20–400 ng/mL depending on stage and etiology, with many patients having normal or modestly elevated AFP at diagnosis. The median AFP level was found 26.4 ng/mL in our study.
At the time of analysis, 64.2% (n=264) of patients had died, while 35.8% (n=147) were still alive.
The findings highlight the common association between HCC and chronic liver disease, particularly cirrhosis due to HBV and HCV infections. The high prevalence of comorbidities such as diabetes mellitus and fatty liver disease also underscores the importance of managing these conditions in the prevention and treatment of HCC. The tumor characteristics, including large tumor size, multiple nodules, and frequent extrahepatic metastasis, suggest that many patients present with advanced disease at diagnosis, consistent with the distribution of BCLC stages. The high mortality rate further supports the aggressive nature of HCC and the need for improved early detection and therapeutic interventions.

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A-HOC Data: Creating New Research Opportunities for Young Investigators

The A-HOC database is a large-scale and highly valuable resource that currently includes clinical data from more than 9,000 patients with hepatocellular carcinoma (HCC) collected across Asia. As a multinational and multicenter collaborative project, A-HOC encompasses diverse geographic regions and patient backgrounds, providing a unique opportunity to investigate HCC from a broad international perspective.

By comprehensively analyzing A-HOC data, researchers can gain important insights into regional similarities and differences in disease etiology, clinical characteristics, treatment patterns, and outcomes across Asian countries. Such a panoramic view is difficult to achieve through single-country or single-center studies and is essential for advancing globally relevant HCC research.

The robustness, scale, and standardized structure of the A-HOC database form a strong foundation for generating high-quality evidence and increase the likelihood of producing impactful scientific publications. These advantages are particularly meaningful for young investigators, who often face limited access to large, well-curated international datasets and collaborative research environments.

From a personal perspective, I had the opportunity to contribute to one of the first studies using the A-HOC database, which examined temporal changes in the etiology of HCC across Asia and within individual countries. Through this experience, I was able to conduct large-scale data analyses and participate in international manuscript development. Importantly, the process involved extensive mentorship and constructive feedback from senior investigators, which greatly supported my professional growth and improvement in research skills.

In summary, A-HOC data provide not only a powerful platform for high-quality international HCC research but also a rare and valuable opportunity for young investigators to develop scientific expertise, expand global perspectives, and engage in meaningful collaborative research.

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Country Spotlight: HCC Practice and Data Needs in Mongolia

Liver cancer remains a major public health challenge in Mongolia, largely due to the high prevalence of chronic hepatitis B (HBV) and hepatitis C (HCV) infections. This A-HOC study aimed to analyze the demographic and clinical characteristics of patients under surveillance for liver cancer and to evaluate tumor status, cirrhosis status, treatment modalities, surveillance outcomes, and causes of death.

A retrospective analysis was conducted using medical records of 1,108 patients registered at Happy-Veritas Hospital and the Mongolian National University of Medical Sciences as of 2025. Patients were categorized by age group, tumor type (primary or recurrent), presence of cirrhosis, treatment modality, and surveillance outcome (alive, deceased, or lost to follow-up). Descriptive statistics were calculated, and comparative analyses were performed.

The majority of patients under surveillance were aged 60 years and older, indicating a higher burden of disease in the elderly population. Liver cirrhosis was present in 59.3% of cases, confirming its strong association with hepatocellular carcinoma. Recurrent tumors accounted for 61.7% of patients, highlighting the ongoing risk of relapse even after initial management. Treatment coverage was high, with 97.5% of patients receiving at least one form of therapy. The most common treatment modality was transarterial embolization/chemoembolization (TAE/TACE) (16.8%), followed by other locoregional and systemic therapies.

During the surveillance period, 83.4% of patients were alive. Among deceased patients, the primary cause of death was liver cancer itself (85.5%), emphasizing the aggressive nature of the disease despite active treatment and monitoring.

In conclusion, liver cancer patients under surveillance in Mongolia are predominantly elderly and frequently present with cirrhosis and recurrent disease. Although treatment access is high, liver cancer remains the leading cause of mortality in this population. Strengthening early detection strategies, improving surveillance systems, and enhancing preventive measures against viral hepatitis are essential to reduce disease burden and improve long-term outcomes.

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Uniting Islands, Uniting Data: Indonesia’s Role in the A-HOC Network

Indonesia, the world’s largest archipelagic nation with more than 17,000 islands, faces unique challenges in building a coordinated national response to liver cancer. Hepatocellular carcinoma (HCC) remains one of the leading causes of cancer-related mortality in Asia Pacific, driven largely by chronic viral hepatitis, metabolic liver disease, and late diagnosis. Data fragmentation across diverse regions, provinces, and healthcare institutions, including public hospitals, private clinics, and academic centers, has long impeded Indonesia's capacity to derive robust, population-level epidemiological data, forecast disease trends accurately, and engage meaningfully in regional research collaborations. This siloed approach has resulted in inconsistent reporting, underestimation of incidence and prevalence rates, and missed opportunities for targeted interventions. Engagement in the Asia-Pacific Hepatocellular Carcinoma (A-HOC) Network, also referred to as the AHCC (Asia-Pacific Hepatocellular Carcinoma) Trials Group, offers a pivotal avenue to surmount these limitations by fostering standardized data sharing, multinational trials, and evidence synthesis, thereby bolstering evidence-based policies, clinical protocols, and resource allocation for HCC prevention and management.

The Indonesian arm of the A-HOC Network prioritizes establishing a standardized, multicenter liver cancer registry known as RINKAS (the Indonesian National Hepatocellular Carcinoma Registry), designed to aggregate high-quality, real-world data from hospitals nationwide. Given the geographic dispersion of healthcare facilities, the registry adopts a cloud-based data capture system using REDCap (Research Electronic Data Capture). However, the initial hurdle was physically mobilizing data collection across 30 diverse centers in Indonesia. To overcome this, a targeted strategy was employed involving personal outreach to regional branch heads. Furthermore, initial data entry was deliberately spearheaded by two major tertiary referral centers: Cipto Mangunkusumo National General Hospital (RSCM) and Dharmais National Cancer Center. Their proactive leadership served as a powerful magnet, effectively inspiring and encouraging other regional centers to begin filling out the registry. This cloud infrastructure ensures scalability, secure access control, and efficient data monitoring, while minimizing the technical burden on local hospitals.

A key element of Indonesia’s participation is the homogenization of clinical and epidemiological data. The registry applies standardized data dictionaries and case report forms aligned with A-HOC core variables, covering patient demographics, risk factors, diagnostic modalities, tumor staging, treatment patterns, and outcomes. Harmonization ensures that data collected across diverse Indonesian centers remain comparable not only nationally but also across the wider Asia-Pacific network. This approach enables pooled analyses, facilitates multicenter research, and strengthens the reliability of regional evidence on HCC management.

Ethical governance is another critical component of the program. In accordance with Indonesian research regulations and international ethical standards, each participating center obtains its own institutional ethical approval prior to enrolling patients in the registry. This decentralized ethical oversight respects local institutional governance while ensuring patient confidentiality, informed consent procedures where required, and responsible data stewardship. A national coordination team provides guidance to participating institutions to maintain consistency in ethical and regulatory compliance.

Through the integration of cloud-based technology, standardized data collection, and robust ethical frameworks, Indonesia aims to transform geographic diversity into a strength for collaborative research. By contributing comprehensive real-world data to the A-HOC Network, Indonesia not only strengthens national liver cancer surveillance but also plays a pivotal role in advancing regional understanding of hepatocellular carcinoma across the Asia-Pacific. Moving forward, the next significant challenge lies in finding effective ways to motivate clinicians and researchers to actively utilize the RINKAS database to generate scientific publications. Ultimately, overcoming this hurdle to maximize data utilization will support the development of more effective prevention strategies, earlier detection programs, and improved patient outcomes throughout the region.

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Empowering Regional Collaboration and Education: Thailand’s Role in A-HOC

Four universities, 3 in Bangkok, 1 in Northeast and 1 in Southern of Thailand, have participating in the A-HOC Network, so far, we have registered approximately 1,000 HCC-patients in to the REDCap platform.

HCC is the second most common cancer, but is the first leading cause of cancer-death in Thailand, particularly in male. We are very keen to participate the regional collaboration and education, in order to reduce the incidence of HCC, to promote HCC surveillance and diagnosis, to improve the HCC treatment and prevention of HCC occurrence. We have developed network for collaboration among all medical universities, medical center and Thai Association for the Study of Liver (THASL). Our networks have been working with the administer of health of Thailand.

HBV remains the most common cause of HCC in Thai patients (42-69%) However, MASLD is currently found as a trend in increasing cause of HCC (5-9%). HCC surveillance increases more eligible patients for curative treatment with improved survival. TACE and ablation treatment are the major modality of treatments in Thai patient. However, 64-90% of HCC patients did not have any specific therapy due to presence of advanced stage at the time of diagnosis- Education through the network of THASL, Hepatologists and health government sectors, is essential to increase awareness and understanding among Thai population and to improve referral pathway among general PR actioners. Universal HBV vaccination has been launched in 1992 resulting in significant reduction of prevalence of HBsAg positive in Thai peoples, younger than 30 years’ old

Dr. Shuichiro Shiina
Sasaki Institute, Tokyo,
Japan

Building an Asia-Pacific Training Network for Tumor Ablation: Evolution and Future Perspectives

Image-guided tumor ablation has become an essential curative treatment for patients with early-stage hepatocellular carcinoma (HCC). Among currently available ablation techniques, radiofrequency ablation (RFA) and microwave ablation (MWA) are the two most widely used modalities owing to their minimally invasive nature, reproducible outcomes, and robust clinical evidence. Given that the Asia-Pacific region carries the world’s largest burden of HCC, the systematic adoption and refinement of these technologies across the region are of paramount importance.

Beyond technological innovation, the expansion of ablation therapy has depended critically on physician training and international collaboration. Over the past two decades, an Asia-Pacific training network has gradually developed through hands-on workshops, live demonstration courses, visiting fellowship programs, and multicenter clinical collaborations. Through these activities, physicians from multiple countries—including Japan, Taiwan, China, the Philippines, Indonesia, Mongolia, and other parts of the region—have exchanged expertise in imaging guidance, procedural techniques, and peri-procedural management of tumor ablation.

This regional collaboration has contributed not only to the transfer of technical skills but also to the harmonization of clinical practices and the development of collaborative research networks. As a result, the Asia-Pacific region has become an increasingly important hub for innovation, clinical research, and education in image-guided tumor ablation.

Looking forward, this training network is expected to play a crucial role in the introduction and evaluation of next-generation technologies, including advanced microwave systems, non-thermal ablation modalities such as histotripsy, and AI-assisted imaging and navigation systems. Strengthening this collaborative educational framework will be essential for expanding access to high-quality ablation therapy and for shaping the future of image-guided interventions for HCC in the Asia-Pacific region.

Dr. Kai-Wen Huang
Centre of Mini-invasive Interventional Oncology, National Taiwan University Hospital,
Taiwan

Local Ablation for HCC: Training and Skill Advancement in Taiwan

Background: Hepatocellular carcinoma (HCC) management relies heavily on local ablation as a curative-intent therapy. As interventional oncology shifts toward ultra-precision, the necessity for structured, advanced operator training has become critical. Responding to this demand, Taiwan has evolved its foundational HCC ablation curriculum into a premier, highly sophisticated educational hub that pushes the boundaries of traditional medical training.

Technological Integration: Modern skill advancement requires navigating beyond conventional radiofrequency and microwave ablation. Our advanced training framework now integrates cutting-edge modalities, offering specialized workshops on non-thermal Irreversible Electroporation (IRE) and the pioneering non-invasive acoustic technique, Histotripsy. To ensure flawless needle trajectory and tumor targeting—especially in anatomically challenging locations—trainees undergo rigorous instruction in advanced guidance technologies. These include mastering ultrasound fusion imaging and state-of-the-art robotic navigation for CT-guided techniques, bridging the gap between anatomical complexity and procedural success.

Comprehensive Multi-Organ Curriculum: Capitalizing on the pedagogical success of our HCC training, the educational scope has expanded into a holistic "whole-organ" curriculum. We now host progressive, specialized training classes tailored to a wide spectrum of tumor ablations. Through phantom models, simulation, and mentored clinical observation, trainees develop multidisciplinary competencies spanning the liver, lung, pancreas, thyroid, and uterus. This comprehensive approach ensures physicians understand the distinct ablation kinetics and safety margins required for different tissue environments.

Conclusion: By integrating ultrasound fusion, CT-robotic navigation, and novel modalities like IRE and Histotripsy into a comprehensive multi-organ training program, Taiwan offers a world-class, competency-based educational model. This robust framework not only elevates the standard of care for HCC but equips the next generation of physicians with the versatile, highly technical skills required to optimize oncological outcomes across all major solid tumors.

Dr. Toshihiro Tanaka
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Nara Medical University, Japan

ReMAP-Based Transarterial Embolization: Toward Personalized IVR

Advanced HCC presents with diverse clinical and pathological features, such as variations in tumor number, size, location, vascular invasion, and liver function. As a result, treatment strategies must be individualized and adaptable throughout the course of care. Indwelling catheter-port systems facilitate repeated locoregional treatments noninvasively; however, they typically deliver non-selective treatment for the entire liver. In some cases, additional selective treatments targeted to the lesions are required to optimize therapeutic outcomes. Recently, we developed the Repeatable Microcatheter-Accessible Port (ReMAP™), a novel device that allows microcatheter insertion through the port to enable selective targeted treatments. This innovation facilitates the combination of HAIC via the port with selective TACE through the microcatheter, providing a more versatile and individualized approach to therapy. ReMAP™ can be applied to various patient-specific conditions in advanced HCC, where factors such as tumor size, number, portal vein invasion, and liver function differ between individuals. The approach offers multiple types of repeated therapies, including the New FP regimen, the original technique involves mixing cisplatin with lipiodol, followed by a 5-FU infusion via the arterial port to the whole liver. ReMAP™ modifies this method by allowing selective administration of cisplatin mixed with lipiodol, which theoretically helps reduce adverse events while enhancing therapeutic efficacy. 5-FU was directly administered via the ReMAP port, allowing patients to conveniently receive a continuous 5-day infusion. Cisplatin HAIC or TACE can be applied in a split manner to minimize liver function deterioration. To further expand the use of ReMAP™ in HCC treatments, systemic therapies with immune checkpoint inhibitors and molecular target agents, together with locoregional therapies, can be seamlessly combined. For example, the current trend of immune-boosted TACE, which targets partial lesions to enhance immune function, may become possible on an outpatient basis.

Dr. Hideki Iwamoto
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The Evolution of Hepatic Arterial Infusion Chemotherapy for Advanced Hepatocellular Carcinoma: Multidisciplinary Strategies in the Era of Chemo-diversity

Therapeutic options for advanced hepatocellular carcinoma (HCC) have expanded rapidly with the development of systemic chemotherapies. As systemic therapy becomes central, the clinical role of locoregional therapies is being reconsidered. In advanced HCC, prognosis is still strongly influenced by intrahepatic tumor burden and preservation of liver function, and this reality has brought renewed attention to multidisciplinary treatment concepts that combine systemic therapy with high-quality catheter-based approaches to maximize tumor control while maintaining hepatic reserve.

Hepatic arterial infusion chemotherapy (HAIC) is a catheter-based strategy that administers anticancer agents continuously into the hepatic artery, the principal feeding artery of HCC. By delivering drugs directly to the liver, HAIC aims to increase intrahepatic exposure while reducing systemic toxicity. Sustained arterial infusion typically requires implantation of a reservoir-port catheter system. However, placement of a conventional reservoir-port system is technically demanding and time-consuming. These procedural barriers have contributed to a decline in its use. In contrast, certain HAIC regimens, such as FOLFOX-based hepatic arterial infusion, which has been widely used in China, have recently attracted attention, underscoring that HAIC remains a viable platform when optimized and appropriately positioned.

In our practice, we have developed New FP therapy as a core HAIC regimen for advanced HCC. New FP has shown high antitumor activity, with an objective response rate of 75% and the potential to achieve a cancer-free status in a meaningful subset of patients (35%). We position New FP not as a competitor to systemic therapy but as a complementary component of multidisciplinary care.

To overcome limitations of conventional reservoir–port systems, a novel device, the Repeatable Microcatheter Access Port (ReMAP), has been developed. ReMAP is a transarterial therapeutic access port that enables repeated catheter insertion, allowing flexible delivery of intra-arterial treatments, including HAIC and transarterial chemoembolization, according to clinical needs. ReMAP can be implanted in a shorter procedure time and is designed to reduce procedural complexity; in principle, routine coil embolization work is unnecessary. Importantly, ReMAP may facilitate infusion via extrahepatic parasitic arteries when required, expanding practical treatment options in advanced disease.

In summary, further progress in advanced HCC requires not only innovation in systemic therapy but also continued evolution of catheter-based HAIC and access devices. Strategic integration of these modalities within a multidisciplinary treatment is essential to maximize intrahepatic control, preserve hepatic reserve, and improve patient outcomes.

Dr. Hirokazu Makishima
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National Institutes for Quantum Science and Technology, Japan

High Precision Radiotherapy: A New Frontier in Focal Therapy

Although hepatocellular carcinoma (HCC) is generally considered radiosensitive, radiotherapy was historically not regarded as a definitive treatment option. This was primarily due to the exquisite radiosensitivity of the surrounding hepatic parenchyma, which made it nearly impossible to deliver a therapeutic dose to the tumor without risking liver failure.
The advent of particle therapy has transformed this paradigm. Due to their unique physical properties, protons and carbon ions can deliver high doses to the tumor while precisely sparing the surrounding normal liver tissue. While the concept of using charged particles for cancer treatment emerged in the mid-1940s—relatively soon after Roentgen’s discovery of X-rays in 1895—clinical application only began in 1954. Early efforts were limited to specific anatomical sites due to the lack of advanced imaging. It was not until the 1980s, when the University of Tsukuba pioneered CT-based range calculations and respiratory gating, that particle therapy became a full-fledged clinical modality.

The primary advantage of particle therapy over conventional photon radiotherapy is its distinctive dose distribution, known as the Bragg Peak.
This characteristic allows clinicians to treat tumors residing within radiosensitive organs-at-risk. Indeed, the primary impetus for implementing particle therapy at the University of Tsukuba was the management of large HCCs. Since the University of Tsukuba initiated its program in 1983, and the National Institutes for Quantum Science and Technology (formerly National Institute of Radiological Sciences) began carbon-ion treatment for HCC in 1995, over 4,000 cases have been treated in Japan with high local control rates and minimal toxicity.
While particle therapy offers superior dose distribution, its global implementation has been gradual, largely due to high capital costs. However, the technological innovations developed for particle beams, such as respiratory gating, eventually transitioned to X-ray-based treatments. When combined with the high-precision localization of stereotactic techniques, these advances gave rise to Stereotactic Ablative Body Radiotherapy (SBRT). Although SBRT is typically limited to smaller tumors due to the physical constraints of photons, it has expanded rapidly due to its widespread availability and promising multi-institutional results.
As significant evidence continues to accumulate, both particle therapy and SBRT are increasingly recognized in major clinical guidelines. Particle beam therapy has emerged as a primary "go-to" option for patients who are not candidates for surgery or thermal ablation, further solidifying its role in the post-hepatitis B/C era.

Dr. Ryosuke Tateishi
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The University of Tokyo Graduate School of Medicine, Japan

From Clinical Questions to Practice-Changing Evidence: Educating the Next Leaders in Liver Cancer Research in Asia-Pacific

Hepatocellular carcinoma (HCC) remains a leading cause of cancer-related mortality worldwide, with a particularly heavy burden in the Asia–Pacific region, largely driven by the high prevalence of chronic viral hepatitis. Over the past decades, a broad spectrum of treatment modalities for HCC—including surgical resection, percutaneous ablation, transarterial chemoembolization, and radiation therapy—has been developed and refined in this region. More recently, advances in systemic therapy, particularly immune checkpoint inhibitor–based combination regimens, have fundamentally reshaped therapeutic strategies. However, translating therapeutic innovation into meaningful and sustained improvements in patient outcomes requires the generation of rigorous, practice-changing clinical evidence. Strengthening research capacity across the Asia–Pacific region is therefore essential to address the increasing complexity of HCC management and the rapidly evolving epidemiological landscape.

This lecture explores how young hepatologists can build sustainable clinical research careers in HCC by moving systematically from meaningful clinical questions to high-quality evidence. The foundation of impactful research lies in identifying consequential clinical questions—those that address real therapeutic dilemmas, refine patient selection, or clarify optimal treatment sequencing. Rather than pursuing questions that are merely novel or statistically feasible, investigators must focus on issues that influence everyday decision-making in multidisciplinary care.

Methodological literacy is the next critical step. Contemporary HCC research extends beyond randomized controlled trials and increasingly incorporates real-world data, causal inference frameworks, and advanced analytical approaches capable of addressing time-dependent treatment strategies and confounding. A clear understanding of study design, bias control, and data interpretation enables young researchers to transform observational data into credible and clinically relevant insights.

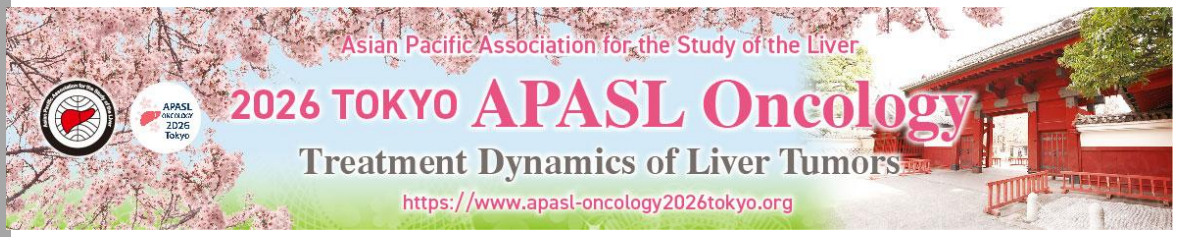
The session will outline a practical career development framework built on three pillars: (1) clinical depth in hepatology and oncology, ensuring relevance and credibility; (2) methodological competence in study design and analysis, enabling robust evidence generation; and (3) international collaboration, which enhances scientific rigor, expands networks, and increases global visibility. The intersection of these elements allows young investigators to contribute not only to publications, but to evidence that informs guidelines and changes practice.

Finally, the lecture will introduce the vision of the APASL-Oncology School as a structured platform to cultivate the next generation of HCC clinical researchers in Asia. Through mentorship, collaborative project development, and focused training in methodology and scientific writing, the initiative aims to transform individual clinical curiosity into globally relevant evidence. By doing so, it seeks to intentionally build a sustainable ecosystem for advancing HCC research in the region.

Dr. Yujin Hoshida
Internal Medicine, University of Texas Southwestern Medical Center, USA

Competing on the Global Stage: Strategies for Young Investigators in Hepatology

For successful establishment as an academic hepatologist on the global stage, it is essential to cultivate global recognition as a leading expert in a specific field, actively leading and participating in high-impact international research initiatives. This goal requires a synergistic combination of a well-thought-out strategy, a supporting environment, and relevant professional resources. Strategically, the foundation of your career rests on identifying and honing a unique area of practice and/or research that distinguishes you from your peers. Once you define your niche, it is crucial to establish clear, actionable short- and mid-term goals that facilitate stepwise growth. This roadmap should explicitly outline how to transition from local prominence to national, and ultimately international, visibility through consistent high-tier publications and notable activities within major international liver societies. True strategic acumen also demands flexibility based on periodic assessments of achievements as well as the landscape and trends in evolving patient demographics, therapeutic approaches, biotechnology, information technology, and research funding, being adaptable and open to alternative academic pathways. These strategic actions cannot succeed without a supportive institutional and professional environment. Fostering globally competitive expertise requires robust institutional commitments to secure time for research, coupled with sustained financial backing and dedicated research personnel to ensure stable and robust scientific output. Finally, ascending to the global stage relies heavily on the resources you utilize through various channels. You can seek opportunities for cross-border networking, global mentorship, international collaborations, exposure to aspirational role models, career development activities, and involvement in the operation of professional societies. Together, these help establish your reputation as an indispensable voice in the international hepatology community.



APASL Oncology 2026 Tokyo

"Treatment Dynamics of Liver Tumors"

Abstracts

Sponsored Seminars

Dr. Atsushi Hiraoka
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Hepatocellular Carcinoma and Remaining Clinical Issues in the HCV Eradication Era

Hepatitis C virus (HCV) was discovered in 1988, and early treatment strategies relied on limited therapeutic options such as interferon and ribavirin. In that era, completion of treatment was often challenging due to substantial adverse events, and treatment efficacy varied widely among patients. As a result, HCV infection was long regarded as a chronic, difficult-to-cure disease with significant clinical heterogeneity.

The subsequent introduction of direct-acting antivirals (DAAs) dramatically changed the therapeutic landscape of HCV. With appropriate use of DAAs, shorter treatment durations, improved tolerability, and markedly higher sustained virologic response (SVR) rates became achievable. These advances transformed HCV infection into a curable disease for the vast majority of patients. However, the successful eradication of HCV has also revealed new clinical challenges that require careful consideration in the current era.

In this lecture, we focus on the characteristics of the DAA regimen glecaprevir/pibrentasvir (MAVIRET), with particular emphasis on its safety profile. MAVIRET is widely recognized for enabling an 8-week treatment course in non-cirrhotic patients, offering a highly convenient and effective option in routine clinical practice. Nevertheless, although MAVIRET has been available in Japan for more than eight years, the accumulated real-world safety data have not been fully shared or discussed, particularly in aging patient populations with multiple comorbidities. We will review the safety outcomes observed in long-term clinical use and discuss practical considerations for its appropriate application in daily practice.

Beyond antiviral efficacy, the HCV eradication era has brought renewed attention to residual clinical issues that persist even after SVR is achieved. Among these, hepatocellular carcinoma (HCC) remains a major concern, as the risk of carcinogenesis is reduced but not eliminated following viral clearance. In addition, sarcopenia has emerged as an important prognostic factor in patients with chronic liver disease, including those who have achieved SVR, influencing survival, quality of life, and treatment tolerance. These issues are particularly relevant in aging societies, where balancing oncologic risk, functional status, and life expectancy is increasingly important.

In conclusion, while DAAs have successfully enabled viral eradication in most patients with HCV, optimal management in the post-SVR era requires a comprehensive approach that extends beyond virologic cure. By examining the long-term safety of MAVIRET and addressing ongoing challenges such as HCC and sarcopenia, this lecture aims to provide insights into more appropriate and holistic treatment strategies for patients in the HCV eradication era.

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Japan

Treatment, Retreatment, and Post-Treatment Challenges of Maviret for HCV

Chronic hepatitis C can now be effectively treated in nearly all patients with direct-acting antivirals (DAAs). In a cohort of 1,275 patients treated with glecaprevir/pibrentasvir (GLE/PIB), the sustained virologic response (SVR) rate was 99.1% (JGH Open. 2024 Apr 25;8(4):e13068). Notably, even among patients with a FIB-4 index >3.25 who received only 8 weeks of treatment, the SVR rate was 100%.

For patients who fail initial DAA therapy, current guidelines recommend retreatment with either 12 weeks of GLE/PIB or 24 weeks of sofosbuvir/velpatasvir plus ribavirin (SOF/VEL+RBV). However, as RBV will no longer be available after 2026, SOF/VEL+RBV will not be an option for retreatment. In patients who failed 8-week GLE/PIB therapy, retreatment with 12 weeks of GLE/PIB achieved an SVR rate of 92.3% (Hepatol Res. 2026 Jan 29. doi: 10.1111/hepr.70128.). In addition, retreatment with 12 weeks of GLE/PIB in patients who failed sofosbuvir/ledipasvir (SOF/LDV) resulted in an SVR rate of 99.5%. These findings indicate that high retreatment efficacy can be achieved using currently available regimens.

Although the risk of hepatocellular carcinoma decreases after achieving SVR, it does not disappear completely, particularly in older patients and in those with diabetes or hepatic steatosis. Careful management of comorbidities and continued surveillance of high-risk individuals remain essential to prevent post-SVR complications.

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Deepening and Advancing Multidisciplinary Treatment for Hepatocellular Carcinoma: Tumor Status–Based Approaches Combining Lenvatinib and Interventional Radiology

Unresectable intermediate-stage hepatocellular carcinoma (HCC) encompasses a broad spectrum of tumor burden and morphology, and treatment goals vary from durable local control to palliative disease control. In routine clinical practice, a substantial subset is considered unsuitable for transarterial chemoembolization (TACE), particularly patients with extensive disease beyond the up-to-7 criteria, infiltrative growth patterns, or multiple asynchronous recurrences. In these settings, durable tumor control with TACE alone is often difficult, and repeated embolization can be accompanied by deterioration of hepatic reserve, potentially narrowing subsequent therapeutic opportunities. Accordingly, an approach that intentionally integrates systemic therapy and interventional radiology (IR) according to tumor status may be clinically meaningful. Rather than treating systemic therapy and TACE as competing options, this concept positions them as complementary modalities deployed in a planned sequence, with each component assigned a distinct role.

In this lecture, we summarize a multicenter retrospective comparison conducted between 2018 and 2024 focusing specifically on unresectable Barcelona Clinic Liver Cancer (BCLC) intermediate-stage HCC judged TACE-unsuitable based on tumor-related factors. The study compared a scheduled upfront lenvatinib regimen with subsequent incorporation of TACE (the LEN–TACE strategy) against lenvatinib monotherapy. The LEN–TACE strategy was designed around a clear division of roles. First, lenvatinib is initiated before TACE with the intent of inducing tumor vascular normalization—modulating intratumoral hemodynamics and potentially creating conditions that render subsequent locoregional therapy more effective. Second, TACE is added on demand at clinically appropriate time points, primarily to achieve tumor debulking and reinforce locoregional control in a selective and targeted manner. Third, lenvatinib is continued after TACE as maintenance systemic therapy to sustain disease control, thereby providing continuity of systemic management while IR is used to address tumor burden where needed.

The key message is the value of tumor status–guided sequencing: systemic therapy is positioned to optimize the vascular and disease context, and locoregional therapy is incorporated strategically as a debulking and control tool, rather than being applied as a default first step. Within this selected TACE-unsuitable intermediate-stage cohort, the LEN–TACE strategy was associated with improved radiologic response and a favorable overall survival compared with lenvatinib alone. Collectively, these findings support the clinical rationale for planned combination and sequencing as a tumor status–based multidisciplinary approach for a subgroup of intermediate-stage HCC in which TACE alone is often disadvantaged, and they provide a practical framework for structuring systemic–IR integration in real-world disease heterogeneity.

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Optimizing Drug Sequencing and Integrated Strategies in Hepatocellular Carcinoma: Maximizing the Therapeutic Potential of Lenvatinib in the ICI Era

In the era where immune checkpoint inhibitor (ICI)–based combinations have become the standard first-line systemic therapy for unresectable hepatocellular carcinoma (HCC), long-term outcomes are increasingly determined not only by initial disease control but also by how effectively patients transition to subsequent therapy after ICI failure while preserving hepatic reserve. This presentation focuses on two key points to maximize the therapeutic potential of lenvatinib (LEN): (1) positioning LEN as the preferred next-line option after ICI-based regimens, and (2) using its anti-VEGF–centered profile to integrate locoregional therapy—particularly on-demand add-on transarterial chemoembolization (TACE)—to pursue deep response.

First, in real-world practice, LEN is frequently selected as a next-line systemic therapy after atezolizumab plus bevacizumab (Atz/Bev) and after durvalumab plus tremelimumab (Dur/Tre), reflecting its favorable balance of antitumor activity and feasibility. A key determinant of post-progression survival is whether patients maintain liver function (e.g., Child–Pugh A/ALBI stability) and performance status at the time of progression, thereby remaining eligible for further systemic therapy. Therefore, “eligibility preservation” through early adverse-event management and dose individualization is central to LEN optimization. Moreover, even after nivolumab plus ipilimumab (Niv+Ipi), a mechanistically rational strategy is to shift toward VEGF pathway inhibition to counter angiogenic and immunosuppressive features of the tumor microenvironment; accordingly, LEN can be considered a preferred next-line option.

Second, LEN has relatively potent anti-VEGF activity, providing a potential synergetic effect with TACE. In patients who maintain systemic control on LEN but harbor localized residual viable intrahepatic disease, on-demand add-on TACE can be considered to intensify intrahepatic tumor clearance and convert disease control into deep response, including a clinical complete response in appropriately selected patients. Critically, this integrated approach requires careful patient selection and timing to avoid deterioration of hepatic reserve.

In summary, optimizing LEN in the ICI era can be framed as an actionable algorithm: use LEN as a preferred next-line therapy after ICI-based regimens (including Atz/Bev, Dur/Tre, and potentially Niv+Ipi), preserve eligibility by maintaining liver function, and integrate on-demand add-on TACE for targetable residual intrahepatic viable disease to maximize durable benefit.

Dr. Joji Tani
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Optimizing Atezolizumab-Bevacizumab Therapy for HCC: Real-World Evidence from 5-Year Multicenter Analysis of 1,200 Cases

Objective: The advent of atezolizumab plus bevacizumab (Atez+Bev) and durvalumab plus tremelimumab (Dur+Tre) therapies has dramatically improved treatment outcomes for first-line therapy in unresectable hepatocellular carcinoma (HCC). This study utilized data from a Japanese multi-institutional collaborative study (HIVE-J) to validate the early mortality reduction and long-term prognosis of Atez+Bev therapy, while examining the validity of treatment strategies including comparison with Dur+Tre and subsequent treatment sequencing.
Methods: We analyzed 1,229 patients who initiated Atez+Bev between September 2020 and June 2025 within HIVE-J. Primary endpoints were overall survival (OS) and progression-free survival (PFS), assessed using Modified RECIST (mRECIST) and RECIST version 1.1. Patients were categorized as "Primary PD group" (PD at initial assessment) or "Acquired PD group" (PD following CR/PR or SD), analyzing prognostic factors and post-progression treatment impact. Among 1,087 evaluable patients with BCLC B/C and Child-Pugh scores 5-7, characteristics and prognosis of conversion therapy achievers were examined over a median follow-up of 14.7 months.
Results: In first-line Child-Pugh class A patients, median PFS was 8.61 months and median survival time reached 27.4 months. Overall ORR was 41.1% and DCR 77.3% by mRECIST (n=1,184). HIVE-J analysis confirmed extremely low early mortality at 6 months post-initiation, validating real-world safety. First-line CP-A patients maintained exceptional 3-year OS rates exceeding 40% and 4-year OS rates surpassing 30%, demonstrating long-term survival achievement through pharmacotherapy. Post-progression analysis revealed: Primary PD group (n=272), subsequent therapy initiation was a prognostic factor for improved outcomes ($P<0.0001$). Acquired PD after SD (n=394) showed potential superiority with concurrent transarterial chemoembolization (TACE) versus molecular targeted agents (MTA) alone. Acquired PD after CR/PR (n=169) demonstrated efficacy with TACE or immune checkpoint inhibitor (ICI) switch, with Atez+Bev continuation beyond PD contributing to survival prolongation. Conversion therapy was achieved in 67 patients (6.2%): 33 resections, 34 locoregional therapies. Conversion achievers exhibited favorable characteristics: Child-Pugh 5 (73.1%), mALBI 1+2a (58.2%), ≤3 tumors (50.7%), AFP <400 ng/mL (73.1%). Conversion occurred in 49/329 CR/PR patients (14.9%) and 18/508 SD patients (3.5%), with median time of 8.3 months. One/2/3/4-year OS rates were 96.9/89.5/82.0/71.1%, with median survival not reached. Multivariate analysis identified PR or better (HR 3.4, $P<0.001$) and mALBI 1+2a (HR 6.2, $P=0.0486$) as independent conversion predictors.
Conclusions: Atez+Bev therapy represents a cornerstone regimen for HCC, suppressing early mortality at 6 months and achieving high survival rates extending to 4-year OS in real-world practice. Leveraging its robust disease control and hepatic reserve preservation, appropriate sequencing and conversion strategies herald a true paradigm shift in the combination immunotherapy era.

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Fujita Health University, Japan

How to Optimize Atezolizumab plus Bevacizumab for Real-World HCC: Sequencing, Early Biomarkers, and On-Demand Add-On TACE

Since 2020, atezolizumab plus bevacizumab (Atz/Bev) has been widely implemented as first-line systemic therapy for unresectable hepatocellular carcinoma (HCC). However, improving long-term outcomes requires more than achieving initial disease control. In real-world settings, durable survival is increasingly driven by three practical pillars: (1) optimizing treatment sequencing through preservation of hepatic reserve, (2) strategically integrating locoregional therapy to pursue deep response, and (3) using early biomarker dynamics to accelerate “the next move.”

First, the core of sequencing is that post-progression survival (PPS) is largely determined by whether patients can maintain liver function (e.g., Child–Pugh A) and performance status at the time of progression, thereby remaining eligible for subsequent systemic therapy. Thus, Atz/Bev should ideally be initiated when hepatic reserve is favorable, and management during therapy should prioritize avoidance of preventable liver function deterioration and treatment-limiting adverse events. In real-world practice, this “eligibility preservation” is a central determinant of overall survival.

Second, the core of add-on TACE is to convert disease control into deep response. In patients who maintain systemic control on Atz/Bev but have localized residual viable intrahepatic disease, on-demand add-on TACE can be considered to intensify local tumor clearance. This ABC-TACE concept aims to upgrade partial response or stable disease toward a clinical complete response, potentially enabling a drug-free interval and translating into prolonged outcomes in appropriately selected patients.

Third, the core of biomarkers is to avoid missing the intervention window. Early kinetics of AFP and DCP during Atz/Bev can help identify primary non-responders and may also signal early loss of response even among initial responders. By detecting treatment failure or impending progression earlier than imaging alone, biomarker-guided monitoring can support timely decisions—such as switching systemic therapy or adding TACE—before overt clinical deterioration.

Together, these real-world insights support an actionable algorithm to maximize long-term benefit from Atz/Bev: preserve hepatic reserve to maintain eligibility for subsequent therapy, pursue deep response with on-demand TACE when intrahepatic viable disease is targetable, and use early AFP/DCP kinetics to time each intervention.

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Japan

Twilight of HCV-Related HCC: A Decade of Interferon-Free Revolution in Japan

Advances in antiviral therapy have dramatically reduced the global burden of hepatitis C virus (HCV) infection. In Japan, the approval of sofosbuvir/ribavirin (SOF/RBV) therapy in 2015 marked the beginning of sofosbuvir-based regimens, and nearly a decade has passed since their introduction into clinical practice. Sofosbuvir remains the only nucleotide-based NS5B polymerase inhibitor among direct-acting antivirals (DAAs) and has been widely used across disease stages, from chronic hepatitis to decompensated cirrhosis. In this seminar, we will present real-world treatment outcomes of sofosbuvir/velpatasvir (SOF/VEL) for chronic hepatitis C from the Osaka Liver Forum (OLF) cohort, together with efficacy and safety data in patients with decompensated cirrhosis derived from an AMED-funded prospective study.
Despite successful viral eradication, hepatocellular carcinoma (HCC) remains a major long-term complication after DAA therapy. We will review post-DAA HCC incidence and risk factors identified in the OLF cohort, and introduce thrombospondin-2 as a circulating biomarker predictive of HCC development after HCV elimination, highlighting the importance of risk stratification in the post-SVR population.

The latter part of the seminar will provide an overview of HCC management in the post-viral hepatitis era, with a focus on advances in systemic therapy. The emergence of immune-based regimens has expanded therapeutic options for advanced HCC, while underscoring the need for biomarkers to guide optimal treatment selection. We will discuss how insights from tumor biology, circulating biomarkers, and systemic immune characteristics may collectively inform personalized therapeutic strategies and long-term disease control in patients at risk for HCC after viral eradication.

APASL Oncology 2026 Tokyo

"Treatment Dynamics of Liver Tumors"

Abstracts

Oral Free Papers

Plenary Session
PS-1 10177

Plasma TWEAK as a Predictive Biomarker of Response to Tremelimumab plus Durvalumab in Advanced Hepatocellular Carcinoma

Takeru Hirao[1], Yuta Myojin[1], Akira Nishio[2], Yu Sato[1], Kazuma Daiku[1], Ryo Takahashi[1], Shuhei Yamamoto[1], Kazuki Maesaka[1], Kumiko Shirai[1], Kazuhiro Murai[1], Yuki Tahata[1], Yuki Makino[1], Yoshinobu Saito[1], Hayato Hikita[1], Takahiro Kodama[1]
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Background: Combination immunotherapy with immune checkpoint inhibitors is standard for unresectable advanced hepatocellular carcinoma (HCC), yet response rates remain limited. Developing non-invasive blood biomarkers is essential for personalized treatment strategies.
Methods: Pretreatment plasma from 50 patients treated with durvalumab plus tremelimumab (Dur/Tre) was analyzed using Olink&reg (Discovery cohort), identifying TWEAK as a potential predictor of therapeutic response. TWEAK levels were validated by ELISA in an expanded Dur/Tre cohort (Validation cohort, n=76) and an atezolizumab plus bevacizumab (Atezo/Bev) cohort (n=134). Furthermore, immune profiles were characterized via CITE-seq on 38 paired PBMC samples from 19 advanced HCC patients.
Results: In the Discovery cohort, high plasma TWEAK levels correlated with prolonged PFS and OS. Olink&reg/ELISA correlation was strong (R2=0.7360). Validation confirmed high TWEAK as an independent favorable prognostic factor for PFS (p=0.0109) and OS (p=0.0048). CITE-seq of 316,530 cells from 38 PBMC samples identified 21 immune cell subtypes. TWEAK localized to CD8+T-cell and NK-cell clusters; GSEA revealed enhanced CD8+T-cell activation signatures in the high TWEAK group. In the Atezo/Bev cohort (n=134), patients with low TWEAK levels exhibited significantly better OS (p=0.0466). Comparing regimens, high TWEAK levels were associated with a trend toward better OS in the Dur/Tre group (p=0.0942), whereas low TWEAK levels were significantly associated with better OS in the Atezo/Bev group (p<0.0001).
Conclusions: Pretreatment plasma TWEAK is a promising predictive biomarker for Dur/Tre efficacy in advanced HCC. Furthermore, plasma TWEAK levels may serve as a useful indicator for optimizing treatment selection between Dur/Tre and Atezo/Bev combination therapies.

PS-2 10130

Surgical Benefit and Futility in Borderline Resectable Hepatocellular Carcinoma: A Multicenter Study

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Background: Hepatocellular carcinoma (HCC) is categorized as resectable (R), borderline resectable 1 (BR1), or borderline resectable 2 (BR2) according to the oncologic resectability classification (Expert Consensus 2023). However, optimal surgical indications and therapeutic limits for BR HCC remain unclear. This multicenter study aimed to identify BR HCC subgroups that may benefit from surgery and those with limited benefit.
Methods: Among 1,290 patients who underwent hepatectomy for primary HCC between 2016 and 2023 at 10 institutions, 1,109 patients with a minimum follow-up of 2 years were analyzed. Patients were classified as R, BR1, or BR2. Overall survival (OS) and recurrence-free survival (RFS) were evaluated according to resectability-related factors, including tumor size and number, vascular invasion, and extrahepatic metastasis. Biological risk was defined as alpha-fetoprotein (AFP) >12 ng/mL and des-γ-carboxy prothrombin (DCP) >150 mAU/mL.
Results: OS and RFS were significantly stratified among R, BR1, and BR2 groups (p<0.001). In BR1 patients (n=79), median survival time (MST) was 69 months with tumor size or number alone, 40 months with vascular invasion alone, and 30 months with combined factors. Low-risk patients (AFP <12 ng/mL and DCP <150 mAU/mL) showed unreached median OS. In BR2 patients (n=59), MST was 53.2 months for tumor size or number alone, 34 months for vascular invasion alone, 17.4 months for extrahepatic metastasis alone, and 5.6 months when all factors were present.
Conclusions: Surgery offers favorable outcomes in selected BR HCC patients with tumor burden-related factors alone, whereas benefit is limited in those with vascular invasion or extrahepatic spread.

Plenary Session
PS-3 10003

The First Application and Feasibility Assessment of 5G-enabled Remote Robot-assisted Hepatobiliary and Pancreatic Surgery in Patients with Malignant Tumors

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Background: Remote surgery has demonstrated potential via advanced network and satellite technologies, with previous robot-assisted laparoscopic surgery confirming feasibility at 4,670.2 km and 73 ms median delay. However, evidence for remote robot-assisted complex hepatobiliary surgery for resectable malignant tumors remains lacking, creating an urgent research gap.Materials and
Methods: This study first applied remote robotic surgery to 4 patients with liver, gallbladder, or pancreatic tumors using China's domestic MP2000 platform (Shenzhen Edge Medical). The primary surgeon operated 900 km from the site (1,035 km network distance), with 5G as primary and dedicated fiber as backup network. Network parameters were monitored, and local surgeons stood by for emergencies.
Results: All surgeries were successful. Average communication delay was 21 ms (end-to-end 100 ms) with no interruption/packet loss. Mean intra-cavity operation time was 240 min, intraoperative blood loss 100 mL, and all patients achieved R0 resection. No postoperative complications occurred; patients had stable physiology and intestinal function recovery within 24 h, with favorable short-term outcomes.
Conclusion: This study confirms the technical feasibility, safety, and short-term efficacy of remote robotic surgery for resectable hepatobiliary malignant tumors, filling the research gap. The approach (5G/backup networks, domestic platform, safety protocols) facilitates medical resource allocation, reduces urban-rural surgical disparities, and improves robotic utilization in county hospitals.

Video Session

VS-1 10073

Pitfalls in Posterior Sectionectomy and S7 Segmentectomy Focusing on the Running Pattern of the Right Posterior Inferior Portal Branch (P6a) and Portal Vein Branching Anatomy

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Background: Liver resection along right intersectional plane is demanding because of anatomical variations. Right posterior inferior portal branch (P6a) usually runs dorsal to right hepatic vein (RHV) (D-P6a) but often courses ventral (V-P6a). We aimed to clarify pitfalls in right posterior sectionectomy and segment VII (S7) segmentectomy.
Methods: Fifty-five patients with 3D imaging were classified into Dorsal/Ventral-P6a. RHV-inferior vena cava (IVC) angle, transection-plane angles, the presence of inferior right hepatic vein (IRHV), and the distance from liver surface to P7 root were measured. Posterior portal branching patterns were categorized into six types (Annals of Anatomy 252:152204) and stratified by the difficulty of Glissonean pedicle control from hilum.
Right posterior sectionectomy: Cases with early independent posterior branch were classified as Very Easy; with common posterior trunk as Easy; without either as Difficult; and those with IRHV, which makes dorsal approach difficult, as Very Difficult.
S7 segmentectomy: Cases with directly branched P7 from main portal vein were classified as Easy, and others as Difficult.
Results: V-P6a was 23 cases (42%) and associated with narrower transection-plane angle (141° vs 162°, $p < 0.01$), wider RHV-IVC angle (54° vs 44°, $p < 0.01$), and higher prevalence of IRHV (65% vs 34%, $p = 0.023$).
Right posterior sectionectomy:
V-P6a showed higher proportion of very difficult patterns (30.4% vs 3.1%, $p = 0.007$).
S7 segmentectomy:
In V-P6a, P7 was deeper (28 mm vs 25 mm, $p = 0.035$), and easy pattern was more frequent (43% vs 18%, $p = 0.04$).
Conclusion: Classification based on P6a may facilitate surgical planning.

VS-2 10074

Surgical Strategy for Laparoscopic Right Intersectional Plane Resection in Right Anterior/Posterior Sectionectomy and S7/S8 Segmentectomy, Based on the Courses of P6a and the Right Hepatic Vein

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Background: When the right posterior inferior portal branch (P6a) runs ventral to the right hepatic vein (RHV), variation along the right intersectional plane (RIS) can complicate laparoscopic right anterior sectionectomy (Lap-RAS), right posterior sectionectomy (Lap-RPS), and segmentectomies of segments VII (Lap-SS7) and VIII (Lap-SS8). We characterized the venous anatomy and propose procedure-specific strategies.
Methods: CT datasets from 55 hepatectomy patients were classified as Dorsal-P6a or Ventral-P6a; Ventral-P6a was subtyped as Long-RHV or Short-RHV by whether the RHV reached the S5-S6 interface. We evaluated the IVC-RHV angle, inferior RHV (IRHV) features, and S6-draining middle hepatic vein (MHV) branches.
Results: Ventral-P6a was present in 23/55 patients (42%): Long-RHV (n=15) and Short-RHV (n=8). The IVC-RHV angle widened stepwise (34.6° in Dorsal-P6a; 51.8° in Ventral-P6a/Long-RHV; 76.7° in Ventral-P6a/Short-RHV). An IRHV was universal in Ventral-P6a/Short-RHV and had the largest drainage territory; a larger axial IRHV angle was associated with a larger territory. MHV branches draining S6 were observed only in Ventral-P6a cases (39%) and occurred similarly in Long- and Short-RHV.
Video/Conclusions: The video demonstrates tailored RIS transection. Dorsal-P6a generally permits a flatter plane, whereas Ventral-P6a requires a steeply pitched plane. During Lap-RPS, S6-draining MHV branches should be identified and controlled; during Lap-RAS, early splitting of their confluence may risk congestion. In Ventral-P6a/Long-RHV, mid-course RHV division may be needed in Lap-RPS. In Ventral-P6a/Short-RHV, dorsal RHV exposure is difficult and a deep, dominant IRHV often favors preservation during Lap-SS7. Incorporating these patterns into preoperative planning may help maintain the intended RIS transection plane.

Video Session

VS-3 10004

Infrared Laser-guided Laparoscopic Portal Vein Drainage Area Anatomic Liver Resection Using ICG positive Staining

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Background: Precise liver puncture and staining under ultrasound guidance during laparoscopic liver surgery remains a technical challenge. Currently, the success rate of puncture is only about 60%. Usually, the position of the puncture point is difficult to accurately locate, and the puncture depth is also difficult to precisely control. There is a lack of effective methods for precise puncture.
Methods: We described the method guidance of infrared laser-guided laparoscopic ICG positive staining portal vein drainage area anatomical hepatectomy in a patient with primary hepatocellular carcinoma, using "infrared laser-guided laparoscopic liver ultrasound puncture".
Results: All punctures were successful at the first attempt. The operation time was 130 minutes, the blood loss was 50 mL, and there were no complications. The patient was discharged 7 days after the operation. There were no complications during the 1-year follow-up.
Conclusions: Infrared laser-guided ultrasound technology can achieve three-dimensional precise puncture and accurately control the puncture position and depth. Combined with ICG positive staining, this technology can precisely locate and provide real-time navigation for the portal vein area.

VS-4 10077

Optimizing Specimen Extraction in Laparoscopic Resection of Giant Liver Tumors Using a Pfannenstiel Incision

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Background: Although the advantages of minimally invasive surgery are well established, laparoscopic resection for giant liver tumors or anatomical hepatectomy often requires enlargement of the incision for specimen extraction, which may reduce the advantages of a minimally invasive approach. This study evaluated the clinical utility of the Pfannenstiel incision, a low transverse suprapubic incision, for specimen extraction in laparoscopic liver resection.
Methods: Between March and December 2025, nine patients who underwent laparoscopic liver resection for hepatic tumors with a maximum specimen diameter ≥120 mm at our institution and two affiliated centers were retrospectively analyzed. In all cases, specimens were extracted through a Pfannenstiel incision. The incision-to-specimen ratio, wound-related complications (surgical site infection, wound dehiscence, hypertrophic scarring, and incisional hernia), and postoperative length of hospital stay were assessed.
Results: Diagnoses included hepatocellular carcinoma (n = 3), intrahepatic cholangiocarcinoma (n = 2), metastatic liver tumor (n = 1), and hepatic hemangioma (n = 3). The median incision-to-specimen ratio was 0.42 (range, 0.30-0.68). In hemangioma cases, aspiration of tumor contents before extraction enabled further reduction of incision size. In addition, in primary liver malignancies, specimen extraction using a Pfannenstiel incision achieved favorable cosmetic outcomes without compromising oncologic integrity. No wound-related complications were observed. The median postoperative hospital stay was 7 days (range, 5-31 days).
Conclusion: The Pfannenstiel incision is a safe, oncologically feasible, and cosmetically advantageous option for specimen extraction in laparoscopic surgery for giant liver tumors, including HCC and iCCA. Operative videos will be presented to illustrate key technical points.

Video Session

VS-5 10143

Advanced Minimally Invasive Hepatectomy Through Standardized Hepatic Vein Control- Translating Laparoscopic Strategies to Robotic Surgery -

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Background: Minimally invasive hepatectomy has become a standard procedure, with expanding indications toward technically demanding resections. In such procedures, control of the hepatic veins is a critical determinant of surgical safety. Hepatic vein control consists of two key components: (1) clear exposure of the hepatic veins and parenchymal transection using them as anatomical landmarks, and (2) a safe and planned approach to the hepatic vein roots at the inferior vena cava confluence.
Methods: We established laparoscopic techniques for hepatic vein control based on these two key components. Video presentations demonstrate parenchymal transection guided by case-specific hepatic vein anatomy and continuous exposure of the major hepatic vein roots using the Left-to-Right Vein Exposure technique. Based on this laparoscopic experience, we applied these concepts to robotic hepatectomy, and video presentations illustrate our current technical refinements, including strategic camera positioning, suction, and retraction.
Results: Laparoscopic video demonstrations show that systematic hepatic vein exposure enables stable parenchymal transection and safe access to hepatic vein roots. Robotic video demonstrations reveal that, despite constraints related to instrument number and the use of an angled endoscope, motion filtering, articulated instruments, and a stable camera platform allow precise dissection around the hepatic veins. Translating laparoscopically established concepts to the robotic approach resulted in consistent and reproducible hepatic vein control.
Conclusions: Standardization of the surgical concept of hepatic vein control, established in laparoscopic surgery, can be effectively translated into robotic hepatectomy. This approach has the potential to improve the safety and reproducibility of advanced minimally invasive hepatectomy.

VS-6 10069

Initial Experience with Robot-assisted Liver Resection Using the da Vinci SP System

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Background: At our institution, robot-assisted liver resection using a single-port surgical robot was introduced in December 2024, and 13 cases have been performed. We report the advantages, technical considerations, and short-term outcomes of liver resection using a single-port robotic system.
Methods: The da Vinci SP system was used for all procedures. A 3-4 cm skin incision was made according to the resection site, and an access port was placed. A 12-mm assistant port was inserted along the transection plane, allowing the use of CUSA.
Results: Between December 2024 and December 2025, 13 liver resections using the da Vinci SP system were performed. The procedures included partial liver resection in 9 patients, High-difficulty liver resection in 4. The primary diseases were liver cancer in 9 and liver metastasis in 4. During parenchymal transection, the console surgeon performed surgical field exposure, liver parenchymal transection using the crush-clamp technique, and vascular control, while the assistant dissected the liver parenchyma using CUSA. Both the surgeon and assistant were able to perform liver transection simultaneously. The median blood loss was 20 g (range, 0-600 g; blood loss > 50 g occurred only in left hepatectomy case). The postoperative course was uneventful in all patients, with a mean hospital stay of 6.3 days (range, 4-10 days).
Conclusion: Robot-assisted liver resection using a single-port surgical system was safely introduced at our institution. Effective collaboration between the console surgeon and the assistant using CUSA enabled efficient liver parenchymal transection.

Video Session
VS-7 10090

EUS-Guided Portal Vein Sampling as a Novel Liquid Biopsy Approach for Pancreatic Cancer

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Background: Liquid biopsy has gained increasing attention as a minimally invasive method for molecular cancer profiling. Endoscopic ultrasound-guided portal vein sampling (EUS-PVS) is considered especially useful. This is because it allows direct collection of portal vein blood rich in tumor-derived molecules before metabolic processing occurs in the liver. The portal vein is expected to contain circulating tumor DNA, microRNA, and circulating tumor cells at higher concentrations than peripheral blood. Pancreatobiliary tract cancer continue to have poor prognoses, necessitating highly sensitive diagnostic and prognostic evaluation tools. This study aimed to evaluate the feasibility and safety of EUS-PVS.
Methods: The left portal vein branch was punctured from the stomach using a 19G FNA needle. To minimize the risk of bleeding, the needle path was adjusted to traverse an adequate length of hepatic parenchyma. In this study, tumor markers in portal venous blood were measured and compared with those in peripheral blood. Safety was assessed based on procedure-related bleeding and intraperitoneal infection.
Results: EUS-PVS was performed in three patients, and portal venous blood collection was successful in all cases. No adverse events, including bleeding or infection, were observed. The procedure was completed within a short time, required no additional devices, and was technically straightforward.
Conclusion: EUS-PVS is a simple and safe technique that allows reliable acquisition of portal venous samples. While sufficient case numbers must be accumulated, examining ctDNA microRNA, and circulating tumor cells in the portal vein may further advance the diagnosis and treatment of pancreaticobiliary cancers in the future.

Oral Free Paper Session 1

FPS1-1 10053

Implementing Community-Based Hepatitis B Screening and Hepatocellular Carcinoma Screening in Resource-Limited Settings: A Qualitative Evaluation of Thailand's EZ Liver Network"

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Background: Thailand has an estimated 2.2-3 million chronic HBV carriers, particularly among those born before the 1992 national vaccination program. Late-stage hepatocellular carcinoma (HCC) presentations remain common due to limited screening infrastructure. The EZ Liver Network was established in Chanthaburi Province, integrating HBV screening pathways with Lean-based referral coordination. This study evaluates the network's implementation and effectiveness.
Methods: Using Donabedian's structure-process-outcome framework, we conducted semi-structured interviews with 24 key stakeholders between January and April 2024. Participants were purposively selected from various healthcare levels, including village health volunteers, hospital physicians, provincial health officers, and national policymakers. Transcripts underwent content analysis with triangulation. Secondary data were obtained from participating hospitals.
Results: The network demonstrated strong provincial-level coordination, linking tertiary hospitals with community health centers. Clinical protocols were well-established with simplified referral criteria based on HBV viral load (more than 2,000 IU/ml). Between 2021-2023, 85 liver cancer patients received care: 22 early-stage (26%), 24 intermediate-stage (28%), and 39 late-stage (46%). Success factors included dedicated personnel, practical protocol adaptations, and strong inter-institutional relationships. Challenges involved workforce limitations, viral load testing reimbursement, and disconnected data systems.
Conclusions: The EZ Liver Network demonstrates that community-based HBV screening can improve care access and enable earlier HCC detection. For broader implementation, addressing workforce capacity, sustainable funding, and integrated information systems are essential. This model offers insights for hepatitis screening in resource-limited settings, supporting the WHO's 2030 elimination goals.

FPS1-2 10223

A Large-Center Comparison of Hepatocellular Carcinoma Characteristics in Hepatitis C Patients Treated with Direct-Acting Antivirals Versus Untreated Patients

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Background: Hepatocellular carcinoma (HCC) represents the leading cause of cancer-related morbidity in Egypt. HCC developing after treatment with direct-acting antivirals (DAAs) for hepatitis-C virus (HCV) infection may exhibit distinct biological characteristics and clinical behavior compared with HCC occurring in patients without prior DAA exposure. We aimed to compare the epidemiological profile, clinical presentation, laboratory, radiological findings, and tumor behavior of HCC cases developing after DAA therapy with those of DAA-naive HCC patients.
Methods: Patients with HCV-related HCC were classified into two groups: Group I included 2036 patients who developed HCC following DAA, Group II comprised 6338 patients with HCC not received DAAs. All patients underwent comprehensive clinical evaluation, laboratory investigations, and radiological assessment. Tumor staging was performed using BCLC staging system.
Results: Patients in Group II exhibited more advanced liver disease, as reflected by higher Child-Pugh classes, FIB-4, and MELD scores compared with Group I (P 0.001). In contrast, HCC cases in the post-DAA group demonstrated more aggressive tumor features, including a higher multiple hepatic focal lesions frequency (P 0.033), significantly elevated alpha-fetoprotein (P 0.012), increased portal vein invasion (P 0.001), greater incidence of extrahepatic metastasis (P 0.001), and a higher prevalence of infiltrative tumor patterns (P 0.002).
Conclusion: HCC developing after DAA therapy appears to exhibit more aggressive biological behavior compared with HCC in DAA-naives, despite relatively better underlying liver function. These findings underscore the importance of strict and continuous HCC surveillance in cirrhotic patients following DAA in accordance with international guidelines to facilitate early detection and timely management.

Oral Free Paper Session 1

FPS1-3 10107

Reduced Performance of Alpha-fetoprotein in Sustained Virological Response-related and Non-viral Early Hepatocellular Carcinoma: Complementary Value of PIVKA-II

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Background/Aims: Alpha-fetoprotein (AFP) is widely used for hepatocellular carcinoma (HCC) detection, but its performance may vary by etiology, particularly in sustained virological response (SVR)-related and non-viral HCC (NBNC). We evaluated etiology-specific positivity of AFP and protein induced by vitamin K absence or antagonist-II (PIVKA-II) and the incremental detection achieved by their combination in early-stage HCC.
Methods: This retrospective two-center study included consecutive adults with newly diagnosed, treatment-naive HCC in Japan (2007-2023). Among 1,415 patients, 15 with missing AFP and PIVKA-II were excluded (final n=1,400). PIVKA-II was unavailable in 32 warfarin users (available n=1,368). Positivity was defined as AFP >=10 ng/mL and PIVKA-II >=40 mAU/mL. Early-stage HCC was defined by BCLC 0/A and UICC T1a; either-positive indicated AFP and/or PIVKA-II positivity.
Results: In the overall cohort, AFP and PIVKA-II positivity increased with advancing stage (P<0.001 for both BCLC and UICC T categories). In BCLC 0/A, AFP positivity was higher in HCV (64.6%) than in SVR (39.0%) and NBNC (39.7%), whereas PIVKA-II positivity showed smaller etiologic differences (HBV 40.6%, HCV 47.8%, SVR 40.8%, NBNC 58.4%). In BCLC 0/A, either-positive rates improved detection, particularly in SVR (59.2% vs AFP 38.2%) and NBNC (70.6% vs AFP 40.1%), with substantial PIVKA-II-only yield (SVR 21.1%; NBNC 30.5%). Similar patterns were observed for UICC T1a, including PIVKA-II-only contribution in NBNC (24.4%).
Conclusions: AFP performance is reduced in early SVR-related and NBNC HCC, whereas PIVKA-II provides complementary value. Dual-marker assessment improves early-stage HCC detection in emerging etiologic populations.

FPS1-4 10131

Clinical Characteristics and Surveillance Impact on Non-Viral Hepatocellular Carcinoma: A 20-Year Observational Study

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Background: As the etiology of hepatocellular carcinoma (HCC) shifts from viral hepatitis toward non-B, non-C (NBNC) causes, understanding the efficacy of surveillance in real-world clinical settings is vital. This study evaluated how regular surveillance and healthcare settings influence clinical outcomes across different etiologies.
Methods: We retrospectively analyzed 1,143 patients with first-onset HCC between 2003 and 2023. Patients were categorized by etiology: HBV (n=182), HCV (n=555), and NBNC (n=375). Regular surveillance was defined as undergoing imaging at least annually. We compared early-stage diagnosis (BCLC 0/A), curative treatment rates, and overall survival (OS) between surveilled and non-surveilled groups, as well as between specialized and non-specialized institutions.
Results: Overall, 58.8% of patients underwent regular surveillance. The surveilled group showed significantly higher rates of early detection (79.8% vs. 36.9%) and curative intervention (52.8% vs. 21.6%) compared to the non-surveilled group (both p<0.001), leading to superior 5-year OS (67.0% vs. 38.6%, p<0.001). Surveillance adherence was notably lower in NBNC patients (37.9%) compared to HCV (75.7%) and HBV (50.5%) patients. Furthermore, patients managed at specialized liver centers achieved higher early diagnosis (85.0% vs. 66.7%, p<0.001) and curative treatment rates (59.3% vs. 36.8%, p<0.001).
Conclusion: Periodic surveillance is essential for improving HCC prognosis; however, a significant gap persists in the growing NBNC population. Essential strategies to mitigate the poor outcomes currently associated with NBNC-HCC include strengthening the transition from primary care to specialized hepatology centers and implementing etiology-specific protocols that integrate imaging with biomarkers like AFP.

Oral Free Paper Session 1

FPS1-5 10118

Integrative Clinical and Molecular Risk Score for Prevention of HBV-related HCC

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Background: Patients with HBV-related chronic liver disease remain at risk even with the use of antiviral therapies. Clinical variable-based scores such as PAGE-B score have been proposed for hepatocellular carcinoma (HCC) risk precision in those patients. However, there is still room for improvement to refine risk stratification and early detection of HBV-related HCC.
Methods: We defined and validated multi-omic molecular signatures (transcriptome including viral-host fusion transcripts, single nucleotide polymorphisms [SNPs] in coding regions, somatic DNA mutational signature, and somatic DNA mutations with predicted functional consequence) associated with time to incident HCC development and validated their outcome association in total of 111 patients with HBV-related cirrhosis (median follow-up 9.3 years; IQR 3.4-12.3).
Results: In the derivation set including 81 HBV cirrhosis patients, we defined a 95-gene transcriptomic signature, which was associated with fibrogenic molecular pathways among several others. In addition, DNA mutational signatures related to reactive oxygen species-induced DNA damage were associated with HCC risk. Spatial mapping of these signatures on liver tissue samples is currently underway. No~marginal association was observed for SNPs previously reported for HCC risk association. These HCC risk-associated molecular signatures were integrated with PAGE-B score, and evaluated in independent validation sets, a case-control series (n=30). The integrative score was associated with HCC risk (Firth-adjusted OR, 30.6; 95% CI, 1.4-671).
Conclusions: An integrative clinical and molecular risk score for HBV-related HCC showed promising performance in our preliminary validation studies, which warrants further validation. The score may serve as a companion biomarker for the candidate chemopreventive agents.

FPS1-6 10120

Serum Biomarker-based Score to Evaluate HCC Risk in HCV-cured Patients

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Background: Despite successful antiviral therapy, patients cured of hepatitis C virus (HCV) infection remain at risk for hepatocellular carcinoma (HCC). We previously developed an etiology-agnostic prognostic liver secretome signature (PLSec-AFP). This study aimed to develop an HCV cure-specific prognostic liver secretome signature (PLSec-HCVcure) and to evaluate whether its integration with PLSec-AFP improves HCC risk stratification after HCV cure.
Methods: PLS-HCVcure was developed using liver transcriptome data from 85 HCC-treated patients and validated in 39 HCC-naive patients. The transcriptome signature was translated into candidate serum proteins using a computational pipeline. Secretome signatures were optimized in two cohorts: optimization set 1 included 146 HCC-treated patients, and optimization set 2 included 121 HCC-naive patients with cirrhosis. The finalized secretome signature, PLSec-HCVcure, was validated in an independent cohort of 116 HCC-naive cirrhosis patients. Finally, integration with PLSec-AFP was evaluated.
Results: PLS-HCVcure was defined as a 170-gene signature and was associated with HCC recurrence in HCC-treated patients (adjusted HR 35.9) and with HCC incidence in HCC-naive patients (adjusted HR 10.6). A secretome-based signature, PLSec-HCVcure, consisting of three proteins (lactadherin, osteopontin, and antileukoproteinase), was validated in HCC-naive cirrhosis patients (subdistribution HR 5.1). Integration of PLSec-HCVcure with PLSec-AFP stratified patients into three risk groups; compared with the low-risk group, HCC risk was higher in the intermediate-risk group (subdistribution HR 3.0) and highest in the high-risk group (subdistribution HR 14.5).
Conclusion: These results indicate that HCC risk stratification is feasible after HCV cure.

Oral Free Paper Session 2

FPS2-1 10123

Hepatocellular Carcinoma Stage, Treatment Patterns, and Survival Outcomes in a Contemporary Multicentre International Cohort

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Background: Hepatocellular carcinoma (HCC) is a major cause of cancer–related mortality worldwide. Despite substantial changes in HCC aetiology and management, their impact on Barcelona Clinic Liver Cancer (BCLC) stage at diagnosis, treatment patterns, and survival is not well defined.
Methods: We conducted a large, retrospective, multicentre cohort study including 2,887 adults with HCC diagnosed across 10 tertiary liver centres in Asia, Oceania, and North America. Survival outcomes were compared using restricted mean survival time (RMST).
Results: The median (IQR) age at diagnosis was 64 (57–73) years, 75.8% of participants were male, and 83.1% were Asian. The proportion of hepatitis C virus–related HCC declined over time (13.46% from 2015–2024 vs 28.82% from 2005–2014, p≤0.001), while metabolic dysfunction–associated steatohepatitis–related HCC increased (27.19% vs 24.75%, p=0.001). The distribution of BCLC stage 0/A, B, and C at diagnosis was 62.66%, 18.43%, and 18.91%, respectively, with no significant temporal change (p=0.122). Overall, 49% of patients received curative–intent therapy, 36.9% non–curative therapy, and 14.0% supportive care. Curative treatments were administered less frequently over time (57.8% from 2005–2014 vs 46.3% from 2015–2024, p<0.001). Survival improved, with 1–, 3–, and 5–year survival increasing from 90.7%, 77.7%, and 68.4% (2005–2014) to 90.7%, 81.0%, and 74.7% (2015–2024; p<0.001).
Conclusions: Despite improved HCC survival, there has been no corresponding increase in early–stage diagnosis, and the use of curative therapies has declined. Enhanced strategies for early detection and timely intervention remain urgently warranted.

FPS2-2 10091

Development and Validation of a Deep Learning Model to Prognosticate Hepatocellular Carcinoma

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Background: Prognostic models for hepatocellular carcinoma (HCC) may have limited accuracy. We aimed to construct and validate a novel prognostic model for HCC that incorporates biomarkers for liver function and tumor characteristics.
Methods: Consecutive participants with HCC from four international tertiary institutions in Asia and the U.S. comprised the derivation (n = 627) and validation (n = 270) cohorts. The Liver Cancer Risk predictioN (LCRN) Index was constructed utilizing a deep feed-forward neural network based on the Cox proportional hazards framework. The discriminative performance of the LCRN Index was evaluated using Harrell's concordance index (C-index) and compared to the albumin bilirubin grade (ALBI) and Barcelona Clinic for Liver Cancer (BCLC) staging. Model calibration was assessed using the integrated Brier score and Arjas plots.
Results: The median (IQR) age was 66.0 (58.0 - 73.0) years, median (IQR) body mass index was 23.9 (22.1 - 25.9) kg/m2 and 78% were male. The LCRN Index comprised type 2 diabetes mellitus, ascites, hepatic encephalopathy, albumin, bilirubin, AFP and diameter of largest tumor nodule. In the validation cohort, the LCRN Index (1-year area under the receiver operating curve [AUC]: 0.86; 3-year AUC 0.80; 5-year AUC 0.76) outperformed the ALBI grade and BCLC stage for prognosticating HCC. The LCRN Index demonstrated better calibration compared to the ALBI grade and BCLC stage.
Conclusion: If further validated, the LCRN Index may be a useful tool for prognosticating HCC.

Oral Free Paper Session 2

FPS2-3 10122

Young Onset Hepatocellular Carcinoma Presents at Advanced Stage with Limited Treatment Options

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Background: Impact of presentation age in hepatocellular carcinoma (HCC) is not well studied. We aimed to assess the clinical profile of young onset HCC.

Methods: We retrospectively analyzed patients with LI-RADS-5 HCC discussed in multi-disciplinary team (MDT) meetings between October-2023 to October-2025. All patients with young-onset HCC (aged ≤40 years group) were compared to randomly selected equal number of HCC patients with age >40 years.

Results: Of 703 patients with HCC during the study period, 90 patients were aged ≤40 years {age (median, range): 35,19-40 years, M:77; Hepatitis B (HBV): 73%} were compared to 90 patients aged >40 years {age: 57,44-75 years, M: 76, HBV: 38%, Metabolic: 47%}. Underlying cirrhosis was less common in years (66% v/s 96%, p<0.01).Tumors in ≤40 years group were more advanced- vascular invasion: 46(51%), metastasis: 19(21%), within Milan criteria: 16(18%); as compared to >40 years group- vascular invasion: 30(33%), p<0.05; metastasis: 9(10%), p<0.05; within Milan criteria: 42(47%), p<0.01. Advanced BCLC stages were more common in ≤40 years group stage C+D: 50(55%) v/s 36(40%), p<0.05.Age remained a significant predictor (aHR: 2.14, 95% CI: 0.9-4.6; p-value: 0.055) of tumor being beyond Milan criteria after adjusting for etiology (HBV) and mode of detection (surveillance v/s initial presentation).MDT offered curative/ loco-regional treatment less commonly in ≤40 years group:27(30%) as compared to >40 years group: 46 (51%), p<0.05.

Conclusion: Despite the absence of underlying cirrhosis, significantly more advanced disease was noted in HCC patients aged ≤40 years. This limited their loco-regional/curative treatment options.

FPS2-4 10136

Environmental Exposure to Cadmium, Lead, and Mercury as a Public Health Risk Factor for Hepatocellular Carcinoma

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Background: Environmental exposure to heavy metals such as cadmium (Cd), lead (Pb), and mercury (Hg) represents a growing public health concern, particularly in regions with industrial pollution, contaminated water sources, and occupational hazards. This study assessed the association between Cd, Pb, and Hg exposure and hepatocellular carcinoma (HCC), emphasizing environmental risk assessment and population-level health implications.

Methods: A case control analysis was conducted involving 118 patients with confirmed HCC and 89 non malignant controls. Concentrations of Cd, Pb, and Hg were measured in blood and liver tissue samples to estimate environmental body burden. Complementary experimental studies were performed in Wistar rats exposed orally to these metals at environmentally relevant doses, and in human cancer cell lines exposed to comparable concentrations. Oxidative stress indices, apoptotic signaling pathways, and tissue accumulation patterns were evaluated.

Results: HCC patients demonstrated significantly higher concentrations of Cd, Pb, and Hg in blood and liver tissues compared with controls, with cancer risk increasing across higher exposure quartiles. Animal studies confirmed rapid hepatic accumulation following exposure, supporting biological plausibility. Cellular experiments showed increased oxidative stress and impairment of intrinsic apoptotic pathways following metal exposure. Together, these findings indicate a dose-related association between environmental heavy metal exposure and hepatocellular carcinogenesis.

Conclusions: This integrated evidence highlights cadmium, lead, and mercury as modifiable environmental risk factors for hepatocellular carcinoma. From a public health perspective, strengthening environmental monitoring, reducing industrial emissions, improving water quality, and implementing targeted screening in high-risk populations may contribute to liver cancer prevention.

Oral Free Paper Session 2
FPS2-5　10151

Feasibility and Safety of Hepatic Rehabilitation in HCC Patients with Decompensated Cirrhosis

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Background: Hepatic rehabilitation (HR) is pivotal for improving physical function and quality of life in HCC patients who frequently suffer from frailty. However, its usefulness and safety remain unclear in patients with decompensated cirrhosis. We aimed to investigate the feasibility and safety of HR on liver reserve and physical function in cirrhotic patients with Child-Pugh class B/C.
Methods: This study included 118 HCC patients with cirrhosis who underwent HR (Child-Pugh class A, n=73; Child-Pugh class B/C, n=45). HR involved aerobic and resistance exercises. We evaluated changes in Child-Pugh score and class, and physical function (Barthel Index, handgrip strength, five-times chair stand test [CS-5], liver frailty index [LFI]) before and after HR.
Results: At baseline, physical function was similar between the Child-Pugh class A and B/C groups (LFI A 4.2 vs B/C 4.3, p=0.5570), despite the Child-Pugh class B/C group having significantly worse liver function. The Child-Pugh class B/C group showed no increased risk of adverse events such as falls and death. Change in physical function scores (ΔBarthel index, Δhandgrip strength, ΔCS-5, ΔLFI) showed no significant difference between the two groups. Regarding liver reserve, the Child-Pugh class B/C group showed a significantly better outcome in Child-Pugh class change (worsening/unchanged/improved: class A 33/40/0, class B/C 7/35/3; p=0.0007).
Conclusions: HR can be safely implemented in HCC patients with decompensated cirrhosis, similar to those with compensated cirrhosis. The intervention effectively maintained physical function without increasing the risk of adverse events or worsening liver function, supporting its integration into multidisciplinary HCC care.

Oral Free Paper Session 3

FPS3-1 10011

Aging-Driven Immunosuppressive Remodeling of the Tumor Microenvironment in Gallbladder Cancer: Insights from Single-Cell Transcriptomics

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Background: Aging significantly influences cancer progression by altering the tumor microenvironment (TME). In gallbladder cancer (GBC), age-related changes in the TME may impact tumor initiation, immune evasion, and metastasis. While aging has been shown to promote an immunosuppressive TME in other cancers, its effects in GBC are not well understood. This study aims to investigate age-dependent alterations in the GBC TME using single-cell transcriptomics.
Methods: We performed single-cell RNA sequencing on tumor samples from two GBC cohorts: younger patients (<60 years, n=5) and older patients (>70 years, n=5). By analyzing cell-cell communication, transcription factor activity, and pseudotime trajectories, we identified age-related changes in cellular subpopulations and molecular characteristics within the TME.
Results: Aging significantly alters both immune and stromal components of the GBC TME. In the older cohort, we observed an increased prevalence of immunosuppressive populations, including regulatory T cells (Tregs), tumor-associated macrophages (TAMs), and myeloid-derived suppressor cells (MDSCs). Tregs exhibited enhanced suppressive function, while TAMs shifted towards a pro-tumor M2 phenotype. Aging also expanded exhausted CD8+ T cells, diminishing anti-tumor immunity. Stromal fibroblasts in older patients upregulated genes involved in extracellular matrix (ECM) remodeling, fostering a fibrotic, tumor-promoting environment. Endothelial cells displayed altered vascular characteristics. Transcription factor analysis revealed increased NF-kB and STAT3 activity, while pseudotime analysis suggested aging drives differentiation shifts toward tumor-supportive phenotypes.
Conclusions: Aging induces significant alterations in the GBC TME, promoting an immunosuppressive and tumor-enhancing environment. These findings emphasize the need for age-specific therapeutic strategies targeting TME changes, particularly in elderly GBC patients.

FPS3-2 10144

KLF5 Mediates a Galectin1-FBP1-RAS/ERK Cascade to Drive Proliferation and Migration in Intrahepatic Cholangiocarcinoma

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Background: Intrahepatic cholangiocarcinoma(ICC), the second most common primary liver cancer following hepatocellular carcinoma, exhibits aggressive behavior and poor prognosis. Galectin1(Gal1), a carbohydrate binding protein implicated in tumor progression, has an unclear role in ICC. This study aimed to elucidate the underlying mechanisms of Gal1 in ICC progression.
Methods: RT-qPCR and immunohistochemical analyses showed elevated Gal1 expression in ICC tissues, which was significantly linked to poor prognosis. In line with this finding, Gal1 knockdown markedly suppressed ICC cell proliferation and migration both in vitro and in vivo. Further, ChIP seq and Enhancer-reporter assays determined Kruppel-like-factor 5(KLF5), directly binds to regulatory elements of the Gal1 locus, leading to activation of Gal1.
Results: Mechanistically, KLF5 mediated Gal1 induction enhances epithelial mesenchymal transition and resistance to chemotherapeutic agents. Moreover, transcriptome sequencing of Gal1 knockdown ICC cells revealed that Gal1 may exert its oncogenic function by suppressing fructose-1,6-bisphosphatase 1(FBP1), and activating the RAS/ERK signaling pathway. Consistently, FBP1 expression was markedly reduced in ICC clinical samples; its overexpression suppressed ICC cell proliferation and migration, whereas FBP1 silencing partially reversed the inhibitory effects observed in Gal1 deficient cells. In addition, KLF5 dependent Gal1 depletion upregulated FBP1, leading to the inactivation of the RAS/ERK pathway and attenuation of ICC progression.
Conclusion: Collectively, our findings demonstrate that KLF5 mediated Gal1 expression promotes ICC proliferation and migration through FBP1 suppression and subsequent activation of RAS/ERK signaling, highlighting Gal1 as a potential therapeutic target and providing new insights into ICC molecular pathogenesis.

Oral Free Paper Session 3

FPS3-3 10167

Lactylation of PPP1CA at K305 Promotes Lymph Node Metastasis in Intrahepatic Cholangiocarcinoma by Sustaining TGF-β Signaling

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Background: Lymph node (LN) metastasis is a critical prognostic factor for intrahepatic cholangiocarcinoma (ICC). While lactate-mediated protein lactylation (Kla) is a newly discovered post-translational modification, its role in ICC metastasis remains poorly defined.
Methods: Single-cell and bulk RNA sequencing were used to profile the metabolic landscape of metastatic ICC. Pan-Kla IP-MS was performed to identify lactylated proteins. Site-directed mutagenesis, in vitro phosphatase assays, and footpad-to-popliteal LN metastasis mouse models were utilized to investigate the functional significance of the identified modification.
Results: Increased glycolysis and lactate production, driven by the transcription factor BHLHE40, significantly correlated with ICC LN metastasis. Lactate was found to activate the TGF-β pathway. Mechanistically, IP-MS identified PPP1CA, a catalytic subunit of protein phosphatase 1, as a target for lactylation at K26 and K305. Functional screening revealed that K305 lactylation (K305la) is the primary modification that inhibits PPP1CA's phosphatase activity. This inhibition prevents p-SMAD3 dephosphorylation, leading to sustained TGF-β signaling and enhanced cell invasion. Abolishing lactylation via the K305R mutation restored PPP1CA activity and significantly reduced LN metastasis in vivo. Furthermore, combined inhibition of lactate and TGF-β receptors showed synergistic anti-tumor effects.
Conclusions: We identified a novel "metabolic-epigenetic" axis where lactate-induced PPP1CA-K305la acts as a molecular switch that impairs the "brake" of the TGF-β pathway. Targeting this axis offers a potential therapeutic strategy for LN-metastatic ICC.

FPS3-4 10202

Epigenetic Silencing of PTEN as a Prognostic and Translational Biomarker in Periampullary Adenocarcinoma

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Background: Periampullary adenocarcinoma (PAC) is a biologically heterogeneous malignancy lacking robust molecular prognostic markers. Although PTEN alterations have been described in gastrointestinal cancers, the prognostic impact of epigenetic PTEN silencing across the periampullary spectrum has not been systematically evaluated.
Materials and Methods: In this retrospective cohort study, 101 resected PAC cases were analyzed for PTEN gene alterations. Mutational analysis was performed using Sanger sequencing, promoter methylation by methylation-specific PCR, protein expression by immunohistochemistry, and apoptosis by TUNEL assay.
Results: PTEN promoter hypermethylation was detected in 54.4% of periampullary tumors and was significantly associated with advanced T stage (p=0.017), lymph node positivity (p=0.004), perineural invasion (p=0.001), and tumor recurrence (p=0.001). Loss of PTEN protein expression occurred in 52% of cases and was associated with poor overall survival, with the worst outcomes observed in patients harboring both PTEN hypermethylation and low expression. Ampullary tumors demonstrated superior survival compared with duodenal, bile duct, and pancreatic head cancers (p=0.001). Early-stage disease showed improved survival (p=0.001). Adjuvant chemoradiotherapy improved survival (p=0.010), while PTEN apoptosis negativity was associated with better outcomes.
Conclusion: This is the first study to demonstrate that epigenetic silencing of PTEN, rather than genetic mutation, is a key prognostic driver in periampullary adenocarcinoma. Assessment of PTEN promoter methylation and protein expression may serve as clinically actionable biomarkers for risk stratification and postoperative decision-making. These findings support the integration of PTEN-based molecular profiling to identify high-risk patients who may benefit from intensified surveillance or PI3K/AKT-targeted therapeutic strategies.

Oral Free Paper Session 3

FPS3-5 10184

Prognostic Impact of Adipose Tissue Volume in Unresectable Biliary Tract Cancer Treated with Gemcitabine, Cisplatin, and Immunotherapy

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Background: The obesity paradox, in which obese patients experience improved outcomes following immune checkpoint inhibitor (ICI) therapy, has been reported in several malignancies. However, the prognostic impact of body composition in unresectable biliary tract cancer (uBTC) remains unclear. This study evaluated the efficacy of gemcitabine, cisplatin, and ICI (GC+ICI) according to adipose tissue index (ATI) in patients with uBTC.
Methods: We retrospectively analyzed patients with uBTC who received first-line GC+ICI between 2023 and 2024. Total, visceral, and subcutaneous ATI were measured using pretreatment computed tomography images and were dichotomized into low and high groups based on sex-specific median values. Clinical outcomes were compared between ATI groups.
Results: Sixty-eight patients were included. Primary tumor sites were intrahepatic bile duct in 18, extrahepatic bile duct in 28, gallbladder in 17, and ampulla of Vater in 5. Patients with high ATI had a lower prevalence of sarcopenia. Objective response rates and disease control rates did not significantly differ between groups. Among adipose tissue components, high subcutaneous ATI was strongly associated with improved progression-free survival (PFS) (9.4 months vs 3.5 months, p&It;0.001) and overall survival (OS) (20.5 months vs 7.7 months, p&It;0.001). In multivariable analysis, high subcutaneous ATI remained an independent predictor of prolonged PFS and OS.
Conclusions: In patients with uBTC treated with GC+ICI, high subcutaneous adipose tissue was associated with favorable survival outcomes. These findings suggest a potential association between body composition and clinical outcomes in uBTC treated with immunotherapy.

FPS3-6 10172

Feasibility and Safety of Endoscopic Ultrasound-guided Tissue Acquisition for Biliary Lesions

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Introduction: Pathological diagnosis of biliary lesions is usually performed via a transpapillary approach; however, its diagnostic yield is insufficient. Endoscopic ultrasound-guided tissue acquisition (EUS-TA) presents an alternative, but evidence remains limited.
Aims & Methods: In this study, we evaluated the feasibility and safety of EUS-TA for biliary lesions, including the bile duct, gallbladder, and ampullary region. A retrospective analysis was conducted on 68 patients with 71 biliary lesions who underwent EUS-TA at our institution between April 2017 and December 2024. Final diagnoses were established based on surgical specimens or clinical follow-up in non-surgical cases.
Results: The median age was 75 years (range: 50-90), and 43 patients (63.2%) were male. Lesions comprised 26 bile duct (malignant/benign, 17/9), 31 gallbladder (22/9), and 14 ampullary lesions (10/4); overall, 49 lesions were malignant and 22 were benign. Bile duct and ampullary lesions were cases where transpapillary diagnosis was inconclusive. Gallbladder lesions had distinct masses or wall thickening. The overall diagnostic yield (sensitivity/specificity/accuracy) for differentiating between benign and malignant lesions was 92.3%/100%/94.4%, respectively. In bile duct lesions, sensitivity/specificity/accuracy were 78.9%/100%/84.6%, respectively. In gallbladder and ampullary lesions, diagnostic yield was 100%. Adverse events occurred in 2/71 (2.8%): obstructive jaundice and pancreatitis; one required transpapillary biliary drainage. Surgery was performed in 21 patients (29.6%), with no cases of peritoneal dissemination observed.
Conclusion: EUS-TA demonstrates high diagnostic yield and safety for biliary lesions, offering a viable alternative when transpapillary approaches fail to differentiate benign from malignant pathology.

Oral Free Paper Session 4

FPS4-1 10094

MicroRNA-199a-5p Disrupts Unfolded Protein Response-mediated Stress Adaptation in Hepatocellular Carcinoma Cells

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Background: Hepatocellular carcinoma (HCC) cells often hijack adaptive mechanisms to survive intrinsic and extrinsic stressors. We aimed to identify key tumor-suppressive microRNAs (miRNAs) that regulate these survival pathways in HCC.
Methods: We analyzed miRNA profiling from nine curated datasets in the dbDEMC database. Functional effects of miR-199a-5p were assessed in JHH-4 and SNU-449 cells. Mechanisms were elucidated via RNA-seq, overrepresentation analysis (ORA), gene set enrichment analysis (GSEA), and endoplasmic reticulum (ER) stress-specific fluorescent reporters (ATF4/XBP1). Direct targets were validated using dual-luciferase assays and western blotting.
Results: Bioinformatic analysis identified miR-199a-5p as the only miRNA consistently downregulated across all nine datasets, with low expression correlating with poor patient prognosis. Overexpression of miR-199a-5p significantly impaired HCC cell proliferation, migration, and colony formation. RNA-seq, ORA, and GSEA revealed the unfolded protein response (UPR) as the primary pathway suppressed by miR-199a-5p. Specifically, miR-199a-5p-overexpressing cells failed to activate ATF4 and XBP1 reporters upon ER stress induction. This impaired adaptation led to a significant accumulation of proteotoxic aggregates, as confirmed by thioflavin assays. Mechanistically, we identified HSPA5 and ERN1 as direct targets of miR-199a-5p; dual-luciferase assays and western blots confirmed that miR-199a-5p directly binds to their 5' untranslated regions (UTRs) to suppress protein expression.
Conclusions: miR-199a-5p acts as a potent tumor suppressor by disabling the UPR-mediated stress rheostat. By targeting HSPA5 and ERN1, miR-199a-5p sensitizes HCC cells to proteotoxic stress. Restoring miR-199a-5p expression represents a promising therapeutic strategy to enhance the efficacy of stress-inducing HCC oncology treatments.

FPS4-2 10108

Dynamic Regulation of Membrane Fluidity Drives Tumor Evolution and Attenuates TNF α-Mediated Apoptosis in Hepatocellular Carcinoma

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Background: Membrane fluidity is a fundamental biophysical property of cells and is essential for maintaining normal physiological functions, including molecular transport and signal transduction. While tightly regulated under physiological conditions, whether and how alterations in membrane fluidity contribute to tumor progression remain largely unknown. Here, we sought to systematically investigate the role of membrane fluidity in hepatocellular carcinoma (HCC) evolution.
Methods: Clinical HCC tissues and matched non-tumorous liver tissues were collected to establish a patient cohort for membrane fluidity analysis. In parallel, a murine HCC tumor evolution model and in vitro HCC cell models were established. Membrane fluidity was quantitatively assessed across clinical samples, tumor evolutionary stages, and cellular conditions. High-throughput transcriptomic sequencing was integrated to identify downstream signaling pathways associated with altered membrane fluidity, followed by functional validation experiments.
Results: Analysis of the HCC patient cohort revealed a significant increase in membrane fluidity in tumor tissues compared with adjacent non-tumorous liver tissues (Fig. A-C). In the murine tumor evolution model, membrane fluidity progressively increased during HCC evolution (Fig. D). Transcriptomic profiling identified significant alterations in the TNFα signaling pathway associated with changes in membrane fluidity (Fig. E-I). Functional assays further confirmed that experimentally reducing membrane fluidity enhanced TNFα-induced apoptosis in HCC cells (Fig. J-K).
Conclusion: These findings reveal membrane biophysics as an underappreciated driver of tumor evolution and suggest that targeting membrane fluidity or its associated TNF signaling axis may represent a novel therapeutic strategy for HCC.

Oral Free Paper Session 4

FPS4-3 10162

AARS1 Promotes Tumor Progression and Immune Evasion through ATF6 Lactylation-driven Tryptophan Metabolism in Hepatocellular Carcinoma

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Background: Hepatocellular carcinoma (HCC) is a leading cause of cancer-related death, and many patients derive limited benefit from systemic and immunotherapies due to an immunosuppressive tumor microenvironment. Regulatory T cells (Tregs) are central to this state, but how tumor-intrinsic programs generate stable Treg-promoting signals in HCC is unclear. Alanyl-tRNA synthetase 1 (AARS1) was identified as a lactate-sensitive protein lactyltransferase, yet its clinical relevance in HCC and role in immune evasion are unknown. TDO2-driven tryptophan-kynurenine metabolism promotes Treg accumulation, but its upstream regulation by tumor lactylation has not been defined. This study investigates how AARS1 links glycolysis, ATF6 lactylation, TDO2 signaling and Treg-mediated immunosuppression, and whether targeting this axis is therapeutically beneficial.
Methods: Single-cell and spatial RNA-seq were used to map AARS1 expression. HCC was induced in mice with hepatocyte-specific Aars1, Atf6 or Tdo2 gain- or loss-of-function using DEN/CCl4 and Myc/Ras. Tumor glycolysis was assessed by micro-PET/CT and ECAR. AARS1 lactyltransferase activity was measured by PPi/AMP production and ATF6 K424 lactylation. Immune cells were profiled by flow cytometry and CyTOF.
Results: AARS1 was upregulated in HCC and associated with glycolysis, Treg accumulation and poor prognosis. AARS1 lactylated ATF6 K424 to drive TDO2-kynurenine signaling and Treg expansion, which in turn enhanced glycolysis. Beta-alanine inhibition of AARS1 broke this loop, restrained HCC growth and improved anti-PD-1 response.
Conclusion: AARS1 is a lactylation-dependent hub coupling tumor glycolysis to the ATF6-TDO2-kynurenine axis and Treg-mediated immunosuppression. Disrupting this pathway with beta-alanine remodels the microenvironment, limits HCC progression and enhances anti-PD-1 efficacy.

FPS4-4 10178

Dfna5-dependent Hepatocyte Death Promotes Inflammatory TNF Signaling in Kupffer Cells to Drive Hepatocarcinogenesis

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Background: Hepatocyte death is a key driver of chronic liver disease (CLD) progression and hepatocarcinogenesis. We previously demonstrated that persistent hepatocyte apoptosis promotes hepatocellular carcinoma (HCC). Dfna5 (Gasdermin E), a pore-forming protein activated by caspase cleavage, induces membrane rupture and release of pro-inflammatory intracellular contents. However, the role of Dfna5-mediated hepatocyte death in liver inflammation and HCC development remains unclear.
Methods: DFNA5 was silenced in AML12 hepatocytes using siRNA, and intrinsic apoptosis was induced with ABT-737. Alb-Cre Mcl-1 fl/fl (Mcl-1 L-KO) mice were crossed with Dfna5 fl/fl mice to generate Mcl-1/Dfna5 L-KO mice. Bulk mRNA sequencing was performed to identify Dfna5-dependent inflammatory pathways. Kupffer cells were depleted using clodronate liposomes. Clinical relevance was assessed using TCGA-LIHC survival data.
Results: ABT-737 induced caspase-3/7 activation and Dfna5 cleavage in vitro. DFNA5 knockdown did not affect caspase activation but significantly reduced LDH release, indicating suppression of secondary necrosis. In Mcl-1 L-KO mice, Dfna5 deletion markedly reduced hepatic Tnfa expression without altering serum ALT levels or caspase activity. mRNA-seq revealed significant suppression of TNF/NF-κB related pathways, validated by reduced expression of Tnf, Ccl2, and Cxcl2. Kupffer cell depletion abolished hepatic Tnfa expression, identifying Kupffer cells as the primary TNFα source. HCC developed in all Mcl-1 L-KO mice but was significantly reduced in Mcl-1/Tnfα double-KO mice. High DFNA5 expression was associated with poorer survival in TCGA-LIHC.
Conclusion: Dfna5 promotes secondary necrosis of apoptotic hepatocytes, thereby inducing Kupffer cell-derived TNF/NF-κB signaling that contributes to hepatocarcinogenesis. Targeting the Dfna5-TNF/NF-κB axis may represent a novel therapeutic strategy for inflammation-associated liver cancer.

Oral Free Paper Session 5

FPS5-1 10100

Natural Killer Cell Drives Liver Cancer Evolution Through Cholesterol Metabolism Reprogramming

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Background: Tumor cells acquire survival advantages and evade therapy through continuous evolution. The liver, enriched in natural killer (NK) cells, presents a unique immune microenvironment. Although cholesterol metabolism is linked to liver precancerous lesions and hepatocellular carcinoma (HCC), its role in tumor evolution under immune pressure remains unclear.
Methods: Single-cell and single-nucleus RNA sequencing were performed on in vitro evolution models and patient tissue samples. A Support Vector Machine classifier, trained on in vitro data, was used to quantify NK-resistant (G2-R-like) tumor cells in patient epithelia. A genome-wide CRISPR/Cas9 knockout screen identified tumor-intrinsic regulators under NK cell-induced selective pressure. Therapeutic efficacy was evaluated using Hepa1-6 P4 tumors in Rag1-/-, NCG, and hLAG3-humanized C57BL/6 mouse models.
Results: Prolonged NK cell co-culture generated resistant liver cancer cells with enhanced cytotoxic resistance and activation of oncogenic pathways. This in vitro evolution model was validated in clinical cohorts. CRISPR screening identified rapid cholesterol metabolic reprogramming as a key adaptation, with liver X receptors (LXRs) as central regulators. The LXR agonist GW3965 restored NK cell sensitivity and promoted cholesterol efflux in vitro. In NK-R patients, infiltrating NK and CD8+ T cells were functionally suppressed, exhibiting elevated LAG-3 and FGL-1 expression. Combination therapy targeting LAG-3 and activating LXRs (with GW3965) synergistically halted tumor progression and enhanced the durability of immune checkpoint blockade in murine models.
Conclusion: Early NK cell-mediated immunosurveillance drives the metabolic and immunoevasive evolution of liver cancer. Targeting this axis through combined immunometabolic therapy represents a promising strategy to counteract tumor evolution and improve treatment outcomes.

FPS5-2 10147

A Fe-Curcumin-based Strategy to Reinvigorate CAR-T Cells by Reversing Exhaustion and Senescence in Liver Cancer

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Background: Chimeric antigen receptor-T (CAR-T) therapy has demonstrated remarkable efficacy in hematological malignancies. However, its effectiveness against hepatocellular carcinoma (HCC) remains limited by T cell exhaustion, senescence, and the immunosuppressive tumor microenvironment (TME). Curcumin, a natural anti-tumor compound, exhibits limited efficacy as a monotherapy. This study innovatively constructs an Fe-curcumin (FC) nanoplatform confer a superior "memory-persistence" phenotype upon CAR-T cells, thereby aiming to overcome these critical barriers in HCC treatment.
Methods: We developed ROS-scavenging Fe-curcumin nanoparticles for co-delivery with CAR-T cells. Their impacts on CAR-T cell apoptosis, proliferation, exhaustion, and memory phenotypes were profiled via flow cytometry and RNA-seq. In vivo antitumor efficacy and TME modulation were assessed in murine models using MRI and immunohistochemistry.
Results: The FC nanoparticles effectively induced tumor cell apoptosis without exerting cytotoxicity on T cells or CAR-T cells. Furthermore, they alleviated CAR-T cell senescence and exhaustion by suppressing the p53 signaling pathway, thereby enhancing cytotoxicity and proliferative capacity. RNA-Seq and flow cytometry confirmed an upregulated memory phenotype alongside downregulated exhaustion markers in FC-treated CAR-T cells. In vivo, the FC/CAR-T combination demonstrated a significant suppression of tumor growth and an extension of survival. The nanoparticles also remodelled the TME by alleviating hypoxia and acidosis, and enhancing endogenous T/NK cell infiltration.
Conclusion: This study demonstrates that FC reinvigorate CAR-T cells by mitigating exhaustion and senescence via p53 pathway inhibition, while concurrently remodeling the immunosuppressive TME. Our findings provide a novel and potent combinatorial strategy to overcome the key limitations of CAR-T therapy in solid tumors.

Oral Free Paper Session 5
FPS5-3 10119

Reverse-engineering Strategy Identified DDR1 as HCC Chemoprevention Target Post HCV Cure

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Background: We previously reported an etiology-agnostic HCC risk signature (PLS) and an etiology-specific HCC risk signature (PLS-HCVcure). These signatures can be utilized for reverse-engineering exploration of chemoprevention for post-SVR HCC.
Methods: To identify candidate chemopreventive agents, we performed in silico screening of compounds using PLS and PLS-HCV cure. In vitro validation was conducted using a PLS-inducible cell-based (cPLS) model. In vivo testing was performed in the DEN+CCl4 mouse model. Clinical relevance of candidate compound/target were assessed by spatial transcriptomic profiling.
Results: In silico compound screening identified a DDR1 inhibitor, 7rh, as a top candidate. In the cPLS model, 7rh favorably modulated PLS in a dose-dependent manner. In the DEN+CCl4 mouse model, administration of 7rh significantly reduced tumor burden and favorably modulated HCC risk signatures. 7rh treatment suppressed molecular pathways related to inflammation, apoptosis, necroptosis, DNA damage repair, and cell cycle regulation, as well as a subset of carcinogenesis-related hepatocyte signatures. In liver tissues from patients who achieved a sustained virological response (SVR), spatial transcriptomic profiling identified a hepatocyte subpopulation with activated DDR1 signaling. This subpopulation exhibited activation of HCC risk signatures observed in the in vivo model, as well as activation of a subset of carcinogenesis-related hepatocyte signatures.
Conclusion: These findings support pharmacological DDR1 inhibition as a promising chemopreventive strategy in HCV-cured patients with advanced fibrosis.

Oral Free Paper Session 6

FPS6-1 10038

Clinical Characteristics of Combination Immunotherapy in Elderly Patients with Unresectable Hepatocellular Carcinoma

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Background and Aims: Combination immunotherapy has been established as treatment for unresectable hepatocellular carcinoma (uHCC). In real-world clinical practice, its use in elderly patients has increased; however, safety and efficacy in this population remain insufficiently clarified. Thus, this study aimed to evaluate the safety and treatment outcomes of combination immunotherapy in elderly patients with uHCC.

Methods: We retrospectively analyzed 121 patients with uHCC treated with immune checkpoint inhibitor–based combination therapy (atezolizumab plus bevacizumab or durvalumab plus tremelimumab) between October 2020 and May 2025. Patients were stratified into two groups according to age: <75 years and ≥75 years.

Results: The median age was 74 (range 34–89) years, with 96 men and 25 women. Child–Pugh class A/B was observed in 110/11 patients, and mALBI grades 1/2a/2b were 35/32/50, respectively. Immune–related adverse events occurred in 25 patients, with a significantly higher incidence in patients aged <75 years. Among 82 patients evaluable by mRECIST, the objective response rate was 42.3% and the disease control rate was 76.0%. Median progression–free survival and overall survival were 183 and 585 days, respectively. Treatment efficacy was comparable between patients aged <75 and ≥75 years. However, non–liver–related causes of death, including pneumonia and sepsis, were significantly more frequent in the ≥75 years group.

Conclusions: Combination immunotherapy provides comparable efficacy and safety in elderly patients with adequate performance status and hepatic functional reserve. Nevertheless, careful systemic management is essential in elderly patients because of the higher incidence of non–liver–related mortality.

FPS6-2 10064

Prognostic Value of Combined Child–Pugh Score and Modified Albumin–bilirubin Grade in Unresectable Hepatocellular Carcinoma Treated with Atezolizumab plus Bevacizumab

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Background: Atezolizumab plus bevacizumab (AB) is established as first–line therapy for unresectable hepatocellular carcinoma (uHCC) in patients with Child–Pugh (CP) class A. However, the liver function of patients classified as CP class A is heterogeneous, and the prognostic value of further stratification using the modified albumin–bilirubin (mALBI) grade remains unclear.

Methods: We retrospectively analyzed 123 patients with uHCC who received AB as first–line therapy at our institution. Patients with CP class A were stratified into four groups according to CP score and mALBI grade: group 1 (CP score 5/mALBI grade 1–2a), group 2 (5/2b), group 3 (6/1–2a), and group 4 (6/2b). Overall survival (OS) and progression–free survival (PFS) were evaluated using Kaplan–Meier analysis and Cox proportional hazards models.

Results: The median age was 72 years, 78.0% had an ECOG PS of 0, and 51.2% had BCLC stage C disease. The median OS was not reached in group 1, whereas it was 31.2/20.6/13.6 months in groups 2/3/4, respectively. Among these, only group 4 showed a statistically significant difference compared with group 1 ($p=0.005$). In multivariable analysis, group 4 was independently associated with poorer OS compared with group 1 ($p=0.007$). For PFS, groups 2 and 4 showed significantly shorter PFS than group 1 ($p=0.010$ and 0.002), whereas group 3 did not ($p=0.469$). Treatment–related adverse events of grade ≥3 were comparable across all groups.

Conclusions: mALBI grade stratification revealed prognostic heterogeneity within CP class A, identifying CP score 6/mALBI grade 2b as a poor prognosis subgroup.

Oral Free Paper Session 6

FPS6-3 10106

Association of Lenvatinib Pharmacokinetics with mALBI in Hepatocellular Carcinoma and Evaluation of Efficacy and Safety

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Background: The dose of lenvatinib (LEN) for hepatocellular carcinoma (HCC) is determined based on body weight and Child-Pugh classification. Because LEN is highly bound to albumin, impaired liver function or hypoalbuminemia may increase the unbound drug concentration, potentially affecting efficacy and safety. This prospective study evaluated the pharmacokinetics of LEN and investigated the impact of hepatic reserve on treatment outcomes and safety.
Methods: Forty-one HCC patients treated with LEN were enrolled. By measuring plasma LEN concentrations before treatment and at multiple time points after initiation, unbound area under the concentration-time curve per dose (AUCu/dose) was calculated. We examined the association between AUCu/dose and hepatic reserve capacity, as well as the associations between hepatic reserve capacity, AUCu/dose, progression-free survival (PFS), and adverse events.
Results: AUCu/dose significantly correlated with modified albumin-bilirubin (mALBI) grade (P = 0.007). Grade ≥2 adverse events were more frequent in patients with higher AUCu/dose and mALBI grade ≥2b (P = 0.033 and P = 0.036, respectively). Relative dose intensity (RDI) was significantly lower in patients with higher AUCu/dose and mALBI grade ≥2b (P = 0.023 and P = 0.006) and was significantly associated with both PFS and adverse events (P = 0.012 and P = 0.002).
Discussion and Conclusion: Elevated AUCu/dose due to mALBI grade ≥2b was associated with increased adverse events, leading to reduction in RDI. Furthermore, reduced RDI was significantly associated with shorter PFS, suggesting that mALBI is a useful indicator to predict the therapeutic efficacy and safety based on pharmacokinetics.

FPS6-4 10139

Regional Lymph Node Metastasis in Hepatocellular Carcinoma Treated with Immune-based Systemic Therapy: Prognostic Significance and Implications for Clinical Staging

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Background: We aimed to determine the prognostic significance of regional lymph node metastasis (LNM) in hepatocellular carcinoma (HCC) and evaluate its potential to refine established staging systems.
Methods: This nationwide, multicenter cohort included 3167 patients with unresectable HCC who received first-line immune-based systemic therapy across 45 tertiary hospitals from January 2018 to June 2024. Overall survival (OS) for regional LNM (N1M0), distant metastasis (N0M1), and macrovascular invasion (MaVI) groups was estimated using the Kaplan-Meier method and compared by log-rank test, with stabilized inverse probability of treatment weighting (sIPTW) applied to reduce baseline imbalances. The prognostic performance of the BCLC, HKLC, and CNLC systems was evaluated before and after separating N1 from extrahepatic spread using C-index, Akaike information criterion (AIC), and likelihood ratio tests (LRT).
Results: Regional LNM occurred in 203 (6.4%) patients. After sIPTW, the median OS for N1M0 group was 32.2 months (95% CI, 24.9-NR), significantly longer than the N0M1 group (20.5 months; aHR 0.51 [0.34-0.77]; p=0.001) and the MaVI group (21.1 months; aHR 0.53 [0.36-0.77]; p&It;0.001). Weighted 1-, 2-, and 3-year OS rates for N1M0 were 92.2%, 62.5%, and 41.8%, compared with 86.3%, 44.5%, and 21.9% for N0M1 and 76.1%, 43.0%, and 23.6% for MaVI. Subclassifying N1 improved prognostic discrimination across all staging systems, as indicated by higher C-indexes, lower AIC values, and significant LRT χ^2 statistics (all p&It;0.001).
Conclusion: Regional LNM represents a prognostically distinct entity and merits consideration as a separate category from other extrahepatic metastases in future HCC staging systems.

Oral Free Paper Session 7

FPS7-1 10097

Should Transarterial Chemoembolization Be Applied with Systemic Therapy for Hepatocellular Carcinoma with Hepatic Vein and/or Inferior Vena Cava Tumor Thrombus? : A Multicenter Study

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Background: To evaluate whether TACE should be applied with systemic therapy for HCC with HVTT/IVCTT, in a first-line therapy setting.
Methods: This multi-center retrospective cohort study included HCC patients with HVTT/IVCTT treated between June 2018 and March 2024. Patients received either systemic therapy plus TACE (Group A) or systemic therapy alone (Group B). Propensity score matching (PSM) was utilized to balance the baseline characteristics. Four sensitivity analysis including inverse probability of treatment weighting (IPTW) was performed. The primary outcomes were overall survival (OS) and progression-free survival (PFS).
Results: A total of 972 HCC patients with HVTT/IVCTT (696 in Group A and 276 in Group B) were included. The median follow-up time was 32.1 (95% CI: 30.4-33.8) months. After PSM, Group A demonstrated a significantly longer median OS compared to Group B (20.9 vs. 14.3 months; HR=0.65, 95% CI: 0.54-0.77, P&It;0.0001). Group A achieved a significantly longer median PFS compared to Group B (10.7 vs. 7.3 months; HR=0.67, 95% CI: 0.57-0.79, P&It;0.0001, per RECIST v1.1 criteria). Additionally, Group A exhibited a significantly higher objective response rate per RECIST v1.1 (45.3% vs. 28.8%, P&It;0.001) and per mRECIST criteria (53.6% vs. 36.3%, P&It;0.001). Grade more than 3 treatment-related adverse events occurred in 238 patients in Group A (34.2%) and 87 patients in Group B (31.5%).
Conclusions: TACE in combination with systemic therapy shows improved survival benefit and manageable safety profiles compared systemic therapy alone. These results support the use of TACE alongside first-line systemic therapy for HCC patients with HVTT/IVCTT.

FPS7-2 10160

Real-World Outcomes of Sequential Transarterial Chemoembolization followed by Atezolizumab-Bevacizumab in Patients with Advanced Hepatocellular Carcinoma

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Background: Transarterial chemoembolization (TACE) is standard for unresectable hepatocellular carcinoma (HCC), but repeated sessions may cause liver dysfunction and refractoriness. Atezolizumab plus bevacizumab (Atezo-Bev) is a promising post-TACE therapy. This study evaluates survival and predictors of response to Atezo-Bev after TACE.
Methods: This retrospective study included patients with advanced and unresectable HCC who received TACE followed by Atezo-Bev. Kaplan Meier analysis and Cox regression were used to assess survival outcomes.
Results: Among 154 patients (median age 61.8years; 82.5%male), 76.0% BCLC stage B and 77.3% were TACE-refractory. Median number of TACE and Atezo-Bev cycles was 4 and 6, respectively. The 2-year OS rate was 62.7%. In TACE-refractory patients, median OS was 31.7 months. On multivariable Cox regression, independent predictors of worse OS included INR (HR 180.28, 95%CI: 1.45-6361.72,p=0.001) and PIVKAII (HR 1.58, 95%CI 1.10-2.28,p=0.014). In the TACE-refractoriness, INR (HR 310.73, 95%CI 7.93-12179.11,p=0.002) and PIVKAII (HR 1.63, 95%CI 1.13-2.37,p=0.010) remained significant. Median PFS was 4.9 months overall and 4.7 months in TACE-refractory cases. Multivariable predictors of shorter PFS included elevated INR (HR 24.03, 95%CI 3.80-151.81,p=0.001), higher number of prior TACE sessions (HR 1.07, 95%CI 1.02-1.13,p=0.004), and AST (HR 1.00, 95%CI 1.00-1.01,p=0.040), which were consistent in the TACE-refractory subgroup. Patients with INR>1.08 or PIVKAII>178 mAU/mL and TACE refractoriness showed significantly worse OS (p=0.013 and p<0.001) and PFS (p=0.007 and p=0.016).
Conclusion: Hepatic function at Atezo-Bev initiation is more prognostic than TACE refractoriness. Repeated TACE may elevate INR and impair liver reserve, compromising Atezo-Bev efficacy. Early transition before decompensation may improve outcomes.

Oral Free Paper Session 7
FPS7-3 10183

Efficacy of Combined Three-Dimensional Conformal Radiotherapy and Hepatic Arterial Infusion Chemotherapy for Unresectable Hepatocellular Carcinoma with Major Vascular Invasion

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Background: Advanced hepatocellular carcinoma (HCC) with major vascular invasion (Vp3/4, Vv3) carries extremely poor prognosis. Our institution employs combined hepatic arterial infusion chemotherapy (HAIC) using New FP regimen and three-dimensional conformal radiotherapy (3DCRT) for these unresectable cases.
Methods: Among 1,021 HCC patients (2007-2023), we analyzed 51 with major vascular invasion receiving New FP-HAIC plus 3DCRT (50 Gy to tumor thrombus). We evaluated treatment response, survival, adverse events, and feasibility of sequential therapies.
Results: Patient characteristics included median age 69 years, Vp3-4/Vv3=45/6, stage III/IVa/IVb=11/32/8, Child-Pugh 5/6/7=14/18/19. Treatment achieved high efficacy against tumor thrombus (response rate 82.4%; TE4/3/2/1=20/22/6/3). Overall response rate was 64.7% (CR/PR/SD/PD=5/28/10/8) with disease control rate 84.3%. No significant liver function deterioration occurred at three months. Sequential treatments included surgical resection (n=3) and molecular targeted agents (sorafenib: 19, lenvatinib: 4, atezolizumab+bevacizumab: 4). Grade3 adverse events (radiation gastritis with bleeding: 3, HBV reactivation: 1) were successfully managed. Median survival was 12.9 months overall - 7.2 months with initial treatment alone versus 28.9 months with sequential therapy. Multivariate analysis identified tumor thrombus response (p=0.0026, HR:0.126) and sequential therapy (p=0.0029, HR:0.253) as independent prognostic factors.
Conclusion: Combined HAIC with New FP and 3DCRT demonstrates excellent tolerability and efficacy for unresectable HCC with major vascular invasion. Early vascular invasion control restores hepatic blood flow, preserving liver function and enabling subsequent therapies, potentially improving long-term survival.

Oral Free Paper Session 8

FPS8-1 10111

Prognostic Impact of the Oncological Resectability Criteria in Patients Undergoing Liver Resection for Hepatocellular Carcinoma

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Background: The borderline resectable hepatocellular carcinoma (BR–HCC) criteria were introduced in 2023. We aimed to evaluate outcomes of liver resection (LR) based on the BR-HCC criteria.
Methods: We retrospectively analyzed 638 patients who underwent LR as initial treatment for primary HCC between 2014 and 2023. Patients treated with LR were classified according to the BR–HCC criteria into resectable (R), borderline resectable 1 (BR1), or borderline resectable 2 (BR2). Associations between clinicopathological factors and survival outcomes were assessed.
Results: According to the criteria, 528 patients were categorized as R, 59 as BR1, and 51 as BR2 in LR group. Median overall survival (OS) time of LR group was as follows: R, not reached; BR1, 88.4 months; BR2, 36.2 months, while median recurrence-free survival (RFS) time of LR group was as follows: R, 51.7 months; BR1, 20.8 months; BR2, 4.8 months. The classification was significantly correlated with OS (BR1 [vs. R]: HR 2.01 P=0.009; BR2 [vs. R]: 3.56, P<0.001) and RFS (BR1 [vs. R]:HR 1.87 P=0.002; BR2 [vs. R]:HR4.18 P<0.001) in LR group. Multivariate analyses identified BR-HCC (BR1 or BR2), impaired liver function (ALBI score), and treatment era as independent prognostic factors for OS. Treatment during 2018–2023 was independently associated with improved outcomes, underscoring the impact of systemic chemotherapy.
Conclusion: The resectability classification based on the oncological criteria showed acceptable prognosticating ability in patients undergoing LR for HCC. Optimal outcomes are likely to require integration of systemic chemotherapy across the entire treatment course.

FPS8-2 10078

Surgical Outcomes and Treatment Strategies for Solitary Giant Hepatocellular Carcinoma

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Background: The BR-HCC Expert Consensus defines solitary hepatocellular carcinoma (HCC) without macrovascular invasion as resectable (R) regardless of tumor size; however, whether resection alone achieves satisfactory outcomes in giant solitary HCC remains unclear. We evaluated surgical outcomes stratified by oncologic resectability and focused on solitary giant HCC.
Methods: We retrospectively reviewed 248 patients who underwent initial hepatectomy for HCC between 2005 and 2021, excluding cases with macrovascular invasion and distant metastasis. Patients were classified according to the HCC oncologic resectability classification (R/BR1/BR2). Overall survival (OS) and clinicopathological variables were compared. In the R cohort, outcomes were further compared according to tumor size.
Results: The cohort comprised R (n=215), BR1 (n=14), and BR2 (n=19). Age and Child-Pugh class did not differ among groups, whereas median maximum tumor diameter (2.9/3.5/7.0cm) and tumor number (1/2/4) increased significantly from R to BR2. Anatomical resection was more frequent in BR than in R (p<0.05). Median OS was significantly longer in R than in BR1/BR2 (59.0 vs. 37.2/44.2 months; p<0.05). Within R, median OS declined with increasing tumor size (<3 cm: 63.2; 3-<5 cm: 68.2; 5-<10 cm: 56.9; >10 cm: 23.3 months; trend p=0.203). Patients with tumors>10 cm had significantly worse OS than those with tumors <10 cm (p<0.05), and OS for >10 cm tumors was comparable to BR1.
Conclusion: Solitary HCC >10 cm demonstrates outcomes similar to BR1 despite being classified as R. Hepatectomy should be positioned within a multimodal strategy to improve prognosis in solitary huge HCC.

Oral Free Paper Session 8
FPS8-3 10146

Association between Prophylactic Antibiotics and Post-ablation Infections in Hepatocellular Carcinoma Patients: A Retrospective Multicenter Cohort Study

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Background: The role of prophylactic antibiotics in preventing infections following hepatocellular carcinoma (HCC) ablation remains unclear. We aimed to clarify whether prophylactic antibiotics reduce infection rates after HCC ablation and to identify patient subgroups who might benefit.
Materials and Methods: This retrospective, multicenter cohort study included HCC patients who underwent percutaneous thermal ablation between May 2018 and April 2024, classified into prophylactic antibiotic (PA) and non-prophylactic antibiotic (non-PA) groups. The primary outcome was infection, categorized as severe or non-severe, while secondary outcomes included duration of hospitalization, costs, and fever. Propensity Score Matching (PSM) and Overlap Weighting (OW) were employed to control for baseline differences, and the Firth's penalized likelihood method was applied to all logistic regression analysis.
Results: A total of 2446 patients (mean age 60.4, SD 10.6 years; 520 women) from six centers were included. Comparing the PA and nPA groups, the PA group showed lower overall infection rates than the nPA group (4.1% vs. 6.6%, P=0.024 in primary cohort), which was comparable after adjustment (P = 0.1 after PSM and P = 0.32 after OW). Logistic regression analysis revealed that BCLC B, high glucose level, and history of biliary surgery were significant independent risk factors of infection in both PSM and OW cohort.
Conclusion: Routine prophylactic antibiotic use is not necessary in percutaneous HCC ablation; however, it may be considered for selected patients.

Oral Free Paper Session 9

FPS9-1 10076

PIVKA-II Monitoring to Predict Response to The First Transarterial Chemoembolization (TACE) in Intermediate-Stage Hepatocellular Carcinoma

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Background: Hepatocellular carcinoma (HCC) is a major cause of cancer-related mortality, with transarterial chemoembolization (TACE) being the standard for intermediate-stage disease. Early prediction of treatment response is crucial. Protein induced by vitamin K absence-II (PIVKA-II) is a potential biomarker, but its role in predicting complete response (CR) to the first TACE is unclear. This study aimed to determine the optimal cut-off and diagnostic performance of PIVKA-II percentage reduction (PIVKA-II response) at 2 weeks post-TACE in predicting CR at 8 weeks.
Method: We conducted a prospective diagnostic accuracy study with 57 intermediate-stage HCC patients undergoing first TACE. Serum PIVKA-II was measured at baseline, 2, and 8 weeks post-TACE. Radiologic response at 8 weeks used mRECIST. AUROC analyzed PIVKA-II response predictability at 2 and 8 weeks.
Result: At 8 weeks, 26% achieved CR. Median PIVKA-II response at 2 weeks was significantly greater in CR (98%) versus partial response (79%), stable disease (71%), and progressive disease (65%) groups ($p = 0.04$). An AUROC of 0.74 indicated that a PIVKA-II reduction $\geq$ 83.8% at 2 weeks predicted CR with 80.0% sensitivity, 64.3% specificity, 44.4% PPV, 90.0% NPV, and 68.4% overall accuracy.
Conclusion: Early reduction in serum PIVKA-II levels after first TACE correlates with radiologic response, particularly CR. With an AUROC of 0.74, a PIVKA-II response at 2 weeks shows promise as an early surrogate marker for predicting CR, which could facilitate timely therapeutic decisions and improve clinical outcomes.

FPS9-2 10158

Role of Transjugular Intrahepatic Portosystemic Shunt (TIPS) in Refractory Gastrointestinal Bleeding inHepatocellular Carcinoma Patients with Portal Vein Thrombosis: A Prospective Cohort Study

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Background and Aims: Portal vein thrombosis (PVT) in hepatocellular carcinoma (HCC) patients with refractory variceal bleeding represents a therapeutic challenge. TIPS has been traditionally contraindicated but may offer life-saving intervention in selected cases. This study evaluates TIPS feasibility, safety, and efficacy in this population.
Methods: Prospective cohort study of HCC patients with PVT and refractory variceal bleeding undergoing TIPS (Child-Pugh A-B, MELD less than or equal to 18) from January-December 2024 at Benha Teaching Hospital. Primary outcomes: technical success (gradient reduction to less than 12 mmHg), clinical success (bleeding control at 6 weeks), and 30-day mortality. Secondary outcomes: rebleeding rates, survival, TIPS patency, and hepatic encephalopathy at 12 months.
Results: Sixty patients enrolled. Technical success: 80% (88% partial PVT, 68% complete PVT). Clinical success: 72%. 30-day mortality: 11%. Rebleeding: 24% at 6 months, 33% at 12 months (median 7 months). TIPS patency: 78%. New/worsening hepatic encephalopathy: 36% (severe 11%). Overall survival: 65% at 6 months, 55% at 12 months. Predictors of technical success: partial PVT, shorter thrombosis duration, operator experience. Independent predictors of clinical success: Child-Pugh score less than or equal to 7, post-TIPS gradient less than 10 mmHg.
Conclusions: TIPS is feasible in selected HCC-PVT patients with refractory bleeding, offering effective bleeding control with acceptable safety. Careful patient selection based on liver function and tumor burden is crucial. Results support TIPS consideration in this challenging population with limited alternatives.

Oral Free Paper Session 10

FPS10-1 10029

Development of Novel Deep Multimodal Representation Learning-based Model for the Differentiation of Liver Tumors on B-Mode Ultrasound Images

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Background and Aim: Recently, multimodal representation learning for images and other information such as numbers or language has gained much attention. The aim of the current study was to analyze the diagnostic performance of deep multimodal representation model-based integration of tumor image, patient background, and blood biomarkers for the differentiation of liver tumors observed using B-mode ultrasonography (US).
Method: First, we applied supervised learning with a convolutional neural network (CNN) to 972 liver nodules in the training and development sets to develop a predictive model using segmented B-mode tumor images. Additionally, we also applied a deep multimodal representation model to integrate information about patient background or blood biomarkers to B-mode images. We then investigated the performance of the models in an independent test set of 108 liver nodules.
Results: Using only the segmented B-mode images, the diagnostic accuracy and area under the curve (AUC) values were 68.52% and 0.721, respectively. As the information about patient background and blood biomarkers was integrated, the diagnostic performance increased in a stepwise manner. The diagnostic accuracy and AUC value of the multimodal DL model (which integrated B-mode tumor image, patient age, sex, AST, ALT, platelet count, and albumin data) reached 96.30% and 0.994, respectively.
Conclusion: Integration of patient background and blood biomarkers in addition to US image using multimodal representation learning outperformed the CNN model using US images. We expect that the deep multimodal representation model could be a feasible and acceptable tool for the definitive diagnosis of liver tumors using B-mode US.

FPS10-2 10204

Dissociation between Multiphasic CT-Defined Tumor Burden and Endoscopic Portal Hypertension Severity in Cirrhotic and Non-Cirrhotic Hepatocellular Carcinoma

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Background: Hepatocellular carcinoma (HCC) is frequently complicated by portal hypertension. Tumor burden assessed by computed tomography (CT) is often presumed to exacerbate portal hypertension; however, its relationship with endoscopic portal hypertension severity, particularly in cirrhotic versus non-cirrhotic HCC, remains poorly defined.
Methods: We retrospectively reviewed 128 patients with HCC who underwent screening esophagogastroduodenoscopy (EGD) and had not received HCC-specific therapy at a tertiary referral center between November 2024 and November 2025. HCC was diagnosed radiologically and/or histologically according to European Association for the Study of the Liver (EASL) guidelines. Cirrhosis was determined using liver stiffness measurement by transient elastography. Tumor burden was assessed using the up-to-seven criteria based on multiphasic CT. Portal hypertension severity was evaluated using the Endoscopic Portal Hypertension Severity Score (range, 0–6).
Results: Of the 128 patients, 96 (75.0%) had cirrhosis and 32 (25.0%) were non-cirrhotic. Tumor burden was classified as high (beyond up-to-seven) in 104 patients (81.3%). Endoscopic portal hypertension severity scores were significantly higher in cirrhotic than in non-cirrhotic patients ($p < 0.001$). In contrast, tumor burden showed no significant correlation with portal hypertension severity score (Spearman $\rho = -0.10$, $p = 0.244$), and this finding remained consistent after stratification by cirrhosis status. In ordinal logistic regression analysis, cirrhosis was independently associated with greater portal hypertension severity (adjusted OR = 11.4, $p < 0.001$), whereas CT-defined tumor burden was not ($p = 0.258$).
Conclusions: Endoscopic portal hypertension severity in HCC predominantly reflects underlying cirrhotic liver disease rather than CT-defined tumor burden.

Oral Free Paper Session 10
FPS10-3 10210

Stereotactic Body Radiotherapy Enhances the Efficacy of Nivolumab in Advanced Hepatocellular Carcinoma: A Comparative Cohort Analysis

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Background: Outcomes with immune checkpoint inhibitor monotherapy remain suboptimal in advanced hepatocellular carcinoma. Stereotactic body radiotherapy may enhance antitumor immunity through immunogenic cell death and abscopal effects. We evaluated whether adding stereotactic body radiotherapy to nivolumab improves tumor response and survival compared with nivolumab alone.
Methods: In this retrospective cohort study conducted between 2018 and 2025, 420 patients with advanced hepatocellular carcinoma treated with nivolumab were screened, of whom 34 were excluded due to incomplete follow up, early discontinuation, missing imaging, or protocol deviations. The final analysis included 384 patients comprising stereotactic body radiotherapy plus nivolumab (n=64) and nivolumab alone (n=320). Nivolumab was initiated two weeks after radiotherapy, delivered at 30 to 40 Gy in 5 to 8 fractions with a median dose of 35 Gy in 6 fractions. Tumor response was assessed using modified RECIST at 6 and 12 months.
Results: Despite higher baseline tumor burden in the combination group ($p<0.001$), liver function was better preserved with lower bilirubin, MELD, MELD-Na, and more favourable ALBI scores (all $p<0.001$). At 6 months, objective response rate (62.5 percent vs 25.9 percent, $p<0.001$) and disease control rate (75.0 percent vs 45.0 percent, $p<0.001$) were higher with combination therapy. Median progression free survival (10.0 vs 4.5 months, $p<0.001$) and overall survival (20.4 vs 10.1 months, $p<0.001$) were longer. Immune related hepatitis occurred only with nivolumab monotherapy ($p=0.005$).
Conclusion: Stereotactic body radiotherapy combined with nivolumab improves tumor response and survival without excess hepatotoxicity and warrants prospective evaluation in advanced hepatocellular carcinoma.

Late Breaker Session 1

LBS1-1 10248

HLA-DR+ Tumor Cells Mimic Antigen-presenting Cells to Mediate Immunosuppression in HBV-related Hepatocellular Carcinoma

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Hepatocellular carcinoma (HCC) is a leading cause of cancer-related deaths worldwide, with hepatitis B virus (HBV) as a major driver. Despite the pivotal role of viral infections in shaping the tumor microenvironment (TME), the mechanistic differences among HBV-, hepatitis C virus (HCV)-, and non-B non-C (NBNC)-associated HCC remain poorly understood. By integrating the largest publicly available single-cell RNA sequencing (scRNA-seq) dataset of HCC (160 samples from 124 patients) with multi-scale protein-level validation using multiplex immunofluorescence and tissue microarrays (198 HCC specimens), we identified HLA-DR+ tumor cells as a distinctive feature of HBV+HCC. These tumor cells uniquely express MHC class II molecules, typically restricted to antigen-presenting cells, and correlate with immune checkpoint activation and PD-L1 expression, potentially contributing to an immunosuppressive microenvironment specific to HBV+HCC. Trajectory analysis revealed distinct CD8+ T-cell differentiation pathways in HBV+HCC, characterized by enhanced exhaustion and stem-like phenotypes. Notably, HLA-DR+ tumor cells not only recruited CD8+ T cells but also promoted their exhaustion, reinforcing the suppressive TME. Clinically, high proportions of HLA-DR+ tumor cells predicted poor survival outcomes, particularly when combined with elevated PD-L1 expression, and HLA-DR+ tumor cells may be a potential predictive biomarker for immunotherapy efficacy in HCC. Collectively, our findings establish HLA-DR+ tumor cells as a defining characteristic of HBV+HCC, providing novel insights into the unique immunosuppressive mechanisms in this context and potential therapeutic targets for immunotherapy.

LBS1-2 10236

High Ammonia Promotes EHHADH-dependent Pyrimidine Degradation to Induce Inflammatory Cell Death in HCC

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Background: Metabolic reprogramming is a hallmark of hepatocellular carcinoma (HCC). While low-level ammonia promotes tumor growth, high-level ammonia induces toxicity. We aimed to identify targets mediating ammonia-induced HCC cell death to develop novel therapeutic strategies.
Methods: Using a transgenic HCC mouse model and multi-omics (metabolomics, transcriptomics, proteomics), we investigated the role of the ammonia-induced gene EHHADH. Mechanisms were validated via metabolic flux analysis, enzymatic assays for DPYD activity, and single-cell RNA sequencing. Therapeutic efficacy was evaluated using an EHHADH agonist combined with anti-PD-1 therapy.
Results: High ammonia significantly inhibited HCC growth by inducing GSDME-dependent inflammatory cell death. Mechanistically, ammonia caused polyunsaturated fatty acid (PUFA) accumulation, activating PPARA to transcriptionally upregulate EHHADH. Elevated EHHADH increased peroxisomal ROS and disrupted the mitochondrial TCA cycle, leading to cytosolic Acetyl-CoA accumulation. This triggered DPYD acetylation, accelerating pyrimidine catabolism and causing nucleotide depletion and replication stress, which ultimately drove pyroptosis. This inflammatory cell death significantly increased phagocyte and CD8+ T cell infiltration, synergistically enhancing anti-PD-1 efficacy.
Conclusions: This study identifies a novel "Metabolic-Immune" axis where ammonia exploits the PPARA-EHHADH pathway to drive pyrimidine catabolism and replication stress. Targeting EHHADH-mediated pyroptosis represents a promising strategy to suppress tumor growth and sensitize HCC to immune checkpoint blockade.

Late Breaker Session 1

LBS1-3 10239

Sarcomatoid Transformation is Associated with Immunosuppressive Remodeling in Hepatocellular Carcinoma

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Background: Sarcomatoid hepatocellular carcinoma (HCC) is a rare and highly aggressive subtype with poor clinical outcomes. Its biological basis and immune tumor microenvironment (TME) remain incompletely understood.

Methods: We performed whole-transcriptomic profiling of paired sarcomatous (Sa) and carcinomatous (C) components macrodissected from formalin-fixed, paraffin-embedded specimens of surgically resected sarcomatoid HCCs collected between 1997 and 2020. Immune cell composition within the intratumoral TME was inferred using CIBERSORTx, and paired comparisons between Sa and C components were conducted.

Results: A total of 36 patients with 38 tumors were identified. Transcriptomic profiling (32 Sa and 24 C samples) revealed that the Sa component was characterized by enrichment of epithelial-mesenchymal transition ($Q < 0.001$), cell-cycle-associated programs, including G2M checkpoint ($Q < 0.001$) and E2F targets ($Q < 0.001$), and TGF-ß signaling ($Q = 0.03$), together with suppression of hepatocytic metabolic pathways. Compared with 66 ordinary HCC, sarcomatoid HCC exhibited significantly increased CD204+ M2 macrophages and PD-1+CD8+ T cells, and tumor PD-L1 expression ($Q < 0.001$, respectively). Among immune populations, M2-like macrophages were the dominant contributors to the sarcomatoid immune TME, followed by resting memory CD4+ T cells and CD8+ T cells. Paired analysis revealed significantly higher abundance of M2-like macrophages ($P = 0.04$), activated natural killer cells ($P = 0.02$), and activated mast cells ($P = 0.03$) in Sa compared with C, whereas activated dendritic cells were significantly reduced ($P = 0.02$).

Conclusions: Sarcomatoid transformation in HCC is associated with mesenchymal differentiation and macrophage-dominant immunosuppressive remodeling of the tumor microenvironment, which may contribute to its aggressive clinical behavior.

LBS1-4 10254

Bile-based Liquid Biopsy for Diagnosis and Therapeutic Stratification of Biliary Strictures

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Background: Differentiating benign from malignant biliary strictures remains difficult because conventional histological and cytological approaches during endoscopic retrograde cholangiopancreatography (ERCP) have limited sensitivity. Bile is a disease-specific liquid specimen that may reflect tumor-derived genomic alterations and provide translational diagnostic value.

Aim: To assess the diagnostic and translational utility of bile-based liquid biopsy in patients with biliary strictures.

Methods: Seventy-seven patients with biliary strictures who underwent ERCP between April 2018 and March 2021 were retrospectively analyzed. Based on histopathology and clinical follow-up, 48 patients were classified as malignant (cholangiocarcinoma, n=38; gallbladder cancer, n=10) and 29 as benign. DNA extracted from bile samples was analyzed using targeted next-generation sequencing, and oncogenic mutation detection was regarded as evidence of malignancy.

Results: Median bile DNA concentrations were not significantly different between benign and malignant groups (993 ng/mL vs. 554 ng/mL, P=0.458). Diagnostic sensitivity was 27% for bile cytology and 60% for bile-based genomic analysis, increasing to 67% when combined (P=0.046). Actionable genetic alterations were detected in 8 of 48 malignant cases (17%). Among benign cases with oncogenic mutations, 4 patients developed radiologic progression and were subsequently diagnosed with malignancy during follow-up.

Conclusions: Bile-based liquid biopsy improves diagnostic accuracy for indeterminate biliary strictures and enables detection of actionable genomic alterations, supporting its translational potential for early diagnosis and precision oncology.

Late Breaker Session 2

LBS2-1 10246

Large Language Models Underperform Multidisciplinary Teams for Hepatocellular Carcinoma Treatment Decisions Despite Escalating Prompting Strategies: A Prospective Study

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Background & Aims: Large language models (LLM) remain unvalidated for complex clinical decision-making in prospective settings. This study compared locally deployed open-source LLM's performance to multidisciplinary team (MDT) decisions for hepatocellular carcinoma (HCC) treatment recommendations.

Methods: We conducted a prospective observational study including hepatocellular carcinoma patients from MDTs (May-October 2025) at a quaternary care center in India. Four locally deployed models (Phi-4 14.7B parameters, Gemma-3 9B, Llama-3.1 9B, Mistral-Small 7B) were evaluated using four prompting strategies: basic prompts without guidance, step-by-step reasoning instructions, retrieval-augmented generation (EASL 2025 guidelines), and advanced agentic retrieval with multiple queries. The primary outcome was normalized discounted cumulative gain at position 3 (NDCG@3), a scale that compared the recommendation and its order. Secondary outcomes included categorical agreement patterns and performance stratification by Barcelona Clinic Liver Cancer stage.

Results: We evaluated 92 HCC patients across 20 MDT meetings, with patients in BCLC stages 0/A (32.6%), B (16.3%), C (40.2%), and D (7.6%). Phi-4 with retrieval-augmented generation achieved the highest NDCG@3 of 0.50±0.40, significantly outperforming other models ($p<0.001$). Best -performing configuration (Phi-4 with retrieval-augmented generation) showed 23.9% perfect matches with multidisciplinary team decisions, 44.6% partial matches, and 31.5% complete failures. More advanced prompting strategies significantly improved performance ($p <0.001$). Test-retest reliability was excellent, confirming technical reproducibility.

Conclusions: Locally deployed LLMs do not perform as well as MDT team for HCC treatment planning, with only 23.9% achieving perfect alignment. The striking discrepancy between early-stage disease and advanced-stage competence reveals fundamental limitations in clinical reasoning for nuanced decisions.

LBS2-2 10272

Causal Machine Learning-Guided Personalized Immunochemotherapy Strategies in Intrahepatic Cholangiocarcinoma

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Background: Immunochemotherapy (IO-chemo) is first-line standard care for advanced intrahepatic cholangiocarcinoma (iCCA), but benefit varies greatly among individuals. We aimed to develop a system for identifying high-benefit populations through individualized treatment effect (ITE) estimation.

Methods: This multi-cohort study included iCCA patients receiving IO-chemo or chemotherapy. The discovery cohort (2018-2022, three centers; n=1485) was used to develop a causal machine-learning model (CMICC) for heterogeneous treatment effect estimation. An independent external validation cohort (2017-2023, seven centers; n=562) was employed for validation. Target trial emulation ensured unbiased average treatment effect estimation. Patients were stratified into high-benefit, no-to-moderate-benefit, and negative-benefit groups based on predicted ITE. Counterfactual analyses compared overall survival between model-guided and actual treatment selection. Model performance was evaluated using Qini and TOC curves; interpretability was assessed via SHAP.

Results: The CMICC model incorporated 17 of 55 multidimensional variables. In the high-benefit group, IO-chemo significantly improved survival versus chemotherapy (HR 0.39, 95% CI 0.30-0.52; $P<0.001$), with 24.1-31.2% mortality reduction at 12-36 months. No significant benefit was observed in the no-to-moderate-benefit group (HR 0.91, 95% CI 0.70-1.18; $P=0.488$). IO-chemo was harmful in the negative-benefit group (HR 1.91, 95% CI 1.47-2.48; $P<0.001$). Counterfactual analysis demonstrated CMICC-guided treatment improved survival compared with actual treatment (HR 0.53 and 0.62 for respective comparisons; both $P<0.001$), confirmed in external validation.

Conclusion: The CMICC model effectively stratifies iCCA patients by IO-chemo benefit and may improve survival through individualized treatment decisions.

Late Breaker Session 2

LBS2-3 10232

NEO-ERA-01: A Phase II Study of Neoadjuvant HAIC (GEMOX) plus Adebrelimab and Lenvatinib in High-risk Resectable Intrahepatic Cholangiocarcinoma

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Background: Postoperative recurrence limits survival in patients with resectable intrahepatic cholangiocarcinoma (ICC).

Methods: This multicenter, single-arm, phase II trial enrolled patients with resectable high-risk ICC (tumor size >5 cm, multiple tumors, major vascular invasion, or lymph node involvement). Patients received 2-4 cycles of HAIC-GEMOX (oxaliplatin 85 mg/m2 and gemcitabine 800 mg/m2, Day 1), adebrelimab (1200 mg, Day 3), and lenvatinib (8 mg, Days 5-21) every 3 weeks, followed by resection. The primary endpoint was treatment completion; secondary endpoints included safety, R0 resection, objective response rate (ORR), event-free survival (EFS), overall survival (OS), major pathological response (MPR; ≤ 50% residual viable tumor).

Results: As of January 15, 2026, 31 patients (median age 58 years; 58% male) were enrolled from four centers in China. 27 patients completed neoadjuvant therapy (mean 2.5 cycles) and surgery; one remained on treatment, and three did not undergo surgery due to disease progression, adverse events, or chronic heart failure. Imaging evaluation was available for 30 patients. ORR and disease control rate were 43.3% and 93.3% (CR 3.3%, PR 40.0%, SD 50.0%, PD 6.7%). Among 27 resected, 25 (92.6%) achieved MPR, including two pCRs. R0 resection rate was 96.3%. Median largest tumor size was 5.9 cm, and 44.4% had lymph node involvement. Grade 3 treatment-related adverse events occurred in 35.5% of patients, with no grade 4/5 events or treatment-related mortality. EFS and OS are immature.

Conclusion: Neoadjuvant HAIC combined with adebrelimab and lenvatinib demonstrated encouraging pathological responses with acceptable safety in high-risk resectable ICC.

LBS2-4 10250

Stage-dependent Liver Stiffness Resolution after HCV SVR: A Longitudinal 8-year Follow-up Study

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Background: Although liver stiffness regression after sustained virologic response (SVR) is well recognized, its long term, stage dependent course remains unclear. We prospectively evaluated longitudinal stiffness changes after HCV eradication.

Methods: We prospectively followed 492 patients who achieved SVR with direct-acting antivirals between 2013 and 2023. Liver stiffness was repeatedly measured using Fibro-Scan. Patients were stratified by baseline stiffness: <4 kPa (n=22), 4-<8 kPa (n=222), 8-<12 kPa (n=102), and >12 kPa (n=146). Stiffness trajectories and hepatocellular carcinoma (HCC) incidence were analyzed.

Results: Among 492 patients (median follow-up 6.1 years, maximum 10.4 years), stiffness trajectories differed by baseline stage. Patients with low baseline stiffness (<8 kPa) showed minimal change and maintained stable values with low HCC incidence. Patients with advanced stiffness (>8 kPa) exhibited marked early improvement within 2-3 years after SVR, followed by a plateau after approximately 5 years with persistently elevated stiffness. Despite regression, HCC occurred predominantly in patients with high baseline stiffness, reaching 24% (35/146) in those with baseline stiffness >12 kPa.

Conclusion: Liver stiffness resolution after SVR is stage dependent. In advanced fibrosis or cirrhosis, early improvement plateaus without normalization, and HCC risk persists, supporting continued surveillance after SVR.

Late Breaker Session 3

LBS3-1 10241

Efficacy and Safety of Postoperative Adjuvant Donafenib Therapy in Patients with High-risk Recurrence after Radical Resection of Hepatocellular Carcinoma: A Multicenter Retrospective Study

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Background: Hepatectomy offers the best chance for long-term survival in hepatocellular carcinoma (HCC), yet postoperative recurrence remains common. This multicenter study evaluated efficacy and safety of donafenib as postoperative adjuvant treatment in HCC patients at high risk of recurrence.
Methods: We conducted a retrospective, multicenter cohort study including 394 HCC patients at high risk of recurrence underwent radical resection at seven centers between January 2021 and October 2024. High-risk features were defined as tumor diameter >5 cm, multiple lesions, microvascular invasion (MVI) grade 1-2, tumor thrombus, or alpha-fetoprotein ≥200 μg/L.
Results: At data cutoff in August 2025, 219 patients received donafenib-containing adjuvant therapy and 175 underwent observation. Propensity score matching was performed to balance baseline characteristics, yielding 175 matched pairs (all $p>0.05$). Adjuvant donafenib was associated with prolonged median recurrence-free survival (RFS) compared with observation (38.6 vs. 20.4 months; HR 0.592, $p<0.001$), with higher 2- and 3-year RFS rates (63.1% and 59.3% vs. 46.7% and 36.8%). Overall survival (OS) was also improved in the donafenib-containing group (HR 0.528, $p=0.0173$), with a 3-year OS rate of 88.1% versus 71.7% in control group. Multivariate analysis identified MVI and CNLC stage IIIA as independent risk factors for recurrence, whereas postoperative adjuvant donafenib independently reduced risks of recurrence and death. Treatment-related adverse events occurred in 41.6% of patients, with a low incidence of grade 3 events (4.6%) and no grade 4 or 5 toxicities observed.
Conclusions: Postoperative adjuvant donafenib prolongs RFS and OS in patients with high-risk HCC after radical resection, with an acceptable safety profile.

LBS3-2 10273

The Risk of Decompensation in Steatotic Liver Disease-related Hepatocellular Carcinoma after Curative Treatment

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Background: Network pharmacology has become an increasingly popular approach for uncovering the mechanisms and therapeutic benefits of herbal remedies. However, the wide variability in current methodologies highlights a critical need for systematic assessment to guarantee consistency and reliability. Therefore, this study aimed to critically evaluate network pharmacological strategies, focusing on their ability to identify the underlying mechanisms and therapeutic efficacy of herbal medicines.
Methods: We utilized a holistic strategy encompassing systematic data collection, network construction, and analytical evaluation. Constituents and targets of herbal medicines were rigorously sourced from five separate databases to ensure robust coverage and high data integrity. We applied advanced network algorithms to isolate key targets and forecast therapeutic outcomes, thereby enhancing the analysis's scope. Furthermore, computational predictions were substantiated through experimental validation using prostate cancer models.
Results: Performance evaluations revealed unique trends depending on the network construction and aggregation techniques employed. While methods such as network centrality and path counts demonstrated specific advantages and limitations, assessing the influence on the multiscale interactome provided the superior accuracy in distinguishing known therapeutic effects. By optimizing these conditions, we successfully discovered novel indications for herbal treatments, which were subsequently confirmed via in vitro and in vivo assays.
Conclusion: This research offers a pioneering, comprehensive critique of existing network pharmacology methodologies within the field of herbal medicine. The findings provide essential guidelines for enhancing the precision and reliability of future studies aimed at elucidating the mechanisms and therapeutic potential of herbal drugs.

Young Investigator Award Session 1

YIA1-1 10013

Repurposing Resmetirom Suppresses MASH-associated Hepatocellular Carcinoma, with Mechanistic Implications of MDK/LRP1-mediated Metabolic Reprogramming and Immunosuppression

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Background: Mechanisms driving metabolic dysfunction-associated steatohepatitis (MASH)-related hepatocellular carcinoma (HCC) remain unclear, limiting therapy. We assessed the translational efficacy of resmetirom, a thyroid hormone receptor ß (THRß) agonist, and delineated pathways underpinning MASH associated hepatocarcinogenesis.
Methods: A western diet/CCl4-induced murine MASH-HCC model and multiple genetically engineered spontaneous HCC models were used to evaluate the effect of Resmetirom, mechanism of tumorigenesis and translational significance. Single cell RNA sequencing profiled liver and tumor tissues. Multicolor immunofluorescence and co-cultures of HCC cells and human hepatic stellate cells (HSCs) with macrophages or T cells were utilized to validate the identified targets.
Results: Repurposing Resmetirom significantly reduced tumor burden and steatosis across models. ScRNA-seq analyses revealed active interaction within the tumor microenvironment, involving HSCs and dysplastic hepatocytes (dys-Heps) with marked upregulation of midkine (MDK), which correlated with shorter relapse-free survival, specifically in non-viral, non-alcohol-related cases in human. Resmetirom treatment not only significantly suppressed tumor growth and reduced steatosis but also decreased MDK expression and increased Thrb levels. In mice, MDK engaged LRP1 to drive M2 like macrophage polarization, fostering progression from MASH to fibrosis and HCC. Macrophage specific Lrp1 silencing abrogated MDK induced M2 polarization and increased cytotoxic cytokine secretion, while LRP1 positive macrophages promoted T cell exhaustion via the CXCL16-CXCR6 axis. Combining Resmetirom and an MDK inhibitor (iMDK) synergistically suppressed tumorigenesis with reduction of LRP1 level in vivo.
Conclusions: Targeting the MDK/LRP1 axis with Resmetirom offers a promising therapeutic strategy for MASH-associated HCC, addressing both metabolic dysfunction and tumor progression.

YIA1-2 10017

Transitional Hepatocytes and Immunosuppressive Macrophages Drive NASH-Associated Liver Cancer Revealed by Single-Cell Transcriptomics

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Background: The cellular dynamics and transformation of hepatocytes during disease progression remain poorly defined. This study aims to characterize the hypoxia-associated inflammatory landscape underlying the transition from NASH to HCC using integrated single-cell RNA sequencing (scRNA-seq) data.
Methods: We analyzed single-cell transcriptomic datasets encompassing liver samples from healthy individuals and patients at various NAFLD stages. Quality control, dimensionality reduction, and clustering were conducted using the Seurat pipeline. Subpopulation-specific markers were identified, and pseudotime trajectory analysis was applied to trace hepatocyte transformation. Gene regulatory networks were reconstructed via SCENIC analysis. A murine NASH-to-HCC progression model was used to validate key cellular and molecular findings.
Results: Transcriptomic profiling revealed a distinct hepatocyte population characterized by elevated CYP7A1 expression, predominantly found in pre-neoplastic liver regions. These transitional hepatocytes displayed gene signatures associated with stress responses, inflammation, and cancer-related pathways, while exhibiting reduced expression of healthy hepatocyte markers. Progressive activation of HIF1A signaling indicated a central role of hypoxia in driving this phenotypic shift. Furthermore, macrophage subtypes showed a notable polarization: RACK1+ macrophages transitioned into immunosuppressive TREM2+ cells in response to the hypoxic microenvironment. These TREM2+ macrophages, enriched in NASH and HCC samples, were found to be recruited by tumor cells via the CCL15-CCR1 chemokine axis.
Conclusion: This study provides an integrative single-cell view of how hypoxia orchestrates both hepatocyte transformation and immune modulation in NASH-associated hepatocarcinogenesis. The identification of CYP7A1+ transitional hepatocytes and TREM2+ macrophages as key players highlight potential cellular and molecular targets for early intervention in NAFLD-related liver cancer.

Young Investigator Award Session 1

YIA1-3 10047

Gemcitabine Modulates the Tumor Immune Microenvironment to Enhance Response to Immune-checkpoint Inhibitors in Biliary Tract Cancer

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Background: While immune checkpoint inhibitors (ICIs) show limited efficacy as monotherapy in biliary tract cancer (BTC), their therapeutic potential is significantly enhanced when combined with gemcitabine-based chemotherapy. However, the precise mechanisms driving this synergy in humans remain to be fully elucidated.

Methods: To characterize gemcitabine-induced modulation of the tumor immune microenvironment in BTC, we evaluated immune cell types in surgically resected BTC specimens from patients who received a neoadjuvant gemcitabine-based regimen (n=47) compared to those without any preceding chemotherapy (n=20). The findings were confirmed in an immune-competent xenograft mouse model. Furthermore, molecular features in modulated immune cells were analyzed using spatial single-cell transcriptomics (CosMx) in a subset of neoadjuvant (n=2) and control (n=2) samples.

Results: Histological assessment revealed a significant reduction in regulatory T cells (Tregs) (13.4 vs. 31.8 cells/mm2; $p<0.001$) and macrophages (2.3 vs. 4.9% CD68 positive area; $p=0.002$) in neoadjuvant samples compared to controls. This Tregs depletion was further validated in gemcitabine-treated mouse models (15 vs. 42 cells/mm2). In four human specimens, CosMx detected a total of approximately 250,000 cells, including 245 (0.1%) Treg (defined by CD4+CD25+FOXP3+). The proportion of Tregs was significantly lower in neoadjuvant (0.05%) compared to control specimens (0.12%, $p<0.001$). Notably, Tregs from neoadjuvant specimens exhibited downregulation of SPP1 (encoding osteopontin) and IL1R1, suggesting a qualitative shift of Treg population toward a diminished immuno-suppressive phenotype.

Conclusion: Gemcitabine-based regimens prime the BTC microenvironment for ICI efficacy by both quantitatively depleting Tregs and qualitatively impairing their suppressive function.

YIA1-4 10065

Strategic Integration of Locoregional Interventions to Optimize Survival Outcomes following first-line ICI Combinations in Advanced Hepatocellular Carcinoma

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Background: Managing advanced hepatocellular carcinoma (HCC) after progression on first-line immune checkpoint inhibitor (ICI) combinations is challenging. We evaluated the impact of strategic interventions prior to disease progression (PD) on overall survival (OS).

Methods: From 139 patients receiving 1st-line ICI combinations (Oct 2018 to Oct 2025), 94 were analyzed after excluding those with fewer than two cycles due to adverse events or non-PD-related deaths. Based on best overall response per RECIST v1.1 and SITC consensus, acquired resistance was defined as PD after CR/PR or SD lasting greater than or equal to 6 months (n=53), while primary resistance was PD and SD lasting less than 6 months (n=41).Importantly, locoregional interventions prior to PD were defined as strategic "add-on" therapies; these were not considered as treatment failure or censored.

Results: The acquired resistance group showed a significantly longer median OS than the primary resistance group (26.8 vs. 12.6 months, $p< 0.0001$), while median PPS was comparable (13.2 vs. 10.0 months, $p=0.124$). Post-progression treatment rates after PD were high in both groups (77% vs. 73%). Notably, within the acquired resistance group, strategic add-on therapy prior to PD significantly prolonged OS compared to management without such interventions (median OS: not reached vs. 23.0 months, $p=0.003$).

Conclusions: Strategic "add-on" interventions prior to PD effectively extend 1st-line disease control, achieving a median OS exceeding 2 years in patients with acquired resistance. Proactive integrated management before the definitive failure of 1st-line ICI is crucial for maximizing survival in advanced HCC.

Young Investigator Award Session 2

YIA2-1　10020

Impact of Antihypertensive Drug Selection on Proteinuria Risk During Atezolizumab Plus Bevacizumab Therapy for Hepatocellular Carcinoma

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Background: Atezolizumab plus bevacizumab (AB) therapy is the standard treatment for advanced hepatocellular carcinoma (HCC); however, proteinuria frequently occurs and often necessitates bevacizumab interruption. The impact of antihypertensive drug selection during AB therapy on proteinuria risk remains unclear.
Methods: We retrospectively analyzed 75 patients with advanced HCC who received AB therapy at our institution between August 2020 and August 2025. Time-varying Cox regression analysis was performed to evaluate the impact of antihypertensive drug selection on Grade 2 proteinuria development, with L-type calcium channel blockers (L-CCBs) as the primary exposure variable.
Results: The median observation period was 169 days. L-CCBs were administered to 45 patients (60%), and Grade 2 proteinuria occurred in 22 patients (29.3%). Multivariable analysis identified L-CCB-containing regimens (HR: 3.15, 95% CI: 1.17 to 8.51, p=0.02) and mean systolic blood pressure of 140 mmHg or higher during treatment (HR: 3.09, 95% CI: 1.21 to 7.87, p=0.02) as independent risk factors, along with baseline eGFR below 60 mL/min/1.73m2 and baseline UPCR of 0.15 g/gCre or higher. In the subgroup with well-controlled blood pressure (below 140 mmHg), L-CCB-containing regimens significantly increased proteinuria risk even after adjusting for baseline renal function (HR: 20.4, 95% CI: 1.65 to 251.9, p=0.02).
Conclusions: L-CCB use during AB therapy may increase proteinuria risk. Careful antihypertensive drug selection is warranted, particularly in patients with baseline renal impairment or proteinuria.

YIA2-2　10060

Pretreatment Serum Heparin-Binding Protein as a Predictive Biomarker for Atezolizumab Plus Bevacizumab Therapy in Advanced Hepatocellular Carcinoma

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Background: Although atezolizumab plus bevacizumab (Atezo+Bev) is a standard first-line therapy for advanced hepatocellular carcinoma (HCC), reliable pretreatment biomarkers predicting resistance remain unclear. This study aimed to identify biomarkers associated with resistance to Atezo+Bev and to elucidate the underlying molecular mechanisms.
Methods: Tumor biopsy and surgical specimens obtained before and after Atezo+Bev treatment from eight patients with HCC were analyzed using Visium and Xenium spatial transcriptomics. Patients were classified as responders (R: CR/PR/SD) or non-responders (NR: PD). Functional in vitro experiments were performed using human macrophages. Based on candidate molecules identified in tissue analyses, associations between pretreatment and 3-week post-treatment serum protein levels and treatment response were evaluated in a discovery cohort (n = 37) and validated in an independent cohort (n = 60).
Results: Spatial transcriptomic analyses revealed consistently high intratumoral expression of heparin-binding protein (HBP) in NR patients, detectable even in pretreatment biopsies. Xenium analysis demonstrated close interactions between HBP-high HCC cells and M2 macrophages, while Visium HD identified integrin alpha (ITGA)-mediated cell-cell interactions. In vitro, recombinant HBP increased the expression of CD163 and CD204 in human macrophages, whereas ITGA knockdown significantly suppressed their expression. High serum HBP levels were associated with significantly shorter progression-free survival at both pretreatment and 3 weeks post-treatment, using an ROC-derived cutoff (p = 0.029 and 0.039); these findings were validated in an independent cohort.
Conclusions: Elevated pretreatment serum HBP is associated with primary resistance to Atezo+Bev in advanced HCC through ITGA-mediated macrophage polarization and may serve as a predictive biomarker before treatment initiation.

Young Investigator Award Session 2

YIA2-3 10041

Novel Risk Score Incorporating Type-IV Collagen, Albumin, and Prothrombin Time (CAP score) to Predict 180-Day Surgery-Related Mortality After Liver Resection for Hepatocellular Carcinoma

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Background: Accurate preoperative risk assessment is crucial for patients undergoing liver resection for hepatocellular carcinoma (HCC). While existing models like MELD or ALBI grade are used, they have limitations in predicting early postoperative mortality. This study developed and validated a novel scoring system to predict 180-day surgery-related mortality.
Methods: We conducted a retrospective cohort study of who underwent liver resection for HCC between 2000 and 2024. The cohort was divided into training and validation sets based on the operation dates. Multivariate analysis was performed to identify independent preoperative predictors of 180-day surgery-related mortality. Based on these factors, a scoring system was developed and its predictive performance was compared with existing liver function assessment tools using area under the curve (AUC) analysis.
Results: In the training cohort (n=623) and validation cohort (n=574), three independent predictors were identified and assigned 1 point each: type-IV collagen >=7.5 ng/mL, albumin >=3.4 g/dL, and PT-INR >=1.26. In the total cohort, 180-day surgery-related mortality rates for low- (0 points), intermediate- (1-2 points), and high-risk (3 points) groups were 1.2%, 7.1%, and 23.7%, respectively. This CAP score demonstrated superior predictive performance (AUC: 0.728) compared with the MELD score (AUC: 0.557), Child-Pugh classification (AUC: 0.637), and ALBI grade (AUC: 0.668).
Conclusions: The CAP score is a simple, objective, and effective preoperative tool for predicting 180-day surgery-related mortality after liver resection for HCC. It can guide surgical decision-making and perioperative management, providing clear evidence-based estimates of surgical risk.

YIA2-4 10070

Unexpected Rapid Progression of Hepatocellular Carcinoma after Radiofrequency Ablation

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Background: Radiofrequency ablation (RFA) is an established treatment for early-stage hepatocellular carcinoma (HCC). However, rapid disease progression, a rare but serious complication, can occur despite technically successful ablation.
Methods: We retrospectively reviewed 3868 patients who underwent 12104 times of RFA for HCC at our institution between February 1999 and December 2024. Rapid progression was defined as early recurrence at the periphery of the ablation area within 6 months after complete ablation that precluded further locoregional therapy.
Results: Twenty patients met the criteria. Number of tumors ranged from 1 to 6 and median size was 21 mm (range, 11-64). Target tumors were located within 5 mm of the primary or secondary portal vein branches in 10 patients (50%). Aggressive imaging features including non-smooth margins, multinodular confluent growth, and irregular rim-like arterial phase hyperenhancement were present in 13, 8, and 3 patients (65%, 40%, and 15%), respectively. AFP ≥200 ng/mL, L3-AFP ≥15%, and DCP ≥100 mAU/mL were presented in 8, 8 and 10 patients, respectively. The median size of recurrent tumors was 55 mm (range, 27-120), and 8 patients (40%) had vascular invasion. After recurrence, 7 patients received best supportive care with a median survival of 68 days; 5 patients received TACE/TAI with a median survival of 93 days; and 8 patients underwent systemic therapy with a median survival of 421 days.
Conclusions: Rapid progression after RFA showed a poor prognosis. Portal vein proximity, aggressive imaging features, and elevated tumor markers may indicate high-risk cases requiring closer post-ablation surveillance.

APASL Oncology 2026 Tokyo

"Treatment Dynamics of Liver Tumors"

Abstracts

Poster Free Papers

Poster Group 1: Biliary Poster Session 1

BP1-1 10182

Divergent Chromosomal Architectures in Cholangiocarcinoma Cell Lines with Comparable Proliferation Rates: Implications for Genomic Heterogeneity

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Background: Cholangiocarcinoma (CCA) is highly aggressive with limited therapeutic options. While genomic and molecular profiling has advanced understanding of oncogenic drivers, genome-level mechanisms underlying resistance remain unclear. Chromosomal instability (CIN), characterized by ongoing numerical and structural aberrations, is a hallmark of advanced solid tumors and pivotal keys for enhancing prognostic accuracy and precision therapies.
Methods: Two Thai cholangiocarcinoma cell lines, KKU-M139 and KKU-M156, were analyzed. Growth kinetics were assessed over 12 days under identical conditions. Cytogenetic analysis utilized standard G- and C-banding. At least 50 metaphase spreads per line were examined; karyotypes were described per ISCN guidelines. Chromosomal number, ploidy status, and structural abnormalities were evaluated to assess CIN.
Results: KKU-M139 and KKU-M156 exhibited comparable doubling times (~7 days) but distinct chromosomal architectures. KKU-M139 displayed a hyperdiploid aneuploid karyotype (range: 65-92; mode: 74). In contrast, KKU-M156 exhibited a near-tetraploid karyotype (range: 102-157; mode: 124) with extensive structural rearrangements and pronounced CIN.
Conclusion: Findings demonstrate that chromosomal instability and ploidy status, rather than proliferation rate alone, define CCA genome architecture. Near-tetraploidy and severe CIN may underlie tumor heterogeneity, immune escape and drug resistance. Conventional cytogenetic profiling remains valuable for interpreting therapeutic resistance and selecting appropriate experimental models in translational research.

BP1-2 10148

The Impact and Mechanisms of YES1 in Intrahepatic Cholangiocarcinoma Progression

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Background: Intrahepatic cholangiocarcinoma (ICC) incidence is rising, yet its molecular drivers remain incompletely defined. This study investigated the role of the Src family tyrosine kinase YES1 in ICC progression and its underlying mechanisms.
Methods: Tumor specimens from 130 ICC patients were subjected to next generation sequencing; YES1 was identified as a recurrently altered gene. NF1 expression changes were validated by qPCR and Western blot. Wild-type YES1 (YES1WT) and the YES1Y426A mutant were expressed in ICC cell lines; effects on proliferation, migration, apoptosis, and cell cycle were evaluated using CCK8, colony formation, EdU, Transwell, and wound-healing assays. YES1 knockdown and overexpression models were tested in vitro and in subcutaneous xenografts. Protein mass spectrometry and coimmunoprecipitation were performed to assess YES1/EGFR interactions. An orthotopic murine ICC model was used to evaluate dasatinib (YES1 inhibitor) and gefitinib (EGFR inhibitor).
Results: YES1 activity was found to promote ICC cell proliferation and migration. YES1wt enhanced EGFR phosphorylation and activated downstream PI3K/AKT and MAPK/ERK signaling. The YES1Y426A mutation disrupted YES1/EGFR phosphorylation, attenuating PI3K/AKT and MAPK/ERK pathway activation and suppressing tumorigenic phenotypes. Treatment with dasatinib or gefitinib reduced YES1/EGFR phosphorylation and downstream signaling, inhibiting tumor growth in the orthotopic model.
Conclusion: YES1 drives ICC progression via YES1/EGFR-mediated activation of PI3K/AKT and MAPK/ERK pathways. The YES1Y426A mutation impairs this axis, and pharmacologic inhibition of YES1 or EGFR suppresses ICC development. YES1 is thus proposed as a potential biomarker and therapeutic target in ICC.
Keywords: Intrahepatic cholangiocarcinoma, YES1, EGFR, PI3K/AKT, MAPK/ERK

Poster Group 1: Biliary Poster Session 1

BP1-3 10019

Clinicopathological Features of Metabolic Dysfunction-Associated Steatotic Liver Disease-Related Intrahepatic Cholangiocarcinoma

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Objective: The association between metabolic dysfunction-associated steatotic liver disease (MASLD) and intrahepatic cholangiocarcinoma (ICC) remains understudied. This study aimed to report the clinical and pathological characteristics and prognosis of MASLD-ICC based on a retrospective analysis.
Methods: We conducted a single-center retrospective study including patients diagnosed with MASLD-ICC at Xinhua Hospital, Shanghai Jiao Tong University School of Medicine, from January 2015 to October 2025. Diagnosis adhered to the 2024 EASL/EASD/EASO guidelines for MASLD and mainstream ICC guidelines. After screening, 9 eligible patients were included.
Results: The cohort comprised 9 middle-aged to elderly patients (age range 49 to 71 years) with a balanced sex ratio; none had a history of smoking or alcohol use. Concurrent HBV infection was present in 55.6% of cases. Pathologically, all tumors were mass-forming adenocarcinomas, predominantly poorly differentiated (66.7%) and of the small bile duct type (55.6%). Background liver pathology showed mild-to-moderate steatosis (77.8%) and varying degrees of fibrosis. The 1-year, 3-year, and 5-year overall survival rates were 100%, 88.9%, and 53.3%, respectively.
Conclusion: MASLD-ICC exhibits unique clinicopathological features, and its development may involve interactions between metabolic dysfunction, chronic inflammation, and HBV infection. This study provides the first systematic report of MASLD-ICC meeting the latest diagnostic criteria, suggesting a relatively favorable prognosis. However, due to the small sample size, further validation through multi-center studies is necessary to inform clinical strategies.

BP1-4 10056

Prognostic Impact of Etiologies on Intrahepatic Cholangiocarcinoma: An Analysis of a Nationwide Registry

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Background: Chronic viral hepatitis is a recognized risk factor for intrahepatic cholangiocarcinoma (ICC); however, its prognostic significance remains controversial.
Methods: Using a nationwide Japanese registry, we identified patients newly diagnosed with ICC between 2018 and 2023. Patients were categorized into resection and non-resection cohorts according to initial treatment. Those with Child-Pugh C or distant metastasis were excluded from the resection cohort. The association between etiology (HBV, HCV, or non-B, non-C) and overall survival (OS) was evaluated using multivariable Cox proportional hazards models adjusted for demographic, liver function, and tumor-related variables.
Results: We analyzed 1,098 resection and 787 non-resection patients. Non-B, non-C etiology accounted for over 80% of cases. HBV-infected patients were younger in both cohorts. Tumor burden was similar among etiologies in the resection cohort, whereas in the non-resection cohort, HCV-related ICC showed smaller tumor size and a higher frequency of solitary lesions. Median OS was 62.6 months (resection) and 8.7 months (non-resection). In multivariable models, etiology was not significantly associated with OS in either cohort (resection: HBV vs. non-B, non-C: HR 0.78, p=0.42; HCV vs. non-B, non-C: HR 0.83, p=0.38; non-resection: HBV vs. non-B, non-C: HR 0.90, p=0.66; HCV vs. non-B, non-C: HR 1.06, p=0.73). Age, Child-Pugh class, and tumor characteristics were independently associated with OS.
Conclusion: Prognosis did not differ significantly by etiology regardless of resectability. In the contemporary antiviral era, liver function and tumor burden appear to be the dominant determinants of survival in ICC.

Poster Group 1: Biliary Poster Session 1
BP1-5 10161

Dose-response Association between Waist Circumference and Risk of Cholangiocarcinoma: A Nationwide Population-based Cohort Study

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Background: Waist circumference (WC) is a well-established indicator of visceral adiposity and metabolic risk, but its dose-response relationship with cholangiocarcinoma (CCA) has not been clearly defined. This study evaluated the association between WC and the risk of CCA.
Methods: This population-based study included 4,454,232 cancer-free adults who underwent the 2012 Korean National Health Screening. A random 40% sample was analyzed. WC was categorized into six groups, with abdominal obesity defined as WC 90 cm or greater in men and 85 cm or greater in women based on Korean criteria. Participants were followed until December 2023. Multivariable Cox proportional hazards models were used to estimate the risk.
Results: Over a median follow-up of 10.3 years, 8,902 cases of CCA were identified. Compared with individuals with WC of 85.0 to 89.9 cm in men and 80.0 to 84.9 cm in women, those with lower WC (less than 80.0 cm in men and less than 75.0 cm in women) had significantly reduced risks of intrahepatic and extrahepatic CCA (adjusted hazard ratios, 95% CIs: 0.91, 0.85 to 0.99 and 0.79, 0.73 to 0.86, respectively). In contrast, participants with WC 100.0 cm or greater in men and 95.0 cm or greater in women showed increased risks of these cancers. The associations were consistent across most subgroups.
Conclusion: WC showed a clear dose-response association with the risk of CCA, with lower WC associated with reduced risk and higher WC with increased risk, suggesting that abdominal obesity reduction may help lower the incidence of these malignancies.

Poster Group 2: Biliary Poster Session 2

BP2-1 10141

Clinical Utility of Peroral Cholangioscopy-Guided Biopsy in the Diagnosis of Biliary Lesions

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Background: Peroral cholangioscopy (POCS) is increasingly used for indeterminate biliary lesions. However, its diagnostic value has not yet been fully established.
Methods: We retrospectively analyzed 91 consecutive patients who underwent POCS-guided biopsy for indeterminate biliary lesions at our institution between April 2014 and May 2024. The final diagnosis was determined based on histopathological findings or clinical diagnosis established at 6 months of follow-up. Outcomes included technical success rate, diagnostic accuracy, and procedure-related adverse events.
Results: The mean age was 73.8 years, and 58 patients were male. Lesions were located in intrahepatic bile duct (n=14), hilar bile duct (n=34), distal bile duct (n=30), gallbladder including the cystic duct (n=10), anastomotic site (n=2), and the entire bile duct (n=1). The technical success rate was 94.5% (86/91). Excluding 2 patients with undetermined final diagnoses, 84 patients were included in the diagnostic analysis; 49 (58.3%) had neoplastic and 35 (41.7%) had non-neoplastic lesions. The overall diagnostic accuracy of POCS-guided biopsy was 79.8%, with a sensitivity of 65.3% and a specificity of 100%. Diagnostic accuracy was significantly higher when using the SpyBite MAX biopsy forceps compared with conventional forceps (95.8% vs. 71.4%, p = 0.03). Multivariate logistic regression identified the use of SpyBite MAX as the only independent factor associated with correct diagnosis (odds ratio 9.80; 95% C.I. 1.65-190.2; p=0.008). Procedure-related adverse events occurred in 8 patients and were all managed conservatively.
Conclusions: POCS-guided biopsy is a safe and effective diagnostic modality for indeterminate biliary lesions. The use of novel biopsy forceps significantly improves diagnostic accuracy.

BP2-2 10063

Optimal Biliary Drainage for Malignant Hilar Biliary Obstruction

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Aim: With the introduction of immune checkpoint inhibitor (ICI) therapy, survival outcomes for unresectable or recurrent biliary tract cancer have improved. Consequently, biliary drainage strategies that consider reintervention (RI) have gained importance, and treatment choices have been shifting from metal stents (MS) emphasizing long-term patency to removable plastic stents (PS). This study evaluated the optimal biliary drainage strategy for malignant hilar biliary obstruction.
Methods: Among 205 patients with unresectable advanced biliary tract cancer treated with GemCis(GC) or GC+ICI between January 2011 and December 2024, 60 patients who underwent endoscopic biliary drainage for hilar obstruction were included. Patients were classified into an MS group (n=38) and a PS group (n=22). Outcomes including recurrent biliary obstruction (RBO), time to RBO (TRBO), adverse events, total number of RIs, conversion to PTBD/EUS-guided biliary drainage (EUS-BD), antitumor response, and overall survival (OS) were compared. Stents were exchanged on an on-demand basis.
Results: Baseline characteristics were comparable between groups. Although stent configuration and number differed, technical and clinical success rates, adverse events, drained liver volume, total RI number, and PTBD/EUS-BD conversion rates were similar. The MS group more frequently received GC and demonstrated significantly longer TRBO (6.9 vs. 2.3 months, p<0.01) and OS (13.0 vs. 10.8 months, p=0.04). Early cholangitis within 3 months after drainage was associated with poorer OS and increased RI frequency, regardless of stent type.
Conclusions: With an on-demand exchange strategy, MS provided superior outcomes compared with PS. Preventing early post-drainage cholangitis may be critical for improving survival and reducing reinterventions.

Poster Group 2: Biliary Poster Session 2

BP2-3 10089

Selective Endoscopic Nasobiliary Drainage to Determine the Resection Range for Intraductal Papillary Neoplasm of the Bile Duct with an Indeterminate Primary Site: A Case Report

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Introduction: Intraductal papillary neoplasm of the bile duct (IPNB) is a rare precursor to cholangiocarcinoma, often characterized by significant mucin hypersecretion.

Case Presentation: An 83-year-old female with a four-year history of asymptomatic biliary dilation presented with acute fever and obstructive jaundice (total bilirubin 5.8 mg/dL, C-reactive protein 17 mg/dL). Although magnetic resonance and endoscopic retrograde cholangiopancreatography demonstrated marked bilateral bile duct dilation and viscous bile, initial imaging failed to localize the tumor; positron emission tomography-CT was also negative. A second peroral cholangioscopy successfully identified a papillary tumor distal to the confluence of segments 2 and 3 (B2/3). To differentiate between diffuse neoplastic involvement and secondary mucin-induced dilation of the right liver, an endoscopic nasobiliary drainage tube was selectively placed in the right hepatic duct. The subsequent drainage of normal-colored, non-viscous bile and the resolution of jaundice confirmed that the right-sided dilation was caused by mucin reflux from the left liver. Clinical assessments, including an indocyanine green retention test at 15 minutes of 8.2%, a right liver biopsy (Metavir score F2), and a future liver remnant volume of 74%, indicated sufficient functional reserve.

Management and Outcome: The patient underwent a left hepatectomy, including the caudate lobe. Histopathological examination confirmed type 1 IPNB with high-grade atypia (carcinoma in situ) and negative surgical margins. The postoperative course was uneventful.

Conclusion: This case underscores the utility of cholangioscopy and selective biliary drainage in accurately determining the surgical extent for mucin-producing IPNB, ensuring a curative (R0) resection while preserving adequate liver volume in elderly patients.

BP2-4 10133

Case Report of Primary Hepatic Carcinoma Complicated with Cholangiolar Sarcomatoid Carcinoma

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Objective: To report an extremely rare case of primary hepatic carcinoma (PHC) complicated with cholangiolar sarcomatoid carcinoma (CSC) and provide valuable clinical reference for the diagnosis and treatment of such rare entities.

Case Summary: A 65-year-old male farmer with chronic hepatitis B, hypertension, type 2 diabetes and coronary heart disease was admitted in May 2019 due to intermittent epigastric pain for 3+ months. Laboratory tests showed positive HBV markers, elevated HBV DNA, ALT and AST. Contrast-enhanced imaging revealed a 24*19 mm hyperechoic mass in the right anterior liver lobe, confirming PHC (CNLC Ia). Radiofrequency ablation (RFA) with water-isolation technique and entecavir antiviral therapy were performed, with stable lesions postoperatively. In December 2023, he developed lumbodorsal pain; imaging indicated portal vein thrombosis and extrahepatic metastasis (CNLC IIIb). Sintilimab + bevacizumab (first-line) relieved pain. Subsequent disease progression (PD) led to regimen adjustments (sintilimab + apatinib, then apatinib monotherapy due to immune-related dermatitis). Notably, in June 2025, the patient presented with fever, abdominal pain and jaundice; MRCP suggested cholangiocarcinoma, and ERCP stenting failed to resolve fever. Needle biopsy of neck lymph nodes finally confirmed the rare coexistence of cholangiocellular carcinoma with sarcomatoid change (CSC) in this PHC patient.

Conclusion: The coexistence of PHC and CSC is extremely rare, characterized by complex clinical manifestations and poor prognosis. Multidisciplinary diagnosis and treatment (MDT) and close follow-up are crucial for formulating and adjusting individualized therapy for such rare cases.

Poster Group 3: Biliary Poster Session 3

BP3-1 10173

Advances in the Management of Intrahepatic Cholangiocarcinoma and Temporal Changes in Prognosis: A Prospective Long-Term Real-World Data Analysis

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Background: Yamanashi Prefectural Central Hospital is one of the 51 designated cancer care hospitals in Japan. Since 2006, 26,783 cases across 25 cancer types have been prospectively registered in our institutional database, with a confirmed vital status rate exceeding 95%. Using this real-world database, we investigated temporal changes in treatment outcomes for intrahepatic cholangiocarcinoma (ICC).
Methods: Patients diagnosed with ICC between January 2007 and December 2025 were included. According to the year of diagnosis, patients were classified into an early period (2007–2016) and a late period (2017–2025). Overall survival (OS) was evaluated using the Kaplan–Meier method and compared between periods for each disease stage.
Results: Median overall survival (MST) by stage and period was as follows: Stage I, 32.8 months in the early period, while the MST was not reached in the late period; Stage II, 17.7 months in the early period and 81.2 months in the late period ($p < 0.001$); Stage III, 8.1 months and 3.2 months; and Stage IV, 4.3 months and 6.6 months, respectively. In the late period, long-term survivors increased in Stage I, and a significant survival benefit was observed in Stage II. In contrast, no improvement was observed in Stage III, and prognosis remained poor in Stage IV.
Conclusions: Outcomes for ICC have improved over time in a stage-dependent manner, particularly in Stage I–II disease. However, outcomes for advanced ICC remain unsatisfactory, underscoring the need for further optimization of multidisciplinary treatment strategies.

BP3-2 10127

Hepatic Arterial Infusion Chemotherapy with New FP (NFP) for Unresectable Intrahepatic Cholangiocarcinoma: A Single-Center Retrospective Study

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Background: Gemcitabine plus cisplatin (GC) is standard chemotherapy for unresectable intrahepatic cholangiocarcinoma (iCCA), but outcomes remain suboptimal. We compared a Lipiodol-based hepatic arterial infusion chemotherapy (HAIC), New FP (NFP), with GC for unresectable iCCA.
Methods: We retrospectively enrolled patients with unresectable iCCA treated between March 2015 and March 2023. NFP comprised cisplatin 50 mg suspended in 5-10 mL Lipiodol on days 1 and 8, followed by 5-fluorouracil 1500 mg every 2 months. Tumor response was assessed by RECIST; discontinuation due to adverse events (AEs) was recorded.
Results: Thirty patients were included (NFP/GC, 15/15). Median age was 70/67 years and 12/8 were male; stage (III/IV/postoperative recurrence) was 9/5/1 vs 8/7/0. Prior therapy occurred only in the NFP group (gemcitabine-based, n=4; S-1, n=1). Best response (PR/SD/PD) was 5/8/2 with NFP and 1/8/6 with GC; disease control rate was 86.7% vs 60.0%. NFP achieved a higher PR rate (33.3% vs 6.7%, p=0.0374) and greater median tumor shrinkage (32.9% vs -0.9%, p=0.000021). AE-related discontinuation occurred in 4/15 with NFP and 10/15 with GC (p=0.0282); in the NFP group, discontinuations included renal dysfunction (n=2; after 4 or 6 courses) and biloma (n=1; after 5 courses).
Conclusion: NFP demonstrated favorable local efficacy with fewer AE-related discontinuations than GC in unresectable iCCA. Larger studies and prospective trials, including combinations with systemic chemotherapy and immune checkpoint inhibitors, are warranted.

Poster Group 3: Biliary Poster Session 3

BP3-3 10067

Analysis of Prognostic Factors for ICI Combination Regimens in Unresectable Biliary Tract Cancer

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Background: Based on survival benefits shown in the TOPAZ-1 and KEYNOTE-966 trials, gemcitabine plus cisplatin (GC) combined with immune checkpoint inhibitors (ICI) has become standard for unresectable biliary tract cancer. However, differences between durvalumab and pembrolizumab and the safety of ICIs in elderly patients or those with biliary drainage remain unclear.
Methods: This retrospective study analyzed 26 patients treated with GC+ICI from April 2022 to September 2025.
Results: Median age was 73 years; 57.7% were male. Primary tumors included intrahepatic cholangiocarcinoma (n=8), hilar cholangiocarcinoma (n=6), gallbladder cancer (n=11), and unknown primary (n=1). Durvalumab was used in 18 patients and pembrolizumab in 8. Median follow-up was 214 days. The overall response rate was 28.6%, disease control rate 90.5%, and 29.2% transitioned to ICI maintenance therapy. Immune-related adverse events (irAEs) occurred in 23.1%, significantly more frequent with pembrolizumab than durvalumab (50.0% vs. 11.1%, p=0.04). Median progression-free survival (PFS) was 8.2 months with durvalumab and 8.9 months with pembrolizumab, showing no significant difference (p=0.88). Age>75 years was a significant poor prognostic factor for PFS (HR 4.55; 95% CI, 1.26-18.3; p=0.02), while ICI regimen and biliary drainage were not.
Conclusion: These results suggest comparable efficacy between durvalumab and pembrolizumab, with potentially lower irAEs incidence for durvalumab. GC+ICI therapy may be less effective in elderly patients, warranting careful consideration of treatment appropriateness.

BP3-4 10187

Immune Checkpoint Inhibitors Combined with Chemotherapy and Comprehensive Genomic Profiling Test for Advanced Biliary Tract Cancer in Our Hospital

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Background: Immune checkpoint inhibitors (ICIs) have recently been incorporated into first-line treatment for advanced biliary tract cancer (BTC) in Japan, with gemcitabine-cisplatin-durvalumab (GCD) and gemcitabine-cisplatin-pembrolizumab (GCP) becoming standard regimens. However, real-world evidence regarding their efficacy, safety, and subsequent treatment strategies, including comprehensive genomic profiling (CGP), remains limited. This study evaluated real-world outcomes of GCD and GCP and assessed the clinical utility of CGP in later-line decision-making.
Methods: We retrospectively analyzed 40 patients with unresectable or recurrent BTC who received GCD or GCP between July 2023 and March 2025. In addition, 21 patients who underwent CGP testing between August 2021 and March 2025 were evaluated.
Results: The median age was 73 years (range, 40-83). Primary tumor sites included intrahepatic bile duct (n=15), extrahepatic bile duct (n=14), and gallbladder (n=11). GCD and GCP were administered in 32 and 8 patients, respectively. The best overall responses were CR/PR/SD/PD in 1/13/21/5 patients, yielding an objective response rate of 35.0% and a disease control rate of 87.5%. Median progression-free survival and overall survival were 245 and 653 days, respectively. Immune-related adverse events occurred in 7.5% (3/40), with no treatment-related deaths. CGP identified actionable genomic alterations or biomarkers in 33% (7/21), predominantly in intrahepatic cholangiocarcinoma. The treatment access rate was 14%, limited mainly by trial availability.
Conclusions: Although limited by its single-center, small-sample design, this study suggests that both GCD and GCP are safe and effective in real-world BTC. Given the relatively high rate of actionable findings, proactive CGP testing is warranted.

Poster Group 3: Biliary Poster Session 3

BP3-5 10209

The Impact of Antibiotics on ICI Combination Chemotherapy in Advanced Biliary Tract Cancer

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Background: Antibiotic use has been reported to potentially reduce the efficacy of immune checkpoint inhibitors (ICIs) in various malignancies; however, its impact in biliary tract cancer (BTC) remains unclear.
Methods: This retrospective single-center cohort study included 42 patients with advanced BTC who underwent first-line ICI combination chemotherapy - gemcitabine plus cisplatin with durvalumab (GCD) or pembrolizumab (GCP) - between January 2023 and June 2025. Progression-free survival (PFS), overall survival (OS), and tumor response were compared among the three groups based on antibiotics use: prophylactic-user (n=20), treatment-user (n=18) and non-user (n=4). The impact of antibiotic use on PFS and OS was evaluated using a Cox proportional hazards model.
Results: Baseline characteristics were generally comparable across the three groups, except for primary tumor site and disease stage. Median PFS in prophylactic-users, treatment-users, and non-users was 304, 393, and 511 days, respectively (p=0.04), while median OS was not reached, 494 days, and not reached, respectively (p=0.22). Response rates were 25%, 30%, and 22%, respectively (p=0.88). In multivariate analysis, antibiotic use was not identified as an independent factor associated with PFS or OS; the hazard ratios for prophylactic and treatment use were 1.40 (95% CI, 0.24-8.30) and 1.25 (95% CI, 0.23-6.78) for PFS, and 1.87 (95% CI, 0.16-22.27) and 1.48 (95% CI, 0.16-14.00) for OS, respectively.
Conclusion: Antibiotic use was not associated with a negative impact on the efficacy of ICI combination chemotherapy in patients with advanced BTC.

BP3-6 10045

Two Cases of Unresectable Combined Hepatocellular-Cholangiocarcinoma Treated with Immune Checkpoint Inhibitors

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Background: Combined hepatocellular-cholangiocarcinoma (cHCC-ICC) is a rare primary liver cancer, accounting for <1% of cases in a national survey in Japan. It shows histological heterogeneity and overlapping features of hepatocellular carcinoma (HCC) and intrahepatic cholangiocarcinoma (ICC). Because imaging, pathology, and tumor markers often provide discrepant information, diagnosis and treatment selection are complex. Evidence for immune checkpoint inhibitors (ICIs) in cHCC-ICC remains scarce.
Methods: We report two patients with unresectable cHCC-ICC treated with ICI based regimens. Case 1: an 81 year old man with stage IVa cHCC-ICC, with portal vein tumor thrombus (Vp3). AFP and DCP were markedly elevated, while CEA and CA19-9 were normal. Histology showed cholangiolocellular and poorly differentiated adenocarcinoma components. SBRT for PVTT was followed by Durvalumab plus Tremelimumab. Case 2: a 72 year old woman with stage IVb cHCC-ICC, with extensive lymph node metastases. AFP and DCP were elevated, with mildly increased CEA and CA19-9. Histology demonstrated intermediate hepatocellular-cholangiocellular phenotype. She received Atezolizumab plus Bevacizumab.
Results: Both patients achieved responses. In Case 1, AFP and DCP declined, the main lesion regressed, and PVTT decreased in size and remained reduced. In Case 2, AFP showed a marked decline and DCP normalized after five courses, with partial response. No severe immune related adverse events occurred.
Conclusions: ICI based therapy can induce responses in unresectable cHCC-ICC. Tumor markers guided treatment choice, but their predictive value remains uncertain. Further accumulation of case experiences and collaborative data is essential to clarify optimal management strategies for this rare entity.

Poster Group 4: Basic & Experimental Poster Session 1

BEP1-1 10026

SLC12A2-driven Suppression of Hepatic Lipolysis Shapes a Tumor-promoting Microenvironment in Metabolically Steatotic Livers

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Background: Hepatocellular carcinoma (HCC) frequently develops in steatotic and fibrotic livers. Although multiple factors have been implicated, the molecular mechanisms that shape a tumor-promoting hepatic microenvironment in metabolically compromised livers are not fully understood. We examined whether hepatic expression of the Na+-K+-Cl- cotransporter SLC12A2 is associated with HCC risk and steatohepatitis-related carcinogenesis.
Methods: Six hundred seventeen hepatic transporter genes were screened for prognostic relevance in a publicly available transcriptomic HCC cohort. Hepatic SLC12A2 mRNA was quantified by RNA sequencing in a biopsy-based cohort of 94 patients with metabolic dysfunction-associated steatotic liver disease (MASLD), including 12 with HCC. Functional studies used C57BL/6 mice with hepatic SLC12A2 overexpression via AAV8 and a choline-deficient, L-amino acid-defined, high-fat diet, and in vitro models of hepatic cell lines with stable SLC12A2 overexpression or shRNA knockdown.
Results: SLC12A2 showed the highest hazard ratio for survival among transporters and was associated with increased late (>2 years) post-hepatectomy recurrence. In the MASLD cohort, hepatic SLC12A2 expression was higher in HCC cases and positively correlated with fibrosis stage and liver stiffness. In mice, SLC12A2 overexpression aggravated steatohepatitis, increasing liver weight, serum ALT, hepatic triglycerides, fibrosis, apoptosis, and compensatory proliferation, and yielded larger orthotopic tumors. In vitro, SLC12A2 promoted palmitate-induced lipid droplet accumulation while reducing glycerol release, indicating impaired lipolysis without major changes in fatty acid genes.
Conclusions: SLC12A2 promotes hepatic steatosis and a tumor-promoting microenvironment by suppressing lipolysis. Hepatic SLC12A2 overexpression identifies MASLD livers at high risk for HCC and represents a potential therapeutic target in metabolic liver disease-associated hepatocarcinogenesis.

BEP1-2 10196

Accumulation of Autophagy-specific Substrate p62/SQSTM1 is Associated with Multinucleation in Human Hepatocellular Carcinoma

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Background: Abnormally accumulated inclusions were observed in human hepatocellular carcinoma (HCC) cells in which autophagy-specific substrate p62/SQSTM1 was discovered to be the major component of these inclusions. We identified Importin-α4, 14-3-3ζ as insoluble nucleoproteins increased by autophagic dysfunction. We evaluated the relationship between the expression of these autophagy-related proteins and changes in nuclear morphology in hepatic cancer cells.
Methods: Sections from 12 surgically resected HCCs were analyzed by immunohistochemistry for p62/SQSTM1, Importin-α4, and 14-3-3ζ. The percentage of tumor cells showing p62-positive aggregates and nuclear staining for Importin-α4 or 14-3-3ζ was quantified in representative fields. Associations with platelet count, AST, ALT, γ-GTP, FIB-4 index, and fibrosis/inflammation scores in the non-tumor liver were assessed using Spearman's rank correlation. Multinucleated tumor cells were counted on H&E sections and correlated with protein expression.
Results: p62-positive aggregates were detected in all cases (57.9±10.4% of tumor cells). Nuclear Importin-α4 and 14-3-3ζ were also observed in all samples (79.0±4.7% and 42.9±6.4% of tumor cells, respectively). The extent of p62 aggregation was not associated with laboratory parameters, non-tumor fibrosis/inflammation, or nuclear 14-3-3ζ. In contrast, nuclear Importin-α4 significantly correlated with p62 aggregation. Multinucleated tumor cells observed 17.3±3.1% of cancer cells, were enriched among cells with p62 aggregation.
Conclusions: Human HCC commonly shows p62/SQSTM1-positive inclusions with nuclear Importin-α4 accumulation, and correlates with multinucleation. Previous studies suggest that neoplastic multinucleation is associated with malignant transformation of cancer and induction of chemo-resistance. Therefore, p62/SQSTM1 and Importin-α4 might be useful biomarkers for evaluating the characteristics of HCC.

Poster Group 4: Basic & Experimental Poster Session 1
BEP1-3 10117

Investigation of the Anti-tumor and Anti-HBV Effects of the Host Factor FAH

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Background: Chronic hepatitis B is a major cause of hepatocellular carcinoma (HCC). We previously identified fumarylacetoacetate hydrolase (FAH) as a regulator of the HBV life cycle in primary human hepatocytes (PLoS ONE, 2025). In this study, we investigated whether FAH may exert both anti-tumor and anti-HBV effects.
Methods: FAH and Ki-67 were quantified by H-score using Inform software in tumor and non-tumor areas of 106 resected HCC specimens. The FAH index (tumor/non-tumor H-score) was analyzed for associations with recurrence and prognosis. HBV-stably transfected HepG2 clones with low (HepG2.1-E10) or high (HepG2.D11) HBV transcription were transfected with a FAH expression vector or FAH siRNA. Supernatant HBsAg, cell proliferation, apoptosis, and sphere formation were assessed. Transcriptome microarray analysis coupled with GSEA-based pathway analysis was performed to identify FAH-modulated pathways and genes.
Results: Tumor FAH was lower than non-tumor FAH (ΔH-score -10.99, $p<0.01$) and inversely correlated with Ki-67 ($p<0.01$). A low FAH index was associated with poorer recurrence ($p<0.01$) and survival ($p<0.05$). In both HBV-stably transfected clones, FAH overexpression decreased HBsAg, inhibited proliferation, increased apoptosis, and reduced sphere formation, whereas FAH knockdown produced reciprocal effects. GSEA showed that the WP Pluripotent stem cell differentiation pathway was suppressed by FAH overexpression, whereas it was enriched following FAH knockdown. In addition, expression of anti-HBV response-related genes (e.g., CGAS, IFNB1, IRF7, and OAS2) was increased.
Conclusion: FAH may contribute to anti-tumor and anti-HBV effects by suppressing stemness-related differentiation pathways and enhancing anti-HBV responses, supporting FAH as a potential therapeutic target in virus-associated hepatocarcinogenesis.

BEP1-4 10134

Ameliorative Role of Phytosterol Pre-Treatment in N-Nitrosodiethylamine Induced Oxidative Stress in Female Albino Rats

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N-Nitrosodiethylamine (NDEA) is a potent environmental carcinogen known to induce severe oxidative stress mediated hepatic and renal injury. This study aimed to evaluate the protective potential of phytosterol pre-treatment against NDEA induced oxidative damage in the liver and kidneys of female albino rats. Female Wistar rats were administered a single intraperitoneal necrogenic dose of NDEA (200 mg/kg body weight). Prior to NDEA exposure, animals received phytosterol pre-treatment via oral gavage at doses of 50 mg/kg or 100 mg/kg body weight, twice weekly for four weeks. Animals were sacrificed on days 7, 14, and 21 following NDEA administration. Hepatic and renal oxidative stress markers, antioxidant enzyme activities, serum biochemical parameters, and histopathological changes were assessed. NDEA exposure resulted in significant increases in hepatic lipid peroxidation, renal ornithine decarboxylase activity, urea, creatinine, and conjugated diene levels, accompanied by suppression of antioxidant defenses including superoxide dismutase, catalase, and total glutathione. Phytosterol pre treatment significantly attenuated oxidative stress markers and restored antioxidant enzyme activity in a dose- and time-dependent manner, with maximal protection observed on day 21. Serum levels of aspartate aminotransferase, alanine aminotransferase, alkaline phosphatase, and lactate dehydrogenase were markedly elevated following NDEA administration but were significantly reduced in phytosterol-treated groups, particularly at the higher dose. Histopathological evaluation demonstrated that phytosterol pre-treatment substantially improved NDEA induced renal structural damage. Phytosterol pre-treatment effectively mitigated NDEA nduced oxidative stress and partially protected against hepatic and renal injury in female albino rats, supporting its potential role as a chemoprotective agent against carcinogen-induced organ toxicity.

Poster Group 5: Basic & Experimental Poster Session 2
BEP2-1 10022

Withdrawn

BEP2-2 10109

Multi-omics Profiling Reveals the Rrognostic Features and Tumor Microenvironment of High-stemness HCC

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Background: The specific interaction between highly invasive hepatocellular carcinoma (HCC) and the tumor microenvironment (TME) is associated with poor prognosis and immune escape, and the outcome affects the efficacy of immunotherapy. Therefore, it is necessary to clarify the relationships among immunosuppressive subpopulations to provide promising treatment strategies.
Methods: In this study, scissor+ cell types associated with high-stemness HCC were screened by scissor analysis using single-cell datasets from HCC patients receiving immunotherapy. We developed and identified high-stemness HCC subtypes by performing a collaborative analysis of models from four independent cohorts using 12 machine learning algorithms combined with SHAP analysis. Subsequently, we analyzed the interaction between HCC subtypes and the immune microenvironment through CellChat and spatial transcriptomics.
Results: Highly stemness-associated gene (HSAG) were screened through differential analysis of scissor cell types, and the HSAG HCC subtypes were determined by machine learning combined with SHAP analysis. In addition, the HCC dataset was divided into two subtypes: the high HSAG HCC and the low HSAG HCC. In four independent HCC cohorts, high HSAG correlated with poor prognosis. Notably, CellChat analysis showed that high HSAG HCC interacted with SPP1+TMAs, and co - localization was verified in the spatial transcriptome of the non-immune response.
Conclusion: This study explored the subtypes of HCC patients associated with poor prognosis, providing insights into the interaction of the tumor microenvironment and prediction of patient prognosis.

Poster Group 5: Basic & Experimental Poster Session 2

BEP2-3 10145

ZIP1-CAF Shapes the Immunosuppressive Microenvironment to Drive Hepatocellular Carcinoma Progression

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Background: The stroma of hepatocellular carcinoma is primarily composed of cancer associated fibroblasts (CAF) and collagen. Interconnected CAFs form a robust immune effector barrier that not only promotes the exhaustion of anti-tumor immune cells but also recruits immunosuppressive cells, thereby driving tumor progression and metastasis. ZIP1 is a membrane protein responsible for zinc ion transport, and the high intracellular free zinc levels it mediates can activate multiple proliferation and cell activation pathways. However, how ZIP1 promotes CAFs activation and mediates CAFs driven remodeling of the HCC immune microenvironment remains unknown.
Methods: A combination of biological and informatics techniques was employed in this study.
Results: ZIP1 CAFs is significantly associated with poor prognosis in HCC. ZIP1 mediates the formation of myofibroblast like CAFs. ZIP1 CAFs reshapes the immunosuppressive microenvironment in HCC. ZIP1 inhibition enhances the efficacy of immunotherapy.
Conclusion: ZIP1 is a key regulator promoting CAF activation and extracellular matrix phenotype formation. ZIP1 CAF facilitates HCC progression by shaping an immunosuppressive microenvironment and reducing CD8 T cell infiltration. Targeting ZIP1 represents a promising strategy to improve the effectiveness of immunotherapy in hepatocellular carcinoma.

BEP2-4 10132

Microenvironmental Analysis of Resistance to Atezo+Bev Therapy in Unresectable Hepatocellular Carcinoma: Involvement of High M2BP Expression and Inflammatory Cancer-Associated Fibroblasts

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Background: Atezolizumab plus bevacizumab (Atezo+Bev) is the standard of care for unresectable hepatocellular carcinoma (HCC), yet approximately half of patients exhibit treatment resistance. We previously identified Mac2-binding protein (M2BP), produced by inflammatory cancer-associated fibroblasts (iCAFs), as a poor prognostic factor in pancreatic cancer. This study aimed to elucidate the role of M2BP-producing cells and their impact on the immune microenvironment in Atezo+Bev-resistant HCC using spatial transcriptomics.
Methods: We performed Visium spatial transcriptomic analysis on HCC tissues from 3 non-responders (PD) and 2 responders (1 SD, 1 CR) after Atezo+Bev therapy. We analyzed the spatial correlation between M2BP (LGALS3BP) expression and fibrosis-related genes, CAF markers, and T-cell exhaustion markers.
Results: M2BP expression was significantly higher in both tumor and adjacent liver tissues of non-responders. In these cases, high M2BP expression areas overlapped with increased expression of iCAF markers (IL6, CXCL1) and the iCAF activator CXCL10, suggesting a microenvironment of continuous fibroblast stimulation. These regions also showed high expression of COL1A1 and matrix metalloproteinases (MMPs), indicating active tissue remodeling and progressive fibrosis. Furthermore, CD8-positive T-cells in high M2BP regions significantly co-expressed exhaustion markers such as LAG3, indicating a potent immunosuppressive state.
Conclusion: In Atezo+Bev-resistant HCC, high M2BP expression is closely associated with iCAF-mediated progressive fibrosis and T-cell exhaustion. Targeting M2BP or iCAFs may represent a novel therapeutic strategy to overcome immunotherapy resistance in HCC.

Poster Group 5: Basic & Experimental Poster Session 2
BEP2-5 10176

Association of HAMP Expression and CD8+ T-cell Infiltration with Atezolizumab plus Bevacizumab Response in Hepatocellular Carcinoma

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Aim: Atezolizumab combined with bevacizumab is the first-line therapy for unresectable hepatocellular carcinoma; however, predictive biomarkers of therapeutic response remain undefined. We aimed to identify molecular features associated with therapeutic efficacy to develop personalized treatment strategies.
Methods: Transcriptomic analyses were performed using public RNA-sequencing datasets of patients with hepatocellular carcinoma receiving anti-PD-L1-based therapy, comparing responders (complete response/partial response) with non-responders (stable disease/progressive disease). Differentially expressed genes and enriched pathways were identified using differential expression and pathway analysis. For validation, RNA-sequencing was performed on institutional tumor samples (n=6) underwent. Immunohistochemistry was performed on resected specimens (n=9) to evaluate CD8+ tumor-infiltrating lymphocytes and hepcidin protein expression encoded by the HAMP gene. Group comparisons for the pre-specified immunohistochemistry endpoints were analyzed using exact Wilcoxon rank-sum tests with multiplicity control (Holm adjustment).
Results: Analysis of public datasets revealed distinct expression profiles in responders, enriched in immune-related and chemokine signaling pathways. Candidate genes, including HAMP, TAT, and HRG, were upregulated in responders. In institutional samples, HAMP expression was significantly higher in preoperatively treated tumors (p=0.001). Immunohistochemistry demonstrated greater CD8+ tumor-infiltrating lymphocyte density (median 36.6 vs. 5.0 cells/high-power field; exact Wilcoxon p=0.032) and higher HAMP immunoreactive scores (median 4 vs. 0.5; p=0.032) in responders than in non-responders.
Conclusions: Upregulation of HAMP and hepcidin protein expression, together with increased CD8+ T-cell infiltration, was associated with a favorable response to atezolizumab plus bevacizumab in patients with hepatocellular carcinoma. HAMP may serve as a component of a composite biomarker predictive of therapeutic sensitivity, warranting validation in larger, multi-institutional cohorts.

Poster Group 6: Basic & Experimental Poster Session 3

BEP3-1 10192

Mutation Profiles of TERT, TP53, and CTNNB1 Genes from Circulating Cell Free DNA as Non-Invasive Prognostic Biomarkers in HBV-Induced Hepatocellular Carcinoma

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Background: Chronic hepatitis B virus (HBV) infection is the major etiological agent of hepatocellular carcinoma (HCC) in Bangladesh. Somatic mutations in TERT, TP53 and CTNNB1 genes are frequently tied-up with hepatocarcinogenesis. Circulating cell free DNA (cfDNA) as liquid biopsy, is a promising non-invasive alternative of conventional biopsy material for detection of genetic alterations. This study aimed to detect these gene mutations from cfDNA of Bangladeshi HCC patients.
Materials and Methods: cfDNA was extracted from blood samples of 30 HCC patients and 20 healthy control. Amplification of the TERT promoter, TP53 and CTNNB1 genes were performed using selected primers via conventional PCR followed by gel electrophoresis and analyzed through Sanger sequencing, mutation analysis done by MEGA 11 software comparing with specific reference sequences.
Results: 40.0% (12/30) of HCC patients had hotspot mutations in TERT promoter (10%), TP53 (23.3%) and CTNNB1 (6.7%) genes. 6.7% (2/30) was detected at position c.146 (p.L250L) and 3.3% (1/30) at c.124 (p. P228L) of TERT gene. Highest mutation frequency was detected in TP53 with 13.3% (4/30) at position c.746 (p.G249S), 6.7% (2/30) at position c.735 (p.A245V) and 3.3% (1/30) at c.747 (p.G249V). The CTNNB1 gene showed 6.7% (2/30) mutation at position c.110 (p.S37Y) and c.133 (p.S45Thr). All mutations were strongly associated with low serum albumin (<3.4 g/dl) and elevated bilirubin (≥1.2 mg/dl) ($p<0.05$) level. However, no hotspot mutation was detected in healthy control.
Conclusions: Non-invasive molecular profiling may be used as prognostic biomarkers and targeted therapies for personalized treatment plan and real-time monitoring of tumor dynamics.

BEP3-2 10201

Performance of Circulating 5-Hydroxymethylcytosine Epigenetic Signatures in Detecting Hepatocellular Carcinoma Among Patients with Cirrhosis

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Background: Hepatocellular carcinoma (HCC) remains a leading cause of cancer mortality globally, predominantly arising in cirrhotic patients. Current surveillance strategies lack sensitivity for early detection. Circulating cell-free DNA 5-hydroxymethylcytosine (5hmC) signatures represent a promising non-invasive biomarker. We evaluated the diagnostic accuracy of 5hmC-based assays versus alpha-fetoprotein (AFP) for HCC detection in cirrhotic populations.
Methods: We performed a bivariate random-effects meta-analysis using the Reitsma model to synthesize sensitivity and specificity across diagnostic studies. Studies evaluating 5hmC as an HCC biomarker in cirrhotic patients were included, with head-to-head AFP comparisons analyzed separately. Key metrics included pooled sensitivity, specificity, and SROC area under the curve (AUC).
Results: Four studies were included for 5hmC analysis, with three providing direct AFP comparisons. 5hmC demonstrated a pooled sensitivity of 68.2 percent (95 percent CI: 40.5-87.1 percent) and a false positive rate of 14.8 percent (95 percent CI: 5.4-34.5 percent), yielding an SROC AUC of 0.846. AFP showed variable performance with a mean AUC of 0.754 (range: 0.692-0.845). In head-to-head comparisons, 5hmC consistently outperformed AFP across all three studies, with a mean absolute AUC improvement of 9.03 percent. Considerable between-study heterogeneity was observed ($I2 = 72$ percent), and leave-one-out sensitivity analysis indicated that pooled estimates were influenced by individual study inclusion.
Conclusion: 5hmC signatures appear to provide higher diagnostic accuracy than AFP for detecting HCC in cirrhotic patients. However, significant heterogeneity and the limited number of studies suggest that large-scale prospective validation is necessary before incorporating this into clinical surveillance protocols.

Poster Group 6: Basic & Experimental Poster Session 3

BEP3-3 10010

Identification of Novel Prognostic Biomarkers and Molecular Pathogenesis Insights in Hepatocellular Carcinoma through Integrated Multi-Database Analysis

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Objective: This study aimed to discover novel prognostic biomarkers and unravel molecular pathogenesis in hepatocellular carcinoma (HCC) through an integrative analysis of transcriptomic, proteomic, and clinical data from GEPIA, TCGAxplorer, OMIM, and UALCAN databases.
Methods: We applied a multi-layered bioinformatics pipeline combining differential gene expression analysis from GEPIA with survival and clinical correlates from TCGAxplorer. Functional relevance was established via OMIM annotations, while UALCAN validated protein expression patterns in tumor progression. Additionally, pathway enrichment and molecular network reconstruction enabled delineation of key oncogenic processes.
Results: Our analysis identified CDC20, CLEC1B, CYP2C9, and LCAT as novel prognostic biomarkers exhibiting significant overexpression in HCC tissues and strong correlation with inferior overall survival. OMIM and pathway analyses linked these genes to cellular proliferation, immune regulation, and metabolic reprogramming critical in HCC progression. Importantly, UALCAN-based protein validation demonstrated elevated expression in advanced-stage tumors and high-grade malignancies. Integrative pathway mapping highlighted dysregulation of cell cycle checkpoints, PI3K/AKT signaling, and immune evasion pathways involving these biomarkers.
Conclusion: This study leverages a novel integrative multi-omics framework to identify and validate clinically relevant biomarkers, advancing precision oncology for HCC. The identified gene panel offers potential for improved prognostic stratification and therapeutic targeting, illuminating molecular mechanisms underlying liver cancer aggressiveness.

BEP3-4 10222

The VETC Associated Trabecular Subtypes in Non-cirrhotic HCC is Defined by Loss of Tumor Suppressor and Downregulation of Ribosomal Genes

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Background: Vessels Encapsulating Tumor Clusters (VETC) represent a distinct angiogenic pattern associated with metastasis in hepatocellular carcinoma (HCC). This study aimed to characterize VETC-associated trabecular subtypes and their genetic and transcriptomic profiles in non-cirrhotic HCC (NCHCC).
Methods: Fifty-three NCHCC specimens were analyzed using CD34 immunohistochemistry to classify tumors as VETC positive or VETC negative. Histologic patterns were correlated with molecular markers including p53, beta-catenin, EpCAM, and CD8 positive T cells. Genomic profiling was performed using targeted next-generation sequencing (n=11) and RNA sequencing (VETC positive n=7; VETC negative n=3).
Results: VETC positive tumors were identified in 20.75 percent of cases and predominantly displayed microtrabecular (55 percent) and macrotrabecular (45 percent) growth patterns. They were associated with younger age (mean 55.7 years), tumor size greater than 10 cm (90 percent), elevated alpha-fetoprotein levels (64 percent), and universal EpCAM expression (P=0.027). Clinically, VETC positive cases showed high recurrence (64 percent) and poor overall survival, with survival less than 2 years in 64 percent of patients (P<0.01). This phenotype demonstrated an immune-excluded microenvironment with reduced CD8 positive T cell infiltration (P=0.041) and frequent TP53 and RB1 mutations (approximately 60 percent). Transcriptomic analysis revealed downregulation of ribosomal biogenesis (RPL34), protein processing (CLU), and metabolic pathway genes (APOA2, ADH1B).
Conclusion: VETC positivity identifies a highly aggressive NCHCC subtype associated with adverse clinical outcomes. This phenotype is marked by transcriptional repression of ribosomal biogenesis, metabolic reprogramming, and an immune-excluded tumor microenvironment, supporting its relevance for risk stratification and personalized therapeutic strategies.

Poster Group 6: Basic & Experimental Poster Session 3
BEP3-5 10197

Hepatocellular Carcinoma in Armenia: Primary Assessment of Molecular Alterations

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Background: Hepatitis B virus (HBV) genotypes exhibit distinct biological and epidemiological characteristics. The aim of the study was to understand the distribution of HBV genotypes and the profile of cancer mutations among patients with liver cirrhosis (LC) and hepatocellular carcinoma (HCC) in Armenia.
Methods: We used droplet digital polymerase chain reaction (ddPCR) to identify the presence of occult HBV infection in the plasma of patients, as well as to determine the viral subtype. The study included 91 cases of liver cirrhosis and 69 cases of hepatocellular carcinoma.
Results: Our study revealed that 18.8% of HCC patients were HBV positive (in contrast to 4.4% in LC patients). Furthermore, 46.6% of HCC patients were documented to have an occult HBV infection, as opposed to 24.1% of LC patients. The majority of HBV cases constituted the D genotype. Our results revealed a high frequency of TERT promoter mutations in HCC cases (24%), along with AFB1-associated TP53 mutations (3%) detected in free-circulating DNA (fcDNA). In comparison, mutations were significantly less common in liver cirrhosis patients (3% and 7%, respectively, P=0.0057). Additionally, the mutation burden (mutated copies/mL) was significantly higher in HCC patients than in those with LC (P=0.0063).
Conclusion: HBV subtype variants correspond to the overall distribution of genotypes in this part of Eurasia, while occult HBV infections were highly prevalent. Circulating plasma mutations represent promising tools for diagnosis and monitoring of treatment. Further genomic characterization may help establish relationships between alteration frequency and HCC-related mortality.

Poster Group 7: Basic & Experimental Poster Session 4
BEP4-1 10154

Global Research Landscape and Thematic Evolution of Immune Cell Metabolic Reprogramming in Liver Disease and Hepatic Oncology: A Bibliometric and Science Mapping Analysis

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Background: Immune cell metabolic reprogramming plays a pivotal role in regulating immune activation, differentiation, and effector function. Metabolic remodeling of the hepatic microenvironment critically shapes immune tolerance, inflammation, and tumor immune escape.
Methods: A bibliometric and science mapping analysis was performed using publications indexed in the Web of Science Core Collection from 2008. A total of 5747 articles and reviews were included. VOSviewer and CiteSpace were applied to analyze publication trends, collaboration networks, keyword co-occurrence, reference co-citation, thematic timelines, and citation burst patterns, with emphasis on liver disease and hepatic oncology related research clusters.
Results: Research output followed a canonical life-cycle trajectory, comprising an initial foundational phase (2011-2014), a period of rapid expansion and conceptual consolidation (2015-2018), and volume-driven growth with partial decoupling between publication output and citation impact after 2022. China and the United States were the most productive contributors, while the United States and several European countries demonstrated higher citation impact and network centrality. Keyword co-occurrence and reference co-citation analyses identified three major pillars: metabolic reprogramming of innate immune cells and trained immunity in chronic liver inflammation; tumor microenvironment driven immunometabolic regulation in hepatocellular carcinoma, including hypoxia, nutrient competition, and metabolite accumulation; and metabolic checkpoints governing adaptive immune dysfunction and exhaustion in liver tumors. Emerging themes highlight a shift toward metabolite mediated signaling and epigenetic regulation, including lactylation and metabolite driven chromatin remodeling.
Conclusions: Immune cell metabolic reprogramming represents a mature yet rapidly diversifying research field with increasing relevance to liver disease and hepatic oncology.

BEP4-2 10066

The Relationship between the Expression of Tumor Microenvironment-related Genes and the Gene Mutations of Hepatocellular Carcinoma from TCGA Data

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Background: In the treatment of advanced hepatocellular carcinoma, systemic therapies target the tumor microenvironment. The Cancer Genome Atlas (TCGA) includes not only gene mutation but also comprehensive gene expression. By using genes specifically expressed in microenvironmental cells, it is possible to evaluate the relationship between the state of the tumor microenvironment and the gene mutations.
Methods: Gene mutation and expression data from 360 pre-processed hepatocellular carcinoma cases were downloaded from the GDAC Firehose browser and analyzed using the statistical software R. The correlation and network analysis of 20,500 gene expressions were performed to identify gene sets expressed in immune cells, fibroblasts (FB), and vascular endothelial cells (VE). Principal component analysis (PCA) was conducted for each gene set, and the effects of 14,882 gene mutations on the first principal component were examined using t-tests.
Results: Pearson correlation analysis identified 541 genes with a correlation coefficient of 0.9 or higher. Among these, 127 immune cell markers including CD8, 23 FB markers including COL1A1, and 8 VE markers including TIE1 were extracted. PCA for each gene set revealed that the gene mutation most strongly associated with the first principal component was TTN mutation in the immune cell group ($p=0.00013$), CTNNB1 mutation in the FB marker group ($p<10^{-9}$), and TP53 mutation in the VE marker group ($p<10^{-7}$). CTNNB1-mutated cases showed decreased expression of FB markers, and TP53-mutated cases showed decreased expression of VE markers.
Conclusion: The study examined the relationship between tumor microenvironment-related gene expression and the specific gene mutations in hepatocellular carcinoma.

Poster Group 7: Basic & Experimental Poster Session 4

BEP4-3 10021

Integrative Machine Learning and Experimental Validation Identify MYBL2 as a Prognostic Biomarker and Therapeutic Target in Hepatocellular Carcinoma

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Background: Hepatocellular carcinoma (HCC) presents poor treatment outcomes. The MYB family of oncogenes is implicated in cancer, but its clinical utility in HCC remains underexplored.
Methods: We applied an integrative pipeline combining LASSO based feature selection on TCGA and GEO cohorts, single cell transcriptomics, pharmacogenomic surveys, and CRISPR dependency screens, alongside in vitro HepG2 assays, luciferase reporter tests, iTRAQ proteomics, and an in vivo western diet/CCl4 HCC model using miR 29a transgenic mice.
Results: MYBL2 robustly discriminated tumor from normal liver (AUC = 0.968) and high expression was associated with adverse features, including higher grade, microvascular invasion, HBV positivity, no response to TACE, and worse survival. A nomogram combining MYBL2 with AJCC stage improved 1, 3, and 5 years AUCs versus stage alone. MYBL2 correlated with AFP, MKI67, PCNA, and BIRC5; Single cell analyses linked MYBL2 to cell cycle programs and reduced inflammatory signatures. CRISPR screens showed growth inhibition in most HCC lines after MYBL2 knockout. Pharmacogenomic analyses associated high MYBL2 with greater sorafenib sensitivity. Bulk and single cell data connected MYBL2 to an immunosuppressive microenvironment and higher MSI, with reduced MYBL2 in tumor plasmacytoid dendritic cells. Mechanistically, miR 29a directly suppressed MYBL2 translation; miR 29a transgenic mice were protected from WD/CCl4 induced HCC, and iTRAQ proteomics identified MYBL2 among the top miR 29a regulated proteins.
Conclusions: MYBL2 is a potent diagnostic and prognostic biomarker in HCC, predicting sorafenib sensitivity, and is a tractable target of miR 29a based suppression, warranting clinical validation for patient stratification and therapeutic development.

BEP4-4 10203

Clinical Significance of Serum VEGF Levels in Patients with Unresectable Hepatocellular Carcinoma Treated with Durvalumab plus Tremelimumab

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Background: Establishing biomarkers to optimize treatment selection for unresectable hepatocellular carcinoma (HCC) remains an unmet medical need. Although serum VEGF is associated with angiogenesis and prognosis in HCC, its dynamics during immunotherapy are not well understood. This study evaluated the clinical significance of serum VEGF in patients treated with durvalumab plus tremelimumab (D+T).
Methods: We analyzed 31 patients with unresectable HCC receiving D+T. Serum VEGF levels were measured at baseline and 4 weeks post-treatment. Tumor response was assessed via RECIST v1.1.
Results: Median age was 74 years; 25 patients (80%) were male. Treatment lines were 1st/2nd/3rd or later in 6/11/14 cases, respectively. Median baseline VEGF was 231 pg/ml. The high-baseline VEGF group (>231 pg/ml) showed a trend toward longer median survival compared to the low group (16.3 vs. 8.7 months, p=0.12), though progression-free survival (PFS) did not differ significantly (2.0 vs. 2.7 months, p=0.91). While high-baseline VEGF correlated with higher AFP and PIVKA-II, these differences were not significant. In 20 patients with serial data, VEGF increased from a median of 290 to 397 pg/ml at 4 weeks (p=0.05). Notably, no objective responses were observed in patients whose VEGF increased by >50%. There was no significant difference in PFS regarding VEGF elevation.
Conclusion: Baseline serum VEGF was not a predictive factor for prognosis or PFS in D+T therapy. However, a marked post-treatment increase in VEGF may be associated with a lack of clinical response.

Poster Group 7: Basic & Experimental Poster Session 4
BEP4-5 10225

Impact of Hepatocyte Nuclear Factor-1 Alpha Genetic Variants on Hepatocellular Carcinoma Susceptibility among Patients with and without Diabetes Mellitus

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Background: Variants of the hepatocyte nuclear factor 1 alpha (HNF1A) gene have been implicated in the pathogenesis of maturity-onset diabetes mellitus (DM). Diabetes mellitus is a well-established risk factor for hepatocellular carcinoma (HCC); however, the association between HNF1A genetic variants, DM, and subsequent HCC development in cirrhotic patients remains unclear. We aimed to assess whether HNF1A genetic variants act as cofactors with diabetes mellitus in promoting HCC development among hepatitis C virus (HCV) infected patients.
Methods: A total of 140 participants were enrolled and categorized into three patient groups: 30 HCC without DM, 30 HCC and DM, and 40 DM without HCV infection or HCC. 80 age- and sex-matched healthy individuals served as controls. All participants underwent liver function testing, assessment of hepatitis viral markers, alpha-fetoprotein (AFP) measurement, fasting blood glucose, HbA1c evaluation, and genotyping of HNF1A polymorphisms (rs2464196 and rs1169310) using real-time PCR.
Results: The HNF1A rs2464196 AA genotype was significantly more frequent in patients with DM, HCC, and combined HCC with DM compared with controls. Similarly, the dominant model (AA + GA) was significantly more prevalent in all patient groups than the GG genotype. Notably, the AA genotype was most common among patients with both HCC and DM. In contrast, no significant differences were observed in genotype or allele frequencies of HNF1A rs1169310 across the studied groups.
Conclusion: The findings suggest that the HNF1A rs2464196 AA genotype may be associated with diabetes mellitus and could increase susceptibility to HCC in HCV-infected patients. Conversely, rs1169310 showed no significant association.

Poster Group 8: Hepatitis & Chronic Liver Disease Poster Session 1
HCP1-1 10042

Risk Factors for Hepatocellular Carcinoma Development after Direct-acting Antiviral Therapy in Hepatitis C: A Long-term Follow-up Study

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Introduction: Direct-acting antivirals (DAAs) have dramatically improved treatment outcomes for chronic hepatitis C virus (HCV) infection, achieving high sustained virological response (SVR) rates. Nevertheless, the risk of hepatocellular carcinoma (HCC) persists after viral eradication, particularly in patients with advanced liver fibrosis. This study aimed to identify risk factors for HCC development after DAA therapy, with a particular focus on liver stiffness measurement (LSM).
Methods and Results: We retrospectively analyzed 597 HCV-infected patients who received DAA therapy between January 2013 and December 2023. Patients with a prior history of HCC or unsuccessful LSM were excluded from the HCC risk analysis. Cumulative HCC incidence increased proportionally with higher LSM values ($P < 0.001$). The overall 5-year and 10-year cumulative incidences of HCC were 6.5% and 15.0%, respectively. The annual incidence rate was 0.5% per person-year in patients with LSM <10 kPa, compared with 5.8% per person-year in those with LSM ≥ 20 kPa. Multivariate analysis identified advanced fibrosis (LSM ≥ 20 kPa; HR = 17.0, 95% CI 5.86-49.4), older age (HR = 1.076, 95% CI 1.02-1.13), and elevated γ-GTP (HR = 1.008, 95% CI 1.00-1.01) as independent risk factors for HCC after SVR.
Conclusion: Although DAA therapy achieves viral eradication, advanced liver fibrosis (LSM ≥ 20 kPa) remains the strongest residual risk factor for HCC after SVR. Therefore, patients with advanced fibrosis require continued surveillance and timely diagnosis, enabling early therapeutic intervention and improved clinical outcomes.

HCP1-2 10138

HCC Development in HCV-Infected Patients after Virological Response

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Background: Despite high cure rates of HCV-infection treatment with direct-acting antiviral drugs (DAAs) and as a consequence reduced incidence of hepatocellular carcinoma (HCC), risk of liver primary cancer still exists even after sustained virological response (SVR). Older age, diabetes, hepatosis, alcohol use and lack of fibrosis reversal are increased HCC risk after HCV cure.
Methods: 78 HCV-infected patients with F3 (27%) and F4 (73%) from 33 to 73 years old (70% male, 55.8±9.1years old, BMI 27.1±5.0kg/m2, treated with DAA-contain regimens involved in the study. AFP checked in all patients (normal <8.78ng/mL). PIVKA-II checked in patients with elevated AFP or liver nodules on US. Serum levels of PIVKA-II were measured using the chemiluminescent assay of the Architect 1000i System, Abbott with cut of <50.9mAU/mL.
Results: AFP range 1.4-135.3ng/mL, average 13.5±2.6(m±SE) was elevated in 35% of patients. Despite SVR HCC suspected in 8 patients with F4(87.5% male) rely on Imaging, dynamics of AFP and PIVKA-II. 5 of them with HCC staging was C or B despite awareness not pass regular US control every 6 months. Interestingly HCC developed from 2 up to 8 years from achieving SVR. Data concerning HCC suspected patients in Tab1. 10 patients with decompensated cirrhosis died despite SVR (12.8%), among them 3 with HCC.
Conclusions: Risk of HCC development in patients with HCV-associated cirrhosis required close monitoring by US and AFP checking every 6 months after SVR. Serum levels of PIVKA-II in combination with AFP and imaging technics can help in early diagnosis of HCC.

Poster Group 8: Hepatitis & Chronic Liver Disease Poster Session 1
HCP1-3 10027

Early Detection of De Novo Hepatocellular Carcinoma by AFP-L3 Fraction Following SVR for HCV: A Case Report

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Background: Hepatocellular carcinoma (HCC) is typically diagnosed using contrast-enhanced CT or MRI, with gadoxetic acid-enhanced MRI (EOB-MRI) offering high sensitivity. However, conventional tumor markers often lack sensitivity in early-stage HCC, limiting their utility in surveillance. We report a case in which an elevated AFP-L3 fraction preceded radiological detection of de novo HCC after sustained virological response (SVR) to hepatitis C virus (HCV) therapy.
Case Summary: A 74-year-old man achieved SVR in 2015 with sofosbuvir plus ledipasvir. In October 2021, he was referred for elevated AFP-L3 fraction. Laboratory findings revealed AFP 12.2 ng/mL, AFP-L3 fraction 57.1%, and PIVKA2 25 mAU/mL. EOB-MRI at that time showed no evidence of HCC. Four months later, in February 2022, repeat EOB-MRI identified a 1.1 cm lesion in segment 3, exhibiting arterial phase hyperenhancement and hepatobiliary phase hypointensity, consistent with HCC. The patient underwent hepatic resection in April 2022. Postoperatively, tumor markers normalized, and he remains recurrence-free.
Discussion: AFP, AFP-L3 fraction, and PIVKA2 are widely used as independent biomarkers for HCC. Among them, AFP-L3 fraction is considered more specific. In this case, AFP-L3 elevation prompted early re-imaging, leading to timely diagnosis and curative resection. This underscores the potential role of AFP-L3 in surveillance, particularly when imaging is initially negative.
Conclusion: AFP-L3 fraction positivity may serve as an early indicator of occult HCC, even in the absence of radiological findings. Timely follow-up imaging in such cases can facilitate early diagnosis and improve clinical outcomes.

HCP1-4 10081

A Case of Hepatocellular Carcinoma with Decompensated Hepatitis C-related Liver Cirrhosis that Achieved a Sustained Virological Response after Retreatment with Glecaprevir/Pibrentasvir

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There is no established strategy for direct-acting antiviral (DAA) retreatment in patients with decompensated liver cirrhosis (LC) who experience DAA failure. We report a case of a patient with decompensated hepatitis C-related LC complicated by hepatocellular carcinoma (HCC) who failed sofosbuvir/velpatasvir (SOF-VEL) therapy but subsequently achieved a sustained virological response (SVR) after retreatment with glecaprevir/pibrentasvir (GLE/PIB), with approval from our ethics committee. A woman in her 70s presented after abnormal liver function was detected during a health check. She had been HCV antibody-positive for more than 10 years without prior treatment and was infected with HCV genotype 1b, with an HCV RNA level of 7.1 log IU/mL. Pretreatment screening revealed HCC, and gadoxetic acid-enhanced magnetic resonance imaging demonstrated multiple tumors measuring up to 21 mm in diameter. Serum AFP was 61.6ng/mL and PIVKA-II was 18mAU/mL, respectively. Liver function was classified as Child-Pugh score (CPS) 7, an ALBI score of -1.99, and mALBI grade 2b. Lenvatinib plus transcatheter arterial embolization was initiated, followed by radiofrequency ablation after worsening ascites, achieving radiological response. She subsequently received 12 weeks of SOF/VEL therapy for decompensated LC but did not achieve SVR. Resistance testing revealed L31I/M and Y93H mutations without a P32 deletion. Seven months later, after improvement of liver function to CPS 5 and confirmation of no HCC recurrence, she underwent 12 weeks of GLE/PIB therapy and successfully achieved SVR. This case suggests that carefully selected retreatment strategies may be feasible in patients with decompensated LC who fail SOF/VEL therapy.

Poster Group 8: Hepatitis & Chronic Liver Disease Poster Session 1
HCP1-5 10115

Ruptured Hepatocellular Carcinoma in an Untreated HCV Patient: Emergency Management, Viral Eradication, and Aggressive Recurrence

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Background: Despite the widespread use of direct acting antivirals (DAAs), untreated hepatitis C virus (HCV) patients remain at risk for hepatocellular carcinoma (HCC). HCC rupture is not rare and life threatening. This case report highlights successful emergency intervention, subsequent viral eradication, and unexpected aggressive recurrence.
Case Presentation: A 67 year old male with no prior antiviral therapy presented in June 2023 with ruptured HCC. Emergency transcatheter arterial embolization (TAE) was performed, followed by curative hepatic resection. In January 2024, DAA therapy was initiated, achieving sustained virological response (SVR). Despite viral eradication, in October 2025 the patient developed recurrent HCC with portal vein tumor invasion. He is currently receiving atezolizumab plus bevacizumab combination therapy.
Discussion: This case is notable for several reasons. First, HCC rupture served as the initial manifestation in an untreated HCV patient, necessitating immediate life saving intervention. Second, curative resection and subsequent DAA therapy successfully achieved SVR, eliminating viral replication. However, recurrence with portal vein invasion occurred within two years, underscoring that SVR does not abolish the risk of aggressive HCC relapse. The case emphasizes the ongoing presence of untreated HCV patients in Japan and elsewhere, and the need for vigilance even after viral eradication. Continuous surveillance remains essential, particularly in patients with advanced disease.
Conclusion: Untreated HCV patients may present with catastrophic HCC rupture. Emergency management and viral eradication can prolong survival, but recurrence risk persists, highlighting the importance of lifelong follow up.

Poster Group 9: Hepatitis & Chronic Liver Disease Poster Session 2
HCP2-1 10015

Hepatocellular Carcinoma in Japanese Autoimmune Hepatitis: Management and Outcomes

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Background: Hepatocellular carcinoma (HCC) in autoimmune hepatitis (AIH) was considered rare but is increasing with prolonged prognosis. Its impact on the overall prognosis of AIH is unknown, and treatment has not been established.
Aim: To investigate the risk factors and prognosis of HCC in patients with AIH and identify appropriate management strategies.
Methods: We studied patients with AIH including background liver disease, sex, age, complications, treatment, response to treatment, liver fibrosis, prognosis, and treatment.
Results: In 131 patients, deaths due to liver failure were more common early after the onset of AIH; however, deaths due to HCC increased gradually. HCC was observed in 12 patients (median age, 70 years; male/female, 4/8; cirrhosis at onset, 11; median time to carcinogenesis, 7 years). Cirrhosis at diagnosis was identified as a risk factor for carcinogenesis in the multivariate analysis (odds ratio, 41.36; $p<0.0001$) and cumulative cancer rates were high. Multidisciplinary therapy other than immune checkpoint inhibitors was administered as treatment for HCC. Two of the three patients who used molecular-targeted drugs discontinued the treatment because of adverse events.
Conclusion: HCC is an important cause of death in patients with AIH. Currently available drug therapies are limited and early detection is desirable.

HCP2-2 10049

A Study on Hepatocellular Carcinoma with Autoimmune Hepatitis as Background Liver Disease

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Background: To examine the clinical characteristics of hepatocellular carcinoma (HCC) in patients with autoimmune hepatitis (AIH) as the underlying liver disease.
Methods Subjects and Methods: We retrospectively reviewed cases of radiofrequency ablation (RFA) performed for primary HCC between January 2008 and October 2025, focusing on those with AIH as the underlying liver disease. We examined age, sex, reserve capacity of the underlying liver, tumor status, and steroid administration status.
Results: During the study period, 1,456 RFA procedures were performed. After excluding metastatic liver cancer and HCC originating from other primary cancers (e.g., intrahepatic cholangiocarcinoma), 229 cases underwent treatment for primary HCC. Among these, 7 cases had AIH as the underlying liver disease. There were 3 males and 4 females, with a median age of 78 years (range 67-85 years). The median maximum tumor diameter was 25 mm (range 17-57 mm), and the number of treated lesions ranged from 1 to 4. The Child-Pugh score was 5 (range 5-9), with 4 cases classified as Child A and 3 as Child B. The median follow-up period was 58.9 months (range 15.1-132.9 months). Among the 6 patients whose survival status was known, 5 had expired. Steroid administration at the time of tumor development was not performed in 5 of the 7 cases.
Conclusion: Among the cases treated with RFA for primary HCC at our institution, 3.1% had AIH as a background liver disease. Tumor size, hepatic reserve capacity, and prognosis varied.

Poster Group 9: Hepatitis & Chronic Liver Disease Poster Session 2
HCP2-3 10142

Late-Onset Hepatic Failure (LOHF) Caused by Seronegative Acute-Onset Autoimmune Hepatitis Requiring Liver Transplantation

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A woman in her 50s with no comorbidities had intermittently been noted to have mild liver dysfunction since early adulthood, which resolved spontaneously without evaluation. On day 0, she developed dizziness, fatigue, and intermittent acholic stools, followed by progressive liver dysfunction detected in next month. She had no history of alcohol consumption or regular medications. Serologic testing for viral hepatitis and autoimmune liver disease, including antinuclear and anti-smooth muscle antibodies, was negative, and serum IgG levels were within the normal range. Despite treatment with ursodeoxycholic acid for presumed cryptogenic liver injury, liver function progressively deteriorated. A liver biopsy showed nonspecific inflammatory changes without a definitive diagnosis. Day 91 since onset, she was readmitted with severe coagulopathy and rapidly progressed to hepatic encephalopathy. We diagnosed her with acute liver failure. High-dose methylprednisolone pulse therapy failed to improve liver function. The patient was transferred to our institution with grade II hepatic encephalopathy on day 96, and plasma exchange was initiated. CT scan demonstrated marked hepatic atrophy and heterogeneous parenchymal changes. Based on the clinical course, she was diagnosed with LOHF, and deceased-donor liver transplantation was performed. The postoperative course was uneventful, and liver function recovered. Histopathological examination of the explanted liver revealed widespread hepatocellular degeneration with regenerative nodules, prominent lymphoplasmacytic infiltration, and interface hepatitis, consistent with autoimmune hepatitis. This case highlights acute-onset, seronegative autoimmune hepatitis may progress to LOHF and respond poorly to steroid therapy. Early recognition of this entity and timely referral for liver transplantation are essential for improving outcomes.

HCP2-4 10057

Validation of PBC-10 in Japanese Patients with Primary Biliary Cholangitis

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Background: Primary biliary cholangitis (PBC) is a chronic cholestatic liver disease that has a substantial impact on health-related quality of life (HRQOL). The PBC-10, a shortened HRQOL assessment tool for PBC, was developed for rapid screening in clinical practice. This study aimed to evaluate the reliability and validity of the Japanese version of the PBC-10 in Japanese patients with PBC.
Methods: HRQOL data from 496 Japanese outpatients with PBC, collected between 2015 and 2016, were retrospectively analyzed. Reliability was assessed using Cronbach's alpha, item-total score correlations, and evaluation of ceiling and floor effects. Validity was examined by assessing correlations between PBC-10 scores and the total and subdomain scores of the Japanese version of the PBC-40, a PBC-specific, well-validated HRQOL questionnaire.
Results: The Cronbach's alpha coefficient for the PBC-10 was 0.872, indicating high internal consistency. Strong item-total score correlations were observed for all items. No ceiling effects were identified, whereas floor effects were present for all items. The total PBC-10 score showed a very strong positive correlation with the total PBC-40 score ($\rho = 0.964$, $p < 0.001$). In addition, strong correlations were observed between most PBC-10 items and the PBC-40 subdomains, supporting its validity.
Conclusions: The Japanese version of the PBC-10 is a reliable and valid tool for the rapid assessment of HRQOL in Japanese outpatients with PBC. It may be useful for identifying patients who could benefit from novel therapies aimed at symptom relief.

Poster Group 9: Hepatitis & Chronic Liver Disease Poster Session 2
HCP2-5　10025

Changes in Symptomatic Presentation at Diagnosis and Prognostic Impact in Primary Biliary Cholangitis

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Background: Despite advances in medical therapy for primary biliary cholangitis (PBC), some patients still progress to end-stage liver disease requiring transplantation. We investigated temporal trends in symptomatic presentation at diagnosis and their association with prognosis using data from the 17th nationwide PBC survey in Japan.
Methods: A total of 2,051 patients were registered in the 17th nationwide survey (2023-2024). Among them, 1,005 patients with less than 1-year follow-up and complete symptom and outcome information were analyzed. The prevalence and type of symptoms at diagnosis were compared across diagnostic periods. Prognostic factors for liver-related death or liver transplantation were assessed using Cox proportional hazards models.
Results: Of 1,005 patients (80.4% female; mean age 60.9±11.9 years), 18.9% presented with symptoms at diagnosis: pruritus (12.7%), esophagogastric varices (5.1%), jaundice (4.4%), ascites (2.8%), and edema (2.6%). Excluding pruritus, symptomatic cases accounted for 11.3%. The proportion of symptomatic patients showed no decline across diagnostic eras. During a mean follow-up of 5.0±4.1 years, 34 patients developed liver-related death or transplantation. Symptomatic presentation (HR 6.96, 95% CI 1.59-30.5, p=0.010) and lower albumin levels at diagnosis (HR 9.28, 95% CI 1.92-44.6, p=0.006) independently predicted poor outcomes.
Conclusions: Approximately 10% of patients with PBC continue to present with advanced symptoms at diagnosis, with no recent improvement. Early identification before symptomatic onset remains essential to improve long-term outcomes.

Poster Group 10: Hepatitis & Chronic Liver Disease Poster Session 3

HCP3-1 10124

Aetiology–Specific Risk of Hepatocellular Carcinoma in Metabolic Dysfunction–Associated Steatotic Liver Disease

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Background: The global burden of hepatocellular carcinoma (HCC) is shaped by heterogeneous underlying liver disease aetiologies. While viral hepatitis and alcohol-related liver disease are well-established drivers of HCC risk, the contribution of metabolic dysfunction-associated steatotic liver disease (MASLD), particularly in the setting of dual aetiologies, remains incompletely defined. As MASLD increasingly coexists with other chronic liver disease aetiologies, understanding whether MASLD confers additional HCC risk is critical for risk stratification and surveillance strategies.

Methods: We analysed longitudinal data from the CORE dataset to evaluate the association between liver disease aetiology and incident HCC. Cox proportional hazards regression with robust standard errors was used to estimate hazard ratios (HRs) for HCC across aetiologic categories.

Results: A total of 41 incident HCC events were recorded. In aetiology–focused analyses, neither MASLD with alcohol co–aetiology nor MASLD with viral hepatitis co–aetiology was associated with an increased risk of HCC compared with the reference aetiology. Specifically, MASLD with alcohol co-aetiology demonstrated no excess risk of HCC (HR=0.93, 95% CI 0.21–4.16, p=0.922), while MASLD with viral hepatitis co–aetiology was similarly not associated with elevated HCC risk (HR=0.86, 95% CI 0.42–1.78, p=0.691).

Conclusion: In this cohort, MASLD alone or in combination with alcohol or viral hepatitis was not associated with an increased risk of HCC after multivariable adjustment. These findings suggest that MASLD and MASLD–related dual aetiologies may not independently confer excess HCC risk beyond established demographic factors, highlighting the importance of refined risk stratification in MASLD populations.

HCP3-2 10087

Characteristics of Hepatocellular Carcinoma Arising from Alcohol-associated Steatotic Liver Disease

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Background: The proportion of hepatocellular carcinoma (HCC) attributable to alcohol–associated liver disease (ALD) has been increasing. Comprehensive characterization of the clinical features of ALD– and MetALD (metabolic dysfunction-associated liver disease and increased alcohol intake)–related HCC is needed. We investigated the clinical characteristics of HCC arising from ALD and MetALD.

Methods: Among 882 patients diagnosed clinicopathologically with alcohol–related steatotic liver disease at our institution from 1980 to 2024, 848 patients without viral hepatitis (including 51 without cardiometabolic risk factors <CMRFs>) were enrolled. The cohort consisted of 633 patients with ALD (including 35 without CMRFs) and 199 with MetALD; HCC was identified in 282 patients (33.3%). We compared clinical features between patients with ALD–HCC (n = 229, 36.2%) and MetALD–HCC (n = 51, 25.6%).

Results: Compared with ALD–HCC, MetALD–HCC patients were significantly older (64 vs. 70 years), more frequently obese (53.3% vs. 66.7%), and less likely to have cirrhosis (81.3% vs. 58.0%). Laboratory findings showed higher serum albumin (3.6 vs. 3.9 g/dL), prothrombin time (78.5% vs. 90.5%), and platelet count (12.1 vs. 15.1 ×104/μL; p = 0.05), and lower total bilirubin (0.9 vs. 0.6 mg/dL) in MetALD–HCC (all $p < 0.01$ except platelet count). No significant differences were observed in sex distribution or other CMRF prevalence.

Conclusions: Patients with MetALD–HCC were significantly older, and notably, HCC occurred even in non–cirrhotic patients with preserved liver function. Careful surveillance is warranted in this population.

Poster Group 10: Hepatitis & Chronic Liver Disease Poster Session 3

HCP3-3 10185

Intermittent Fasting, Liver Fibrosis, and Hepatocellular Carcinoma Risk in Non-Alcoholic Fatty Liver Disease: A Scoping Review

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Non-alcoholic fatty liver disease (NAFLD) is a rapidly growing cause of hepatocellular carcinoma (HCC), frequently developing even in non-cirrhotic livers. Interventions targeting hepatic steatosis, fibrosis, and inflammation may therefore influence HCC risk. Intermittent fasting (IF), including Ramadan fasting and time-restricted feeding (TRF), has emerged as a metabolic intervention with potential hepatoprotective effects, yet its relevance to HCC-related pathways remains unclear. This scoping review was conducted in according to the Arksey and O'Malley framework and reported with the PRISMA-SCR guidelines. Observational studies, quasi-experimental studies, and randomized controlled trials evaluating intermittent fasting strategies in adult with NAFLD were included. Data were systematically extracted on study characteristics, fasting modality and duration, and liver-related outcomes. Outcomes of interest included liver enzymes, non-invasive fibrosis indices (FIB-4 and NAFLD Fibrosis Score), and imaging-based parameters such as liver stiffness measurement (LSM) and controlled attenuation parameter (CAP). Evidence was synthesized descriptively. Intermittent fasting was consistently associated with reductions in liver enzyme levels. Several studies reported improvements in non-invasive fibrosis markers and imaging-based outcomes, including reductions in LSM and CAP. Ramadan fasting showed beneficial effects on hepatic steatosis and inflammatory markers, while TRF combined with dietary modification demonstrated greater improvements in fibrosis-related parameters compared with control diets. Intermittent fasting is associated with improvements in steatosis, fibrosis, and inflammation, which are key pathways implicated in NAFLD-related hepatocarcinogenesis. However, evidence is limited by small sample sizes, heterogeneous study designs, short follow-up durations, and the absence of direct oncologic endpoints such as HCC incidence. Further large-scale, long-term prospective studies are warranted.

HCP3-4 10159

Sarcopenia in Cirrhotic Patients: Prevalence, Prognostic Impact, and Clinical Outcomes

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Background and Aims: Sarcopenia is the loss of skeletal muscle mass and function. It is a common complication of liver cirrhosis with poor clinical outcomes. This study aimed to determine sarcopenia prevalence across Child-Pugh classes. It also evaluated the prognostic impact on 24-month mortality and the association with Hepatic Encephalopathy.
Methods: This prospective observational cohort study included 280 cirrhotic patients at Benha Teaching Hospital from January 2023 to 2025. Sarcopenia was defined by low muscle mass using CT-based Skeletal Muscle Index and low function using handgrip strength. Patients were followed for 24 months. Logistic regression models assessed the independent association of sarcopenia with mortality and Hepatic Encephalopathy. The models adjusted for age and Child-Pugh class.
Results: Overall sarcopenia prevalence was 46.8 percent. It increased significantly with disease severity. Prevalence was 22.8 percent in Child-Pugh A and 70.7 percent in Child-Pugh C. Muscle mass and handgrip strength showed a strong correlation. In multivariate analysis sarcopenia was an independent predictor of 24-month mortality with an Odds Ratio of 3.36. It was also strongly associated with the incidence of Hepatic Encephalopathy with an Odds Ratio of 3.45.
Conclusion: Sarcopenia is highly prevalent in cirrhotic patients. It is an independent and powerful predictor of 24-month mortality and Hepatic Encephalopathy. These findings underscore the critical need to incorporate sarcopenia screening into routine clinical practice for risk stratification. This will help guide targeted nutritional and physical interventions.

Poster Group 10: Hepatitis & Chronic Liver Disease Poster Session 3
HCP3-5　10075

Acid-Suppressing Therapy and the Risk of Hepatic Encephalopathy in Cirrhosis: A Prospective Cohort Study

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Background: Acid-suppressing agents, including proton pump inhibitors (PPIs) and potassium-competitive acid blockers (P-CABs), are frequently prescribed in patients with chronic liver disease. Although associations with hepatic encephalopathy (HE) or spontaneous bacterial peritonitis (SBP) have been reported, causal inference is limited by indication bias. We evaluated these associations using a large prospective cohort.
Methods: Among 1,206 patients enrolled between February 2020 and March 2022, 373 patients with cirrhosis were analyzed. Patients were classified as PPI/P-CAB users or non-users. The primary endpoint was a composite of HE or SBP, and the secondary endpoint was variceal bleeding. Inverse probability of treatment weighting (IPTW) was performed using the following covariates: ALBI score, history of HE, history of ascites, history of gastroesophageal varices (including prior treatment), lactulose use, and rifaximin use. Covariate balance was assessed using standardized mean differences.
Results: Before adjustment, users had more advanced liver dysfunction. After IPTW, baseline characteristics were well balanced between non-users (n = 163) and users (n = 196). The 1- and 2-year cumulative incidences of HE/SBP were 3.7% and 7.5% in non-users and 4.5% and 10.4% in users, respectively, with no significant difference (HR 1.29; 95% CI 0.59-2.79; p = 0.53). The incidence of variceal bleeding was also comparable between non-users and users (HR 0.66; 95% CI 0.19-1.96; p = 0.40).
Conclusion: After adjustment for liver function and prior decompensation-related factors, PPI/P-CAB use was not independently associated with increased risks of HE, SBP, or variceal bleeding in patients with cirrhosis.

Poster Group 11: Hepatitis & Chronic Liver Disease Poster Session 4
HCP4-1 10174

Global Trends in Liver Cancer Attributable to Hepatitis B: Insights from the Global Burden of Disease 2023 Study

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Background: Hepatitis B virus (HBV) related liver disease remains a major contributor to global mortality and is a leading cause of primary liver cancer (PLC). Despite progress in vaccination and antiviral therapy, marked regional disparities persist. This study assessed global trends in the prevalence, incidence, and disability adjusted life years (DALYs) of liver cancer attributable to HBV from 2000 to 2023.
Methods: Data were extracted from the Global Health Data Exchange (GHDx) using the Global Burden of Disease (GBD) 2023 dataset on liver cancer attributable to hepatitis B. Global and regional estimates of prevalence, incidence, and DALYs were reported as absolute numbers and age-standardized rates per 100,000 population with 95% uncertainty intervals.
Results: Between 2000 and 2023, the global burden of HBV-related liver cancer declined steadily. The age standardized prevalence rate decreased from approximately 15 per 100,000 population in 2000 to 11 per 100,000 in 2023, representing a reduction of nearly 25%. The decline accelerated after 2010, paralleling the expansion of HBV vaccination programs, wider access to antiviral treatment, and improved surveillance. Nevertheless, the burden remains disproportionately high in East and Southeast Asia, where HBV is historically endemic. Comparable downward trends were observed for incidence and DALYs, reflecting overall improvements in disease control and outcomes.
Conclusion: Although the global burden of HBV related liver cancer has declined substantially, it remains a significant public health challenge in high endemic and low-resource regions. Sustained vaccination efforts, expanded antiviral treatment, and strengthened surveillance are essential to achieve the WHO 2030 hepatitis elimination targets.

HCP4-2 10125

Global Prevalence and Incidence of Primary Sclerosing Cholangitis: An Updated Meta-Analysis

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Background: Primary sclerosing cholangitis (PSC) is a chronic cholestatic liver condition, and a well-established risk factor for cholangiocarcinoma, conferring one of the highest malignancy risks among hepatobiliary disorders. PSC-associated cholangiocarcinoma carries significant morbidity and mortality, yet global prevalence and incidence estimates are highly heterogenous across populations. This meta-analysis evaluates the prevalence and incidence of PSC in the general and inflammatory bowel disease (IBD) populations to inform cholangiocarcinoma risk and surveillance strategies.
Methods: A systematic search of Medline and Embase from inception to October 20, 2025 identified studies reporting on prevalence and incidence rates in the general and/or IBD population. Eligible studies were independently screened, with seventy-five studies meeting inclusion criteria. Pooled prevalence and incidence estimates were calculated using meta-analysis.
Results: Seventeen studies including 196,635,709 individuals showed pooled global prevalence of PSC of 8.06 per 100,000 (95% CI 4.75 - 13.36) in the general population. Among 517,433 patients with IBD in thirty-five studies, pooled PSC prevalence was 15.6 per 1,000 (95% CI 11.0 - 22.0), with a pooled prevalence of 21.1 per 1,000 in ulcerative colitis and 10.3 per 1,000 in Crohn's Disease. Thirteen studies reported a pooled incidence of PSC of 0.892 per 100,000 person-years (95% CI 0.705 - 1.130).
Conclusion: Prevalence of PSC varies among different populations and IBD subtypes, influencing the global burden of PSC-associated cholangiocarcinoma. Robust epidemiological estimates across population subgroups are essential for identification of high-risk individuals to guide surveillance strategies for cholangiocarcinoma and future oncologic studies on risk stratification and early detection.

Poster Group 11: Hepatitis & Chronic Liver Disease Poster Session 4

HCP4-3 10126

Genome-wide Association Study of TG/HDL Ratio in 424,865 UK Biobank Participants

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Background: The TG/HDL ratio is an established marker of insulin resistance and cardiovascular risk. We aim to identify SNPs, genes, and biological pathways associated with this ratio to better understand its genetic architecture and potential links to long term outcomes including HCC risk.
Methods: We conducted a genome-wide association study (GWAS) of the TG/HDL ratio in 424,865 participants from the UK Biobank. Quality control was performed using missingness and Hardy-Weinberg equilibrium filters, and linkage disequilibrium was accounted for. Gene-level analyses were subsequently performed using MAGMA to map associated variants to genes and identify enriched biological pathways through gene-set enrichment analysis.
Results: MAGMA gene-set enrichment analysis revealed significant enrichment of pathways associated with hepatocellular carcinoma (HCC). Specifically, gene sets associated with HCC recurrence were enriched among TG/HDL-associated variants ($p=0.0017$, NES=0.39), suggesting shared genetic factors between elevated TG/HDL ratio and tumor recurrence mechanisms. Additionally, genes associated with the DNAJB1-PRKACA fusion, a driver mutation characteristic of fibrolamellar HCC, were also enriched ($p=0.0067$, NES=0.81), indicating potential overlap with oncogenic pathways.
Conclusions: Genetic variants influencing the TG/HDL ratio are enriched in pathways implicated in HCC development and recurrence. These findings suggest a shared genetic basis between dyslipidemia characterized by elevated TG/HDL ratio and HCC susceptibility.

HCP4-4 10208

Treatment Outcomes of Triple Therapy for 816 NAFLD Patients in Mongolia

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Liver steatosis is highly prevalent in Mongolia. Triple therapy combining statins, Vitamin E, and UDCA has been used as an effective treatment regimen. This prospective and retrospective study analyzed treatment outcomes among 816 patients with liver steatosis who received triple therapy, based on data through years 2023 and 2025 from medical records from Happy-Veritas Hospital. Data were processed using Python's pandas library, with percentages and counts calculated for key variables including steatosis reduction, viral load changes, cirrhosis improvement, and hepatitis virus types. Results demonstrated steatosis reduction in 98.6% of patients, confirming high treatment efficacy for hepatic fat content. Reduction levels were relatively evenly distributed, with the largest proportion of patients showing decreases in the 40 to 99 points on elastography CAP point range within 1 month. The most impressive degree of improvement was from grade 3 to grade 1 steatosis (126 cases). Liver stiffness improved in 77.1% of treated patients. These findings indicate that triple therapy is highly effective in reducing liver steatosis in the Mongolian population, although viral clearance and cirrhosis resolution rates were more moderate. The study provides important baseline data for evaluating triple therapy in Mongolia and underscores the need for larger-scale prospective studies, enhanced prevention strategies, and earlier diagnosis to further improve long-term outcomes.

Poster Group 12: Hepatitis & Chronic Liver Disease Poster Session 5

HCP5-1 10199

Hepatoprotective Drugs for the Prevention of Liver Injury among Patients at Risk for Drug-Induced Liver Injury or Chemotherapy-Induced Transaminitis: A Systematic Review and Meta- Analysis

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Background: Drug-induced liver injury (DILI) and chemotherapy–induced transaminitis are important clinical concerns, commonly manifested by elevated transaminases (ALT, AST) and hepatic dysfunction. Several agents, including silymarin, N–acetylcysteine (NAC), and ursodeoxycholic acid (UDCA), are frequently used for hepatoprotection, although evidence supporting their effectiveness in non–tuberculosis settings remains inconsistent. Objective: To assess the effectiveness and safety of silymarin, NAC, and UDCA in preventing liver injury among patients receiving hepatotoxic pharmacologic therapies, particularly chemotherapy and other non–tuberculosis treatments.
Methods: A systematic search of PubMed, Cochrane CENTRAL, ClinicalTrials.gov, and Google Scholar was performed. Randomized controlled trials comparing hepatoprotective agents with placebo or open comparators were included. Primary outcomes were changes in AST and ALT levels and incidence of hepatotoxic adverse events. Risk of bias was evaluated using RoB 2, and certainty of evidence was assessed using GRADE. Meta–analyses were conducted using Review Manager 5.4.
Results: Eight randomized controlled trials involving 325 participants were included. Meta–analysis demonstrated no statistically significant effects on AST (SMD 0.37; 95% CI –0.13 to 0.86) or ALT (SMD 0.21; 95% CI –0.26 to 0.69). No significant reduction in adverse events was observed (RR 0.76; 95% CI 0.37 to 1.56). Substantial heterogeneity was present (I2 >75%), and overall certainty of evidence was very low due to risk of bias, imprecision, and suspected publication bias.
Conclusions: Current evidence does not demonstrate consistent hepatoprotective benefits of silymarin, NAC, or UDCA in patients receiving chemotherapy or other non–tuberculosis hepatotoxic drugs. These agents appear safe but provide uncertain clinical benefit in the studied populations overall.

HCP5-2 10163

Five-year Active Surveillance of Unresectable Hepatic Epithelioid Hemangioendothelioma Diagnosed by Repeat Liver Biopsy

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Case: An 80-year-old man presented in January of year X with gross hematuria. Abdominal computed tomography (CT) incidentally revealed multiple hepatic tumors, while no abnormalities were detected in the urinary tract. He was referred to our department for further evaluation. Laboratory tests, including liver enzymes and tumor markers, were within normal limits. Abdominal ultrasonography demonstrated multiple irregular hypoechoic hepatic lesions. Dynamic contrast-enhanced CT revealed bilobar hypovascular tumors, and FDG PET showed abnormal uptake in segments 7 and 2, without evidence of extrahepatic disease. Upper and lower gastrointestinal endoscopy revealed no evidence of a gastrointestinal primary malignancy. Percutaneous liver biopsy was initially inconclusive. A repeat biopsy demonstrated short spindle-shaped atypical cells with fibrous stroma replacing the hepatic sinusoids. Immunohistochemical analysis showed positivity for CD31, CD34, and ERG, leading to a diagnosis of hepatic epithelioid hemangioendothelioma (EHE). Surgical resection was considered but deemed infeasible because of bilobar distribution and proximity to major vascular structures. The patient was therefore managed with active surveillance. After five years, mild progression of intrahepatic lesions with right lobe atrophy was observed; however, liver function remained preserved and the patient remained asymptomatic.
Discussion: EHE is a rare vascular tumor defined by WWTR1-CAMTA1 or YAP1-TFE3 gene fusions, with no established systemic therapy; hepatic EHE shows poor prognosis with extrahepatic disease but may follow an indolent course without it.
Conclusion: This case demonstrates long-term disease control of unresectable hepatic EHE without extrahepatic involvement under active surveillance.

Poster Group 12: Hepatitis & Chronic Liver Disease Poster Session 5
HCP5-3 10121

Efficacy of a Novel Ultra Slim Therapeutic Upper Gastrointestinal Endoscope for Pediatric Esophageal Varices A Case Report

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Background: Endoscopic treatment is essential for managing esophageal varices caused by portal hypertension. However, particularly in pediatric and postoperative patients, standard therapeutic endoscopes do not often work because of anatomical narrow lumen. A newly developed slim therapeutic endoscope (EG-840TP; Fujifilm Medical Co., Ltd.), commercialized in March 2023, may be an alternative.
Case Presentation: A 5 month old female infant with congenital biliary atresia who had undergone Kasai portoenterostomy was admitted to our emergency unit because of massive melena. Upper gastrointestinal endoscopy under general anesthesia using an ultra slim endoscope revealed ruptured esophageal varices. Endoscopic hemostasis was attempted; however, neither a standard therapeutic endoscope nor an endoscopic variceal ligation device could be advanced through the pharynx. Because the EG-840TP could be passed, endoscopic injection sclerotherapy (EIS) with aethoxysklerol was performed, achieving successful hemostasis. Subsequent sessions of EIS led to complete eradication of the esophageal varices.
Discussion: In cases where standard diameter endoscopes cannot be used because of stenosis or other anatomical obstacles, ultra slim endoscopes are often the only alternative, although therapeutic options are limited by the narrow working channel. The EG-840TP combines a slim shaft with a 3.2 mm wide channel, enabling the use of therapeutic devices.
Conclusion: The slim therapeutic upper gastrointestinal endoscope may be extraction option in treating pediatric cases with esophageal varices.

Poster Group 13: Hepatitis & Chronic Liver Disease Poster Session 6

HCP6-1 10216

Steep Declining Trends of Hepatitis Virus Prevalence in Mongolia Over the Last 20 Years, a Nationwide Study

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Over the past two decades, Mongolia has achieved a significant reduction in the prevalence of hepatitis viruses, particularly hepatitis B and C. This improvement is closely linked to nationwide early detection programs, vaccination strategies, and access to effective antiviral treatment. This study analyzes trends in hepatitis virus prevalence in Mongolia using population based early screening data collected between 2002 and 2025.

Introduction: Mongolia has long been recognized as a high prevalence country for viral hepatitis. Chronic hepatitis B and C have been major causes of liver cirrhosis and hepatocellular carcinoma, placing a considerable burden on public health. In response, the government implemented comprehensive strategies focused on prevention, early detection, and treatment.

Methods: Aggregated data from PubMed and national programs were analyzed. Hepatitis virus prevalence was expressed as prevalence among apparently healthy population and compared across four periods: 2002 to 2005, 2013, 2017 to 2018, and 2022 to 2025.

Results: Hepatitis virus prevalence declined steadily from 23.8% in 2002 to 2005 to 21.7% in 2013, 13.7% in 2017 to 2018, and 3.2 in 2022 to 2025, representing an approximately sevenfold reduction over two decades.

Discussion: This decline is attributable to universal neonatal hepatitis B vaccination, large scale adult screening programs, the introduction of DAA for HCV, and improved infection control and blood safety.

Conclusion: Hepatitis virus prevalence in Mongolia has decreased markedly due to effective early detection and prevention strategies. Continued targeted screening and treatment are essential to achieving national hepatitis elimination goals.

HCP6-2 10219

Routes of New Viral Hepatitis Infections in Modern Mongolia

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Mongolia has one of the highest global burdens of hepatitis B (HBV) and C (HCV) infections, which are the primary drivers of liver cirrhosis and hepatocellular carcinoma. Identifying transmission routes of new cases is essential for prevention and achieving the WHO 2030 hepatitis elimination goal. This study analyzed the causes of infection in 398 newly detected cases (HBV: 154, HCV: 244) based on 2025 epidemiological data. Of the total cases, 317 patients (79.6%) reported a known source of infection, while 81 (20.4%) did not. Among those with identified causes, the leading routes were iatrogenic: cosmetic procedures (65 cases, 20.5%), tattoos (53 cases, 16.7%), and dental treatment (37 cases, 11.7%). These three categories alone accounted for approximately 49% of identified transmissions. HCV cases outnumbered HBV cases (244 vs 154; ratio 1.58:1), with HCV showing greater association with cosmetic procedures (39 vs 26) and tattoos (32 vs 21). Familial transmission was more frequent in HBV (15 vs 21 cases). The findings demonstrate that iatrogenic transmission through inadequately sterilized medical, cosmetic, and tattoo procedures remains the dominant route of new hepatitis infections in Mongolia. The higher proportion of HCV aligns with its predominantly bloodborne nature, while the notable rate of unknown sources (20.4%) underscores gaps in epidemiological tracing. These results emphasize the urgent need to strengthen infection control standards in healthcare facilities, enforce strict sterilization in non medical settings such as tattoo and cosmetic services, and enhance public awareness.

Poster Group 13: Hepatitis & Chronic Liver Disease Poster Session 6

HCP6-3 10212

Alcohol Consumption and its Association with HCC in Mongolia according to A-HOC Study

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HCC is a leading cause of death in Mongolia, linked to viral hepatitis and harmful alcohol use. This study analyzed gender, age, and mortality in alcohol-related hepatocellular carcinoma (HCC) using clinical data. 88.8% of cases were male, 11.2% female; peak incidence occurred at 56 to 65 years. Mortality was highest in middle-aged and older groups. Results stress the need for alcohol reduction, early detection, and prevention targeting high-risk populations.

Introduction: HCC is a top global cancer killer. Mongolia has extremely high HCC rates due to hepatitis B/C, alcohol abuse, and metabolic issues. Chronic alcohol leads to steatosis, hepatitis, cirrhosis, and HCC. Alcohol remains common in Mongolia, but detailed local data on alcohol-related HCC patterns are scarce. This study describes these features from routine clinical records.

Methods: Observational study using APASL (A-HOC) surveillance data from real-world clinical records of alcohol-related HCC cases, including gender, age, and mortality. Data stratified by gender/age, presented as percentages and graphs.

Results: 88.8% of cases were male. Highest incidence in 56 to 60 and 61 to 65 age groups; rare below 50, sharp increase after. Mortality mainly in 56 to 65 years, overwhelmingly male. Reflects higher male alcohol use and long-term cumulative liver damage progressing silently to cancer.

Conclusion: Alcohol drives liver cancer in Mongolia. Alcohol-related HCC mainly affects males aged 56 to 65 with high mortality. Urgent actions required: reduce alcohol consumption, target early detection at middle-aged men, and regularly monitor chronic liver disease patients.

HCP6-4 10220

Association of HbA1c with Liver Steatosis and Fibrosis in Mongolia

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Background: Diabetes mellitus and insulin resistance play key roles in the development and progression of hepatic steatosis. HbA1c reflects average blood glucose over three months and is widely used in clinical practice, but its relationship with liver steatosis and fibrosis not assessed in Mongolia. This study evaluated the association between HbA1c levels and liver steatosis and fibrosis.

Methods: Among 984 individuals who underwent HbA1c testing at Happy Veritas Hospital (2024 to 2025), 211 subjects aged 28 to 77 years with available steatosis and fibrosis data were included. Liver steatosis and fibrosis were assessed non invasively using Elastography. Steatosis was graded by controlled attenuation parameter (CAP): normal (0 to 240 dB/m), mild, moderate, and severe. Fibrosis was staged by liver stiffness measurement (LSM): F1, F2, F3, and F4. HbA1c categories were normal (less 5.7%), prediabetes (5.7 to 6.4%), and diabetes (above 6.5%).

Results: The mean age was 52.4 years, and mean HbA1c was 6.27%. HbA1c showed a moderate positive correlation with liver steatosis ($r=0.359$) and a weak but significant correlation with liver fibrosis ($r = 0.187$, $p =0.007$). Body mass index was strongly associated with steatosis, whereas age was significantly associated with fibrosis.

Conclusion: Higher HbA1c levels were significantly associated with increased liver steatosis and fibrosis. Structural liver changes may occur as early as the pre diabetes stage, suggesting that HbA1c may serve as a useful biomarker for early detection and risk stratification of progressive NAFLD.

Poster Group 13: Hepatitis & Chronic Liver Disease Poster Session 6
HCP6-5 10058

Stability and Variability of Symptom Burden in Primary Biliary Cholangitis: Insights from a Decade of Follow-Up

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Background: Primary biliary cholangitis (PBC) is associated with impaired health-related quality of life (HRQOL), yet long-term trajectories of patient-reported symptoms in real-world clinical practice remain insufficiently characterized. We examined current symptom burden, longitudinal changes in PBC-40 scores over 10 years, and their clinical relevance in Japanese patients with PBC.
Methods: We performed three complementary analyses: (i) a 2025 cross-sectional analysis (n = 239) assessing associations among PBC-40 domains, EQ-5D-5L, and clinical variables; (ii) a longitudinal comparison of PBC-40 scores obtained in 2015 and 2025 (n = 71); and (iii) an outcome analysis evaluating whether baseline (2015) PBC-40 scores were associated with survival through 2025 (n = 410).
Results: In 2025, moderate to severe impairment was observed in 20-50% of patients across PBC-40 domains. EQ-5D-5L scores were significantly reduced in women younger than 60 years compared with population norms. Multivariable analysis demonstrated that itch, fatigue, and social domains independently contributed to impaired HRQOL. Although median 10-year changes in PBC-40 scores were modest, significant deterioration was observed in the symptoms, itch, and cognitive domains, with substantial inter-individual variability, particularly for itch. Female sex, younger age at diagnosis, ALP normalization, higher ALBI grade, and prior clinical events were associated with worsening itch. Baseline PBC-40 scores were not associated with mortality or liver transplantation.
Conclusions: Long-term symptom trajectories in PBC are heterogeneous, and deterioration of specific domains-especially itch-may occur despite stable overall HRQOL scores. These findings underscore the importance of longitudinal symptom assessment and individualized symptom-oriented management in routine PBC care.

Poster Group 14: HCC Poster Session 1

HP1-1 10191

A-HOC (APASL Hepatology/Oncology Consortium): A Foundational Dataset for Future Hepatology and Oncology Research

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Background and Aims: Hepatocellular carcinoma (HCC) remains a major public health challenge in the Asia-Pacific region. Heterogeneity in disease etiology and disparities in healthcare systems impede the implementation of standardized clinical management. The A-HOC study, led by the APASL, was initiated to characterize the etiology, treatment patterns, and clinical outcomes of HCC across the region and to establish a foundation for future research.
Methods: A multinational registry was established through the participation of medical institutions from multiple countries using standardized data collection procedures. Patient enrollment is ongoing for individuals diagnosed with HCC between 2013 and 2027. More than 100 clinical variables, including demographic characteristics, disease etiology, treatment modalities, and outcomes, are systematically collected. The registry was designed as a foundational dataset to enable future subgroup analyses and exploratory research.
Results: As of December 15, 2024, a total of 9,229 patients with HCC had been registered from 47 institutions across 9 countries or regions. For the present analysis, Asia was stratified into six geographic regions (North, West, East, Japan, South, and Southeast), and regional characteristics across multiple clinical parameters were reviewed, revealing heterogeneity in etiological profiles and treatment patterns.
Conclusions: These findings highlight the limitations of uniform international guidelines and emphasize the need for region-specific strategies tailored to local epidemiological backgrounds and healthcare infrastructures. The A-HOC study provides a critical platform for future ecosystem-based analyses and artificial intelligence (AI)-driven research aimed at optimizing HCC management. This collaborative registry is expected to serve as a cornerstone for evidence-based policymaking and the development of regionally adapted clinical practice guidelines.

HP1-2 10205

A-HOC Study on 1108 Patients Under Surveillance for Liver Cancer in Mongolia

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In Mongolia, HCC is a major health issue and has a high prevalence due to its association with chronic infections of viruses such as HBV and HCV. This study analyzed theage distribution, tumor status, cirrhosis status, treatment modalities, surveillance outcomes, andcauses of death among patients under surveillance for HCC.
Methods: The study was conducted prospectively and retrospectively. A total of 1,108 cases were selected and analyzedfrom the registries of HCC patients at Happy-Veritas Hospital and 3 other hospitals. Patients were classified by age group, tumor type (primary/recurrent), cirrhosis status, treatment modality, and surveillance outcome (alive, deceased, lost to follow-up), and actual counts and percentages were calculated.
Results: The age distribution of patients under surveillance is shown in actual numbers. The majority of patients fall into the 60 to 85 age group. The presence or absence of LC was compared in actual numbers and percentages: 59.3% of patients with cancer have liver cirrhosis. The majority (61.7%) of patients under surveillance have recurrent cancer. The vast majority (97.5%) of patients have received some form of treatment. 83.4% of patients under surveillance are still alive. The main cause of death is liver cancer (85.5%). The most common treatment modality is TAE/TACE (16.8%).
Conclusion: Treatment coverage is good (97.5% received treatment), but the primary cause of deathremains the cancer itself. There is need to improve survival rate.

Poster Group 14: HCC Poster Session 1

HP1-3 10218

Clinical and Epidemiological Analysis of Liver Cancer Patients Under Primary Health Care Center Surveillance in Mongolia

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Background: HCC is one of the leading causes of cancer related mortality in Mongolia and is closely associated with the high prevalence of chronic hepatitis B and C virus infections. We aimed to comprehensively analyze the demographic, clinical, and biochemical characteristics of HCC patients registered under the surveillance of 69 primary health care organizations and to identify differences between early- and late-stage detection of the disease.
Methods: Data from 220 patients were extracted from an Excel-based database and analyzed. Patients were classified according to tumor stages and grouped into early detection and late detection. Comparative analyses were conducted based on age, sex, viral markers (HBsAg, HCV Ab), lifestyle factors, biochemical parameters (AFP, ALT, AST), and geographic distribution.
Results: Of the study population, 60% were male, with a mean age of 65.2 plus minus 10.3 years. HBsAg positivity was observed in 70% of patients, while 30% were anti-HCV positive. Early stage detection accounted for 32% of cases, late stage detection for 32%, and 36% of cases had undocumented tumor stage. Mean levels of AFP, ALT, and AST were significantly lower in patients diagnosed at an early stage compared with those diagnosed at a late stage. Early detection was more frequent in urban settings, whereas late-stage detection predominated in rural areas.
Conclusion: The insufficient rate of early detection of HCC highlights the need to strengthen screening programs and surveillance systems at the primary health care level.

HP1-4 10012

Clinical Characteristics and Survival Outcomes of Hepatocellular Carcinoma at Dr. Moewardi Regional Tertiary Referral Hospital, Indonesia: A Retrospective Study

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Background: Hepatocellular carcinoma (HCC) in Indonesia is often diagnosed at advanced stages, limiting curative treatment and resulting in poor outcomes (30% one-year survival). We aimed to assess the survival outcomes of HCC patients treated at Dr. Moewardi Regional Hospital, Central Java, Indonesia in 2024 until 2025. Methods: We retrospectively reviewed 166 HCC patients who checked their illness between January 2024 and September 2025 at a tertiary referral center in Indonesia. Data on BCLC stage, treatment modality, and survival were analyzed.
Result: In this study, only 18% of hepatocellular carcinoma patients received curative or locoregional therapy, while 82% were managed with supportive care. The 1year survival rates declined with advancing BCLC stage: 100% in A, 82% in B, 63% in C, and 18% in D. Kaplan Meier analysis showed significantly longer survival in patients receiving curative or palliative therapy (75%) compared to supportive care (41%). Among treatments, TACE achieved the highest survival (approximately 85%) and lowest early mortality compared to lenvatinib or best supportive therapy. RFA, liver resection, and sorafenib could not be analyzed due to small sample sizes.
Discussion: Survival outcomes remain poor, primarily due to the predominance of late stage disease and limited access to curative treatment. These findings underscore an urgent need for national HCC screening and early detection efforts (especially targeting HBV carriers) and improved access to curative interventions to enable earlier diagnosis and improve survival outcomes.

Poster Group 14: HCC Poster Session 1
HP1-5 10179

Discrepancy between the Real Clinical Status of Patients with HCC and Expectations from HCC Surveillance: A Single Center Study

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For the past 20 years, the Ministry of Health and welfare of Korea has mandated that all target populations participate in the National Liver Cancer Surveillance Program (NLCSP). However, many patients with recently diagnosed HCC are still found at advanced stage, despite the expectations of HCC surveillance testing. Therefore, to evaluated the real clinical situation of HCC surveillance, we investigated severity in patients with HCC and the diagnostic environment. From January 2015 to December 2023, all patients who were diagnosed the HCC in a single hospital in Daejeon, South Korea were retrospectively enrolled in this study. Severity of HCC was evaluated by the Barcelona Clinic Liver cancer (BCLC) staging system. During the course of 9 years, 606 patients were enrolled. The proportion of patients according to BCLC stages were as follows: BCLC-0, 57 patients (9.4%); BCLC-A, 85 patients (14.0%); BCLC-C, 273 patients (45%); and BCLC-D, 138 patients (22.8%). The diagnostic environments were as follows: 39 patients were in the NLCSP group (6.4%), 232 in the group with presenting signs (38.3%), 223 in the regular outpatient care group (36.8%), and 112 patien ts in the incidental diagnosis group (18.5%). Most patients (67.8%) had advanced stage HCC at diagnosis, and curative treatment was not indicated due to the severity of disease. Therefore, the real clinical situation is far worse than the theoretical expectation of HCC surveillance, suggesting that many high-risk patients for HCC are missed in surveillance.

Poster Group 15: HCC Poster Session 2

HP2-1 10217

Combined Assessment of Ferritin, AFP, and PIVKA-II in the Diagnosis of Hepatocellular Carcinoma

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HCC is a leading cause of cancer-related mortality worldwide, often diagnosed at advanced stages. AFP is the standard biomarker for HCC surveillance, but its sensitivity is limited when used alone. PIVKAII enhances diagnostic accuracy when combined with AFP. Serum ferritin, reflecting hepatic inflammation and iron overload, is frequently elevated in HCC patients. We hypothesized that integrating ferritin with AFP and PIVKAII could improve HCC risk stratification and early detection.
Methods: From 8,000 adult patients tested for PIVKAII and AFP at Happy Veritas Hospital, 194 individuals with concurrent serum ferritin measurement were included. Participants were divided into normal and elevated ferritin groups. Results were reported as mean, standard deviation. HCC risk was categorized using established cutoffs: AFP above 10 and above 400 ng/mL; PIVKA II 50 to 149 and 150 mAU/mL; ferritin above 400 and 1000 ng/mL.
Results: Elevated ferritin strongly correlated with higher AFP and PIVKAII levels, particularly in males, where a 2.45-fold ferritin increase was linked to a 2.14 fold AFP rise and a threefold PIVKAII increase. In the 400 to 1000 ng/mL ferritin group, 72.8% were classified as high HCC risk; in the above 1000 ng/mL group, 22.8% were high risk. In females, ferritin elevation showed stronger age dependence, while PIVKA-II remained mostly normal.
Conclusion: Although not tumor specific, ferritin enhances HCC risk assessment when combined with AFP and PIVKA-II. A multi biomarker panel may improve early identification of high-risk individuals, supporting more effective surveillance and screening strategies in clinical practice.

HP2-2 10054

Clinical Impact of the aMAP Risk Score and Hepatocellular Carcinoma on Outcomes after Rifaximin Therapy for Hepatic Encephalopathy

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Background: Hepatic encephalopathy (HE) frequently recurs despite rifaximin therapy. The age-male-ALBI-platelet (aMAP) risk score is a prognostic marker in chronic liver disease, but its role in predicting HE recurrence, particularly in patients with hepatocellular carcinoma (HCC), remains unclear. This subanalysis evaluated the impact of aMAP score and HCC status on HE recurrence and survival after rifaximin therapy.
Methods: We retrospectively analyzed 145 patients with cirrhosis who initiated rifaximin therapy and recovered to West Haven grade 0. Patients were classified by HCC status (no HCC, concomitant HCC, or prior HCC). HE recurrence and overall survival (OS) were assessed. Multivariable logistic regression analysis included ascites, ammonia level, FIB-4 index, mALBI grade, MELD score, and the aMAP risk score. Receiver operating characteristic (ROC) analysis determined the optimal cutoff for predicting HE recurrence. Cumulative HE recurrence was analyzed using a competing-risk model, and OS was evaluated using the Kaplan-Meier method.
Results: In multivariable analysis, the aMAP risk score was the only independent predictor of HE recurrence. ROC analysis identified a cutoff value of 70.843. In the overall cohort, this cutoff significantly stratified both cumulative HE recurrence and OS. HE recurrence did not differ among HCC categories ($P = 0.68$), whereas OS differed significantly ($P < 0.001$). In patients with HCC ($n = 37$), the aMAP cutoff stratified OS ($P = 0.034$) but not HE recurrence ($P = 0.58$).
Conclusion: An aMAP cutoff derived to predict HE recurrence stratified both recurrence and survival overall, but only survival in patients with HCC, likely due to competing mortality risks.

Poster Group 15: HCC Poster Session 2

HP2-3 10214

Hepatic Encephalopathy among HCC Patients Monitored for 2 Years, A-HOC Study

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HCC usually develops on a background of chronic liver disease, and hepatic encephalopathy, a severe complication of liver dysfunction substantially affects patients' quality of life and increases mortality. This study aimed to classify primary liver cancer by etiology, compare the frequency of hepatic encephalopathy across etiological groups, and identify in which group the complication predominates. The retrospective observational study included clinical records of 1108 HCC patients, out of which 216 patients were encephalopathy positive, divided into three etiological groups: HBV-related (n=79), HCV-related (n=106), and non-viral (n=31). Hepatic encephalopathy was diagnosed based on clinical signs and symptoms, laboratory results, imaging findings, and physician documentation. Hepatic encephalopathy occurred most frequently in the HCV-related HCC group (n=106), followed by the HBV-related group (n=79), and was least common in the non-viral group (lowest number among 31 patients). These findings suggest that chronic HCV infection leads to more profound and prolonged liver inflammation, fibrosis, and cirrhosis, resulting in greater impairment of liver reserve function and higher encephalopathy risk. It is likely that HCV does something to the brain according to recent studies done by others. In contrast, non-viral HCC cases often preserve relatively better liver function, contributing to lower encephalopathy frequency. The results demonstrate that etiological classification is a critical determinant of hepatic encephalopathy risk in HCC. Hepatic encephalopathy manifests most frequently in HCV-related cases, moderately in HBV-related cases, and least in non-viral cases. Particular attention and early proactive intervention for encephalopathy are especially warranted in patients with HCV-related HCC.

HP2-4 10018

Current Status of Hypozincemia and Zinc Supplementation in Patients with Hepatocellular Carcinoma at Our Hospital

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Background: Hypozincemia is frequently present in patients with liver cirrhosis, but the relationship between serum zinc levels and disease activity or symptoms in patients with hepatocellular carcinoma (HCC) has not been fully elucidated.

Methods: Morning fasting serum zinc levels were measured in 184 patients with chronic liver disease, including 46 patients with HCC, at our hospital. Symptoms related to hypozincemia were ascertained via questionnaire. Zinc supplementation was also administered to 21 patients with zinc deficiency.

Results: The median serum zinc level in 46 patients with HCC was 58.5 μg/dL (22-94), with 57% (26 patients) having a serum zinc level below 60. In 50 patients with liver cirrhosis without HCC, the median was 66 μg/dL (36-93), and in 87 patients with chronic hepatitis, the median was 77 μg/dL (50-114), demonstrating significantly lower zinc levels in patients with HCC. Symptoms associated with hypozincemia in HCC patients included poor wound healing in 20%, dermatitis in 17%, lethargy in 13%, stomatitis in 10%, and hair loss in 10% (multiple answers). Zinc supplementation therapy in 21 zinc-deficient HCC patients resulted in a significant increase in serum zinc (52 to 58 μg/dL) three months later. There were no changes in ammonia or albumin levels, and treatment is continuing.

Conclusion: HCC patients at our hospital had significantly lower zinc levels and a variety of symptoms than patients with cirrhosis or chronic hepatitis without HCC. A significant increase in serum zinc levels was observed in HCC patients after zinc supplementation therapy.

Poster Group 15: HCC Poster Session 2
HP2-5 10200

A Case of Mucosa-associated Lymphoid Tissue Lymphoma of the Liver Recurred with the Subsequent Palatal Lesion

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Background: It is reported that primary hepatic lymphoma accounts for approximately 0.4% of extranodal lymphoma. Furthermore, most of them are diffuse large B-cell lymphoma and hepatic mucosa-associated lymphoid tissue (MALT) lymphoma is rare.
Case presentation: An 85-year-old female patient without previous medical history of chronic liver diseases, was incidentally detected with a 30-mm slightly hypervascular intrahepatic nodule on contrast-enhanced CT in S8 region. She was referred to our department for further evaluation. The hepatic lesion exhibited low and high signal intensity on axial T1 and T2-weighted imaging, respectively. Hyperintense signals were found in the diffusion weighted imaging, while the finding of the Gd-EOB-DTPA in the hepatocellular phase was defect. Gastrointestinal endoscopy and colonoscopy showed no evidence of advanced malignant tumors and either AFP and PIVKA-II was not elevated. The patient chose to undergo hepatectomy and the immunohistochemistry results showed CD20+, CD79a+, CD3-, and bcl-2+, while the proliferation factor measured by Ki67 was 10%, resulting in the diagnosis of hepatic MALT lymphoma. Three months later, she presented with pain in palatal area. Because PET-CT detected with abnormal uptake of FDG-PET in the palatal lesion and neighboring lymph nodes. Finally, the pathological findings with palatal lesion due to immunohistochemistry showed the same result with those of hepatic lesion, diagnosed with recurrence of MALT lymphoma.
Conclusions: This is the first case report of hepatic MALT lymphoma, subsequently recurred with palatal lesion. Although MALT lymphoma is rare and categorized as low-grade lymphoma, it could be one of the important differential diagnoses for liver tumors.

Poster Group 16: HCC Poster Session 3
HP3-1 10113

Long-Term Clinical Course of Hepatocellular Carcinoma

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Background/Aims: Hepatocellular carcinoma (HCC) often recurs, requiring lifelong surveillance. We evaluated long-term survival, recurrence, and prognostic factors after curative therapy.
Methods: We retrospectively analyzed 454 patients who underwent initial curative treatment for HCC at our hospital between June 2007 and December 2024 (radiofrequency ablation n=346; resection n=108). Overall survival (OS) and recurrence were estimated by Kaplan-Meier, and multivariable Cox models assessed factors associated with OS and recurrence.
Results: Mean age was 72.6±9.4 years; 311 patients were male. Etiology was HBV (n=27), HCV (n=229), and non-B non-C (n=194). Mean tumor diameter was 3.1±2.2 cm and tumor number 1.2±0.6. OS was 64.1% at 5 years, 39.6% at 10 years, and 30.3% at 15 years. Recurrence was 65.8% at 5 years (local recurrence 20.3%), 81.2% at 10 years (26.0%), and 93.3% at 15 years (26.0%). Non-B non-C cases had lower 5-year OS (55.2% vs 70.6%, P<0.01) and higher 5-year recurrence (73.7% vs 61.1%, P<0.01). In multivariable analysis, M2BPGi >1.7 (HR 4.71, P<0.01), non-B non-C etiology (HR 3.52, P<0.01), and tumor diameter >2.5 cm (HR 2.01, P<0.05) predicted worse OS. AFP >8.2 (HR 1.82, P<0.01), male sex (HR 1.54, P<0.01), and non-surveillance-detected presentation (HR 1.39, P<0.05) predicted higher recurrence.
Conclusions: Long-term survival after curative therapy is achievable, but recurrence continues beyond 15 years, supporting lifelong surveillance. Non-B non-C HCC has poorer prognosis. M2BPGi may predict survival and AFP may predict recurrence.

HP3-2 10190

Chemotherapy for Advanced Hepatocellular Carcinoma at a Community Acute Care Hospital

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Background: The proportion of non-B, non-C hepatocellular carcinoma is increasing, necessitating liver cancer treatment not only in early stages but also for advanced disease.
Objective: To investigate the introduction of chemotherapy for hepatocellular carcinoma, particularly advanced hepatocellular carcinoma, in clinical practice at a community acute care hospital.
Methods: Twenty-two patients with hepatocellular carcinoma who were treated at our hospital and received chemotherapy between April 2018, and December 2025.
Results: Median age was 72 years (range: 58-89 years). Fifteen patients (68.1%) were male, and seven were female. Background conditions included hepatitis B in 2 cases, hepatitis C in 5 cases (including 2 with SVR), MASLD in 5 cases, MetALD in 6 cases, ALD in 2 cases, and AIH in 2 cases. Initial chemotherapy regimens comprised lenvatinib in 5 cases, atezolizumab + bevacizumab in 9 cases, and durvalumab + tremelimumab in 8 cases. Initial chemotherapy responses per RECIST were: CR 0, PR 5, SD 10, PD 7 (ORR 22.7%, DCR 68.1%). Among the 14 patients where chemotherapy change was considered post-initiation due to RECIST PD or adverse events, second-line chemotherapy was actually initiated in 5 (36%).
Limitation: Patient selection may be biased due to the presence of two specialized cancer centers in the local area.
Results: Multiple chemotherapy regimens were selected. Compared to studies evaluating individual chemotherapies, this study included patients with poor liver function and those classified as BCLC A (elderly patients with poor surgical prospects).

Poster Group 16: HCC Poster Session 3

HP3-3 10226

Treatment Modalities and Response Patterns in Hepatocellular Carcinoma: Real-World Data from a Turkish Cohort

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Background: The management of hepatocellular carcinoma (HCC) has evolved with the introduction of surgical, locoregional, and systemic treatment options. Real-world data are essential to understand treatment patterns and outcomes beyond clinical trial settings.
Methods: This retrospective observational study included patients diagnosed with HCC in Turkey between 2013 and 2023. Available data on treatment status, treatment modalities, and treatment response were analyzed descriptively.
Results: Among 438 patients, 263 (60.0 percent) were classified as treated, while 175 (40.0 percent) were untreated according to available records. Among treated patients (n=263), single-modality treatment was applied in 176 patients (66.9 percent). These included transarterial chemoembolization (TACE) alone in 57 patients (21.7 percent), liver transplantation alone in 43 (16.3 percent), radiofrequency ablation (RFA) alone in 33 (12.5 percent), surgical resection alone in 24 (9.1 percent), systemic therapy alone in 15 (5.7 percent), and transarterial radioembolization (TARE) alone in 4 patients (1.5 percent). Combination therapy was used in 87 patients (33.1 percent). Treatment response assessment demonstrated complete response in 160 patients (60.8 percent), stable disease in 64 (24.3 percent), progressive disease in 6 (2.3 percent), and partial response in 1 patient (0.4 percent). Response status was unavailable in 32 patients (12.2 percent).
Conclusion: In this real-world Turkish HCC cohort, most treated patients received single-modality therapies, while combination approaches were less frequently applied. Treatment responses varied substantially, reflecting the heterogeneity of HCC management in routine clinical practice and providing valuable insight into current treatment patterns and outcomes in Turkey.

HP3-4 10224

Clinical and Etiologic Characteristics of Hepatocellular Carcinoma in a Turkish Cohort

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Background: Hepatocellular carcinoma (HCC) is a leading cause of cancer-related mortality worldwide. National real-world data are essential to define disease characteristics and identify gaps in surveillance and early diagnosis.
Methods: This retrospective observational study included 438 patients diagnosed with HCC in Turkey between 2013 and 2023. Clinical and tumor-related data were obtained from institutional medical records and analyzed descriptively.
Results: Hepatitis B virus was the most common underlying etiology (61.6 percent, n=270), followed by metabolic dysfunction-associated steatotic liver disease (MASLD) (10.3 percent, n=45), hepatitis C virus (9.4 percent, n=41), metabolic dysfunction-associated alcohol-related liver disease (2.1 percent, n=9), autoimmune liver disease (1.1 percent, n=5), other causes (4.5 percent, n=20), and unknown etiology (11.0 percent, n=48). At diagnosis, BCLC stage was 0 in 18 patients (4.1 percent), stage A in 133 (30.4 percent), stage B in 110 (25.1 percent), stage C in 119 (27.2 percent), and stage D in 42 (9.6 percent). Child-Pugh class was A in 55.7 percent, B in 29.7 percent, and C in 14.4 percent of patients. During follow-up, 60.3 percent of patients died, with liver-related causes accounting for 52.5 percent of all deaths.
Conclusion: In this large Turkish HCC cohort, hepatitis B virus remained the leading etiology, while MASLD emerged as an important non-viral cause. The high proportion of patients diagnosed at intermediate or advanced stages highlights the need for improved surveillance strategies and earlier detection of HCC in Turkey.

Poster Group 16: HCC Poster Session 3
HP3-5 10180

Ectopic Retroperitoneal Hepatocellular Carcinoma Mimicking GIST with Portal Vein Tumour Thrombosis

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Background: Ectopic hepatocellular carcinoma (HCC) arising outside the liver parenchyma is extremely rare and frequently misdiagnosed. We report a case of retroperitoneal ectopic HCC presenting with portal hypertension, portal vein tumour thrombosis, and secondary hepatic involvement.
Methods: A 71-year-old man with diabetes and chronic kidney disease presented with anemia, abdominal discomfort, and upper gastrointestinal bleeding. Endoscopy demonstrated large oesophageal varices. Abdominal ultrasound and serial contrast-enhanced CT scans were performed. Ultrasound-guided biopsies were obtained from the retroperitoneal mass and a focal liver lesion, followed by histology and immunohistochemistry.
Results: Ultrasound revealed a large left retroperitoneal mass (14 x 11 cm), portal vein thrombosis, and small focal liver lesions. CT demonstrated a heterogeneously enhancing hypervascular retroperitoneal mass (11.7 x 12.5 x 14.3 cm), compressing the stomach, pancreas and left kidney, with splenic varices and a 1.9 cm segment VII liver lesion, initially interpreted as a gastrointestinal stromal tumor. Follow-up CT showed tumour progression (12 x 13 x 16 cm), portal vein thrombosis consistent with tumour invasion, new hepatic lesions, splenomegaly, and ascites. Serum alpha-fetoprotein was normal despite AFP-positive tumour on immunohistochemistry. Histology of both the retroperitoneal mass and liver lesion showed trabecular and pseudoglandular hepatocellular morphology with HepPar-1 and AFP positivity and CK7/CK20 negativity, confirming hepatocellular carcinoma with hepatic metastasis.
Conclusions: This case represents a rare ectopic retroperitoneal hepatocellular carcinoma with portal vein tumour invasion and secondary liver involvement, masquerading as GIST on imaging. Recognition of this entity and confirmation with immunohistochemistry are essential for accurate diagnosis and appropriate oncologic management.

Poster Group 17: Radiology Poster Session 1

RP1-1 10024

Diversity of Imaging Features in Intrahepatic Mass-forming Cholangiocarcinoma Across Different Background Liver Conditions

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Background / Aim: Intrahepatic mass-forming cholangiocarcinoma (IMCC) shows considerable radiologic heterogeneity, yet the influence of background liver condition such as normal liver (NL), chronic hepatitis (CH), or cirrhosis (LC), on its imaging phenotype remains unclear. This study aimed to evaluate whether IMCC imaging features vary according to underlying liver status.
Materials and Methods: Thirty-six pathologically confirmed IMCCs were retrospectively reviewed and classified by background liver condition (NL, n=12; CH, n=13; LC, n=11). Imaging assessments included CT, MRI, and FDG-PET (SUVmax), with additional evaluation of vascular and biliary involvement. Groupwise comparisons used nonparametric and $\chi 2$-based statistics.
Results: Across the three liver-background categories, no significant differences were observed in major imaging features, including enhancement pattern, delayed contrast characteristics, FDG uptake, capsular features, biliary or vascular involvement, hepatobiliary-phase signal abnormality, tumor size, or multiplicity. SUVmax tended to be higher in IMCCs arising in NL, but without statistical significance. Clinical variables were largely similar except for sex distribution. Initial management showed more frequent resection in CH and fewer in LC, reflecting hepatic reserve rather than imaging phenotype.
Conclusion: IMCC displays substantial imaging heterogeneity, but this variability does not differ meaningfully among NL, CH, and LC. These findings suggest that IMCC radiologic phenotype is determined predominantly by intrinsic tumor biology rather than underlying liver condition.

RP1-2 10030

Clinical Feasibility of Automated Image–Based Registration–Supported Ultrasound–CT Fusion and Its Patient-Dependent Limitations

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Background: Automated ultrasound–CT fusion has emerged as a promising technique to support lesion targeting in liver imaging, yet its realworld feasibility across operators and patient conditions remains insufficiently characterized. This study prospectively examined how well an automated registration system performs in daily practice, focusing on workflow reliability and anatomical factors influencing its stability.
Methods: Eighty four consecutive patients requiring liver ultrasound and recent contrast enhanced CT were evaluated. Three operators with different experience levels performed automated fusion using standardized 3D ultrasound sweeps. No manual correction was permitted. Fusion stability was assessed by comparing projected vascular landmarks with real–time ultrasound findings. Registration precision, completion rate, and procedure time were recorded. Patient characteristics potentially affecting system performance were analyzed using regression models.
Results: The automated workflow consistently produced usable fusion images in most examinations, with successful completion in over 85% of cases across operators. Although more experienced operators achieved finer alignment, the system allowed less-experienced users to generate diagnostically acceptable fusion in the majority of patients. Increased depth from skin to liver capsule emerged as the strongest limiting factor, showing a clear relationship with reduced registration stability. Other clinical variables demonstrated minimal influence on system performance.
Conclusion: Automated fusion substantially streamlines US–CT alignment and reduces operator dependence, making high quality fusion accessible to a broader range of clinicians. However, patient habitus, particularly increased superficial tissue thickness, remains a major barrier to optimal performance. Pre examination assessment of anatomical conditions may help identify cases requiring alternative approaches or manual adjustment.

Poster Group 17: Radiology Poster Session 1

RP1-3 10055

ADC Increase as a Biomarker of Tumor Shrinkage and PIVKA-II Decline after SBRT in Hepatocellular Carcinoma: A Prospective Study

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Aims: Stereotactic body radiotherapy (SBRT) achieves high local control in hepatocellular carcinoma (HCC), but response is usually evaluated by morphologic criteria. The apparent diffusion coefficient (ADC) from diffusion-weighted magnetic resonance imaging reflects necrosis and cellularity, while alpha-fetoprotein (AFP) and protein induced by vitamin K absence-II (PIVKA-II) capture biological activity. This prospective study examined relationships among ADC, biomarkers, and treatment responses after SBRT.

Methods: Nineteen patients with 29 HCC lesions received SBRT at 40 Gy in four fractions. MRI with ADC maps, AFP, PIVKA-II, and indocyanine green retention at 15 min (ICG15) were measured at baseline and 1, 3, and 6 months. Tumor response was assessed by modified Response Evaluation Criteria in Solid Tumors. Correlation analyses and logistic regression were performed.

Results: ADC increased significantly post-SBRT. Change in ADC significantly correlated with tumor shrinkage and PIVKA-II decline, but not with AFP. AFP showed no association with ADC, PIVKA-II, or size. Larger tumors required greater planning target volumes, which were linked to ICG15 elevation, suggesting reduced hepatic reserve. Logistic regression identified ICG15 change at 3 months as an independent predictor of complete response (CR; odds ratio 0.93, $p = 0.016$). Local control was high with CR in 3/29, 15/29, and 25/29 lesions at 1, 3, and 6 months, respectively. No grade >2 toxicity or radiation-induced liver disease occurred.

Conclusions: ADC elevation paralleled tumor shrinkage and PIVKA-II decline, supporting their combined utility as early biomarkers of SBRT response. AFP was uninformative, while ICG15 reflected irradiated volume rather than tumor control.

RP1-4 10086

Predictors of Compensatory Hepatic Hypertrophy following Carbon Ion Radiotherapy in Hepatocellular Carcinoma and its Association with Long-term Clinical Outcomes

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Background: This study aimed to investigate predictors of compensatory hepatic hypertrophy and their association with prognosis in patients undergoing carbon ion radiotherapy (CIRT).

Methods: In this retrospective analysis, we included 94 patients with hepatocellular carcinoma (HCC) who received CIRT at Gunma University between November 2010 and June 2020. Significant compensatory hypertrophy was defined as an increase of more than 50 cm3 in the hepatic lateral segment volume at 3 months after CIRT.

Results: The median age of the patients was 76.5 years (IQR, 69.0-83.0), and 63 (67.0%) were male. The median volume of the lateral segment was 254 cm3 (IQR, 183-354), and the median clinical target volume (CTV) was 72.52 cm3 (IQR, 33.69-148.75). An increase in volume after CIRT was observed in 74 (78.7%) patients, whereas a decrease was noted in 20 (21.3%). Significant compensatory hypertrophy was observed in 27 (28.7%) patients. Patients with significant compensatory hypertrophy had larger tumor diameters and CTV values than those without hypertrophy ($p = 0.03$ and $p = 0.01$, respectively). The median overall survival was 87.3 months in patients with significant compensatory hypertrophy and 88.8 months in those without, with no significant difference between the groups ($p = 0.5$). In contrast, patients without worsening ALBI score had significantly better survival than those with worsening ALBI score ($p = 0.004$).

Conclusions: Compensatory hypertrophy was frequently observed after CIRT in HCC patients but was not associated with prognosis. Preservation of liver function appears to be important for achieving a favorable prognosis.

Poster Group 18: Radiology Poster Session 2

RP2-1 10009

The Roll of Cyber-knife Treatment on Advanced Hepatocellular Carcinoma

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Background: CyberKnife (CK) is a form of stereotactic body radiation therapy that offers high local control, particularly for small sized hepatocellular carcinoma (HCC). The purpose of this study was to examine the prognosis of patients with advanced HCC who received systemic drug therapy and subsequently had CK added to their treatment regimen.
Methods: We retrospectively analyzed 253 patients with advanced HCC who started systemic drug therapy between July 2012 and June 2024. Among these patients, 34 received CK as an additional treatment, while 219 did not. The baseline characteristics of both groups were balanced using propensity score matching. The primary endpoint was cumulative survival rate, and we also evaluated factors affecting survival.
Results: After propensity score matching, there were 25 patients in each group, and no significant difference in patient characteristics was observed. The median cumulative survival was 5.7 years for the CK group and 2.2 years for the control group as median with statistically significant difference (P = 0.018). Multivariate analysis showed that the addition of CK was a significant factor contributing to survival (HR 0.41, P = 0.02). All patients had other lesions present at the time of CK administration. CK was performed on a total of 51 tumor nodules, with a 100% local control rate.
Conclusion: In patients with advanced HCC who are candidates for systemic drug therapy, the addition of CK is considered a safe and effective treatment for achieving better local control and prognosis.

RP2-2 10052

Efficacy and Safety of Stereotactic Body Radiation Therapy for Hepatocellular Carcinoma in BCLC Stage A

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Background/Aims: We evaluated the efficacy and safety of stereotactic body radiation therapy (SBRT) for hepatocellular carcinoma (HCC) patients who were ineligible for hepatic resection or ablation due to comorbidities or poor general condition.
Methods: Between April 2020 and June 2024, 17 patients (BCLC Stage A; single tumor or ≤ 3 tumors, ≤ 3 cm) out of 44 SBRT recipients were retrospectively analyzed. Endpoints included local control rate (LCR), overall survival (OS), and changes in liver function.
Results: The median age was 77 years (51-93). Reasons for SBRT included poor performance status (PS) (n=5), comorbidities (n=5), difficulty in RFA (n=3), TACE refractoriness (n=2), and patient preference (n=2). The median dose was 60 Gy in 10 fractions. The median local control period was 22 months, with 1-, 2-, and 3-year LCRs of 100%, 59%, and 44%, respectively. The median OS was 28 months, with 1-, 2-, and 3-year OS rates of 88%, 81%, and 81%, respectively. No significant deterioration in ALBI scores was observed at 1, 3, or 6 months post-treatment. LCR tended to be higher in patients with tumors ≤ 2 cm (BCLC stage 0) compared to those > 2 cm.
Conclusions: SBRT provided favorable local control without significant decline in liver function, even though over half of the patients had poor PS or comorbidities. SBRT is a viable treatment option for HCC patients ineligible for standard local therapies, including high-risk RFA or TACE-refractory cases.

Poster Group 18: Radiology Poster Session 2

RP2-3 10059

Stereotactic Body Radiation Therapy for Intrahepatic Lesions of Hepatocellular Carcinoma

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Background: Stereotactic body radiation therapy (SBRT) is administered for intrahepatic hepatocellular carcinoma (HCC) treatment. We investigated the safety and efficacy of SBRT for intrahepatic HCC.
Methods: Subjects were patients who underwent SBRT (CyberKnife®) for intrahepatic HCC between April 2014 and September 2025. Background data and tumor/treatment status were collected. We also examined the safety of this treatment.
Results: We treated 114 cases. There were 87 males and 27 females, with a median age of 78 years (range 44-90 years). The etiologies were HCV in 66 cases, HBV in 13 cases, Non-viral in 35 cases. Child-Pugh classification was A in 96 cases, B in 15 cases, and C in 3 cases. BCLC stage was early in 5 cases, intermediate in 27 cases, advanced in 79 cases, and terminal in 3 cases. The median tumor diameter was 26 mm (range 8-56 mm). The number of stereotactic radiotherapy sessions ranged from 3 to 10 (median 5 sessions), and the median radiation dose was 40 Gy (range 25-75 Gy). Among the 84 cases where local treatment response could be assessed, there were 55 complete responses (CR), 21 partial responses (PR), 6 stable diseases (SD), and 2 progressive diseases (PD). Pre-treatment and post-treatment (1, 3, 12 months) liver reserve function markers were: albumin 3.6±0.5, 3.6±1.9, 3.7±1.9, 3.7±1.8; total bilirubin 1.0±0.7, 1.0±0.4, 0.9±0.4, 1.0±0.5; and PT% was 89±15, 88±14, 87±14, and 91±12, respectively.
Conclusion: SBRT for intrahepatic HCC appears to be a safe and effective treatment.

RP2-4 10085

Case Study of Advanced Hepatocellular Carcinoma Treated with Combined Radiation Therapy and Chemotherapy

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Background and Purpose: While there is hope for the efficacy of combining chemotherapy with local therapy, this study aimed to examine the clinical characteristics of cases treated with chemotherapy and stereotactic radiotherapy as the local therapy.
Methods: We investigated the clinical course of cases with advanced hepatocellular carcinoma that underwent both stereotactic radiotherapy and chemotherapy during their treatment course. Cases undergoing radiotherapy between 2018 and 2024 were selected if they also received chemotherapy. Radiotherapy was performed using stereotactic radiosurgery (CyberKnife) with gold markers placed where necessary. Safety and efficacy were evaluated for cases receiving both treatments.
Results: Eleven cases received combined radiotherapy and chemotherapy during the study period. There were 1 female and 10 male patients, with a median age of 74 years (range 57-83 years). The first-line drugs used were lenvatinib in 6 cases and atezolizumab + bevacizumab in 5 cases. The median observation period was 24 months (range 1-77 months). No specific adverse effects likely attributable to the combination of radiation and chemotherapy were identified within the scope of this study.
Discussion: This study found no specific safety or efficacy issues with the combination of radiation therapy and chemotherapy. Future studies should evaluate the safety and efficacy of radiation therapy initiated after chemotherapy.
Conclusion: Radiation therapy, when used in combination with chemotherapy, may be considered as an option among local therapies.

Poster Group 18: Radiology Poster Session 2
RP2-5　10114

Treatment Outcomes of B-RTO and Subsequent Changes in Hepatic Functional Reserve

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Background/Aim: Balloon-occluded retrograde transvenous obliteration (B-RTO) treats gastric varices and portosystemic-shunt-related hepatic encephalopathy. We evaluated outcomes at our institution and changes in hepatic reserve.
Methods: From May 2013 to June 2025, 33 cirrhotic patients underwent B-RTO; 26 with follow-up were analyzed. B-RTO was performed via the right femoral vein with collateral management by stepwise injection and/or coil embolization, followed by 5% ethanolamine oleate iopamidol (EOI) and repeat venography the next day. Response was assessed by endoscopy/CT. Hepatic reserve was assessed by ALBI score at baseline and 6 months.
Results: Median age was 65 years (48-88); 13 were male. Indications were gastric varices (n=19) and hepatic encephalopathy (n=7). Technical success was 92.3%, and all encephalopathy patients improved clinically. Serum albumin increased from 3.273 to 3.577 g/dL (P=0.008) and ALBI improved from -1.972 to -2.223 (P=0.014); 19/26 (73%) showed improved reserve. Esophageal varices worsened in 17 patients; 16 required endoscopic injection sclerotherapy. New/worsening ascites occurred in 5 patients. Procedure-related adverse events included retroperitoneal hemorrhage from left renal vein injury (n=2) and retroperitoneal abscess due to coil infection (n=1).
Conclusion: B-RTO provided favorable clinical outcomes and was associated with improved hepatic reserve, but frequent variceal exacerbation and ascites require careful surveillance.

Poster Group 19: Surgical Poster Session 1

SP1-1 10040

Evaluation of Stepwise Indocyanine Green Dosing for Hepatic Segment Visualization in a Mouse Model

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Background: Accurate identification of the resection area is essential for safe hepatectomy for malignant liver tumors. When performing subsegmentectomy, a single glissonean pedicle ligation combined with a single intraoperative indocyanine green (ICG) injection may not provide a sufficiently clear demarcation line. Stepwise ICG administration during progressive vascular ligation could offer more precise segmental or subsegmental identification. Therefore, we conducted a mouse study to assess the relationship between ICG dose and fluorescence intensity and to examine the feasibility of sequential segmental visualization.
Method: ICG was administered in 0.25 μg increments every 2 minutes up to a total dose of 4.5 μg, and the fluorescence intensity of liver was analyzed in vivo. In a separate group of mice, single doses of 0.5, 1, 2, 4, 10, 20, or 200 μg were administered, and fluorescence intensities were compared. In addition, the four hepatic lobes were sequentially ligated, followed by stepwise ICG administration (0.5, 1, 2, 4 μg), to evaluate interlobar fluorescence contrast.
Result: In incremental dosing within a single mouse, fluorescence intensity increased linearly with the administered dose ($R^2 = 0.94$). In the single-dose comparison across separate mice, fluorescence intensity increased proportionally from 0.5 to 4 μg ($p<0.0001$). However, when doses exceeded 10 μg, hepatic fluorescence reached saturation, and strong fluorescence signals were also observed in extrahepatic tissues. In the sequential-ligation experiment, stepwise ICG administration allowed clear delineation of all four hepatic lobes under fluorescence imaging.
Conclusion: Multiple dose ICG administrations may enhance intraoperative segmental demarcation.

SP1-2 10082

Development of Ultra-Fine 3D Images of Intrahepatic Glissonean Structure

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Background: We generally decide the hepatic resection plane based on demarcation lines and main branches of the hepatic veins and portal veins, which is usually planar.In recent years, the laparoscopic magnificated view has revealed the true anatomical boundaries exhibit complex shapes and deviate from planar anatomical boundaries, which can lead to some complications. We will examine the method of morphologically observing the Glissonean terminal branches and the spatial relationship with the hepatic vein and construct 3D data.
Methods: 1. Inject stained Silicone into vessel systems. Thin sections of these specimens are prepared to construct pathological images.2. Make the liver parenchyma transparent using a clearing reagent. The processed sample is observed using a light sheet microscope.We will reconstruct 3D data from these images using image analysis software.
Result: 1. Pathological images were created using goat liver specimens. The images allow observation of Glissonean 's capsules and their spatial relationship. 3D data is being constructed from the image data, which conditions are being evaluated.2. 2D images were created and observed using light-sheet microscopy. This image can show some parts of the vascular structure which can be identified. Processing conditions are being evaluated to observe the entire specimen's vascular.
Conclusion: Current research data indicates the boundaries of the Glissonean end are complex and not planar. Detailed planar images have been successfully created, and we consider this a significant achievement that will lead to the construction of 3D images in the future.

Poster Group 19: Surgical Poster Session 1

SP1-3 10036

Routine Use of Intravenous Acetaminophen Safely Enhances Pain Control After Minimally Invasive Hepatectomies

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Background: Effective postoperative pain control is essential after minimally invasive hepatectomy (MIH) to enhance recovery. Multimodal analgesia is widely used to reduce opioid consumption and related adverse effects. Acetaminophen is commonly included in such regimens; however, its safety and efficacy following MIH remain unclear because of hepatic metabolism. This study evaluated the safety and analgesic efficacy of routine intravenous acetaminophen administration after MIH.
Methods: We retrospectively analyzed 50 patients who underwent MIH. Patients were allocated to either an opioid-alone cohort (Cohort O) or an opioid plus routine intravenous acetaminophen cohort (Cohort A). Postoperative pain was assessed using the numerical rating scale (NRS). Analgesic efficacy was evaluated based on NRS scores, frequency and total dose of rescue opioid use, and incidence of postoperative nausea and vomiting (PONV). Safety was assessed by postoperative hepatic function, focusing on prolonged transaminase elevation.
Results: No significant differences were observed between the cohorts in postoperative hepatic or renal function or systemic inflammatory markers. Cohort A demonstrated significantly lower NRS scores on both POD1 and POD2 compared with Cohort O. Almost all patients in Cohort A required no rescue opioid analgesia, resulting in a significantly lower median number of rescue doses (6 vs. 0, $p = 0.0017$). Even among patients in whom opioid doses were reduced due to PONV, Cohort A maintained significantly lower pain scores.
Conclusions: Multimodal analgesia comprising routine intravenous acetaminophen administration could be safe and effective after MIH, without adverse effects regarding hepatic function.

SP1-4 10048

A Predictive Nomogram for Postoperative Delirium after Hepatectomy for Hepatocellular Carcinoma: Development, Validation, and Clinical Utility Analysis

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Background: Postoperative delirium is a common complication after hepatectomy, particularly in older patients and those with multiple comorbidities. However, risk factors for postoperative delirium after hepatectomy for hepatocellular carcinoma (HCC) are not fully elucidated, and no simple risk prediction tool is available.
Methods: We retrospectively analyzed 397 patients who underwent hepatectomy for HCC between 2018 and 2023. Patients were randomly divided into a training group ($n = 272$) and a validation group ($n = 125$). Postoperative delirium was diagnosed using the Confusion Assessment Method. Univariable and multivariable logistic regression analyses were performed to identify independent risk factors. A nomogram was developed in the training group and validated in the validation group. Model performance was evaluated using the area under the receiver operating characteristic curve (AUC), calibration plots, and decision curve analysis.
Results: Postoperative delirium occurred in 78 patients (19.5%). Multivariable analysis identified age over 75 years (OR 3.734, 95% CI 1.917-7.353), diabetes mellitus (OR 2.225, 95% CI 1.130-4.393), and preoperative sleeping pill consumption (OR 3.909, 95% CI 1.844-8.275) as independent risk factors, whereas laparoscopic hepatectomy was associated with a lower risk of delirium (OR 0.233, 95% CI 0.050-0.760). The nomogram showed acceptable discrimination with AUCs of 0.749 in the training group and 0.768 in the validation group. Calibration was good in both groups, and decision curve analysis demonstrated clinical utility.
Conclusions: We developed and validated a simple nomogram to predict postoperative delirium after hepatectomy for HCC. This model may help identify high-risk patients and support targeted delirium prevention strategies.

Poster Group 19: Surgical Poster Session 1
SP1-5 10034

Redox-Active Compound Accelerates Liver Regeneration and Attenuates Acute Injury in Mouse Models: Relevance to Liver Tumor Resection

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Background: Preserving hepatic regenerative capacity while limiting hepatocellular injury is critical in the peri-resection management of liver tumors. 6-O-trans-feruloyl catalpol (6FC), a redox-active iridoid glycoside from Catalpa ovata, was evaluated for dual pro-regenerative and hepatoprotective activities in mice.
Methods: C57BL/6J mice were orally pretreated with 6FC and subjected to either 70% partial hepatectomy (PHx) or an acute ethanol challenge. Regeneration was assessed by liver-to-body weight ratio and representative proliferation/cell-cycle markers. Acute injury was evaluated by serum aminotransferases (ALT/AST) and liver histology (H&E).
Results: In the PHx model, 6FC enhanced early liver regrowth and increased proliferation-associated markers, consistent with engagement of redox-sensitive signaling that supports hepatocyte priming and recovery. In an additional acute ethanol-induced liver injury model, 6FC pretreatment attenuated hepatocellular damage, evidenced by reduced ALT/AST elevations and improved hepatic architecture on H&E versus vehicle controls.
Conclusions: 6FC supports liver regeneration and mitigates acute toxic injury in mouse models, supporting translational relevance as a peri-resection strategy to preserve functional hepatic reserve after liver tumor resection.

Poster Group 20: Surgical Poster Session 2

SP2-1 10072

Conversion Surgery for Hepatocellular Carcinoma following Multidisciplinary Treatment

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Recent advances in systemic therapy and locoregional treatments for hepatocellular carcinoma (HCC) have expanded the feasibility of conversion surgery. A middle-aged man with alcohol-related liver disease was referred in February 2023 for multifocal HCC, with a maximum tumor diameter of 5 cm. Tumor markers were elevated (AFP 1281 ng/mL, AFP-L3 26.5%, DCP 649 mAU/mL), while hepatic functional reserve was preserved (Child-Pugh class A, 5 points). Transarterial chemoembolization (TACE) was performed in March 2023, followed by atezolizumab plus bevacizumab from April 2023. Additional locoregional treatments, including stereotactic radiotherapy and radiofrequency ablation, were applied for residual lesions. Tumor markers temporarily improved but rose again by June 2024, accompanied by persistent vascular enhancement on contrast-enhanced ultrasonography (CEUS), prompting additional TACE. Although atezolizumab plus bevacizumab was continued, tumor markers increased again by June 2025, and CEUS continued to demonstrate vascular enhancement. As other lesions were well controlled and liver function remained stable, left hepatectomy was performed. Pathological examination revealed moderately differentiated HCC with extensive treatment-induced fibrosis and only a small residual viable tumor component. Postoperatively, tumor markers improved (AFP 4.3 ng/mL, AFP-L3 0.5%, DCP 44 mAU/mL), systemic therapy was discontinued, and the patient entered a drug-off status. This case demonstrates that effective tumor control with atezolizumab plus bevacizumab in combination with locoregional therapies can enable conversion surgery in advanced HCC. Contrast-enhanced ultrasonography is useful for assessing treatment response in hepatocellular carcinoma; however, after immune checkpoint inhibitor-based therapy, persistent enhancement may not reliably reflect viable tumor, warranting cautious interpretation.

SP2-2 10175

A Case of Conversion Surgery for a Huge Unresectable Hepatocellular Carcinoma with a Pathological Complete Response after Short-term Immune Checkpoint Inhibitor Therapy Ceased by Liver Dysfunction

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Background: Reports of conversion surgery following systemic drug therapy for unresectable hepatocellular carcinoma (HCC) remain scarce. We herein report a case of conversion surgery performed after only 2-cycle immune checkpoint inhibitor (ICI) therapy for unresectable HCC.
Case: A 70-year-old man presented to a local hospital with weight loss and epigastric pain. Imaging examinations revealed a huge HCC occupying the right liver. His background liver was cirrhotic due to alcohol abuse and past hepatitis B virus (HBV) infection. No extrahepatic metastases were present, and he was referred to our department. The tumor was technically resectable by right hepatectomy. However, the ICG-R15 value was 26.2%, which indicated low hepatic reserve, so it was diagnosed to be unresectable. Therefore, a systemic ICI therapy using Atezolizumab + Bevacizumab was started. Due to immune-related adverse events (irAE) with liver dysfunction and rash, only two cycles of atezolizumab + bevacizumab were administered. Two months after start of chemotherapy, follow-up CT revealed that the tumor shrank, and also the liver function was not changed in ICG-R15 value, so S8 segmentectomy was carried out. Pathological examination confirmed complete response (pCR). Six months after the surgery, no recurrence or metastasis are detected without adjuvant chemotherapy.
Discussion: The 2025 HCC guidelines in Japan suggested that local therapy after systemic drug therapy was considered include TACE and RFA, but did not suggest surgery after sufficient response. Conversion surgery after ICI therapy for unresectable HCC can be done with a pathological complete response even after short-term ICI therapy ceased by liver dysfunction.

Poster Group 20: Surgical Poster Session 2

SP2-3 10195

A Case of Advanced Hepatocellular Carcinoma Responded to Durvalumab Monotherapy, Leading to Conversion Surgery

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We report a patient with advanced hepatocellular carcinoma (HCC) in whom durvalumabmonotherapy was effective, leading to conversion hepatectomy. A 70's old man visited ourhospital with appetite loss. Laboratory findings revealed remarkably high inflammation andhypalbuminemia. CT revealed an 80 mm hypovascular mass in segment S5/4 of the liverwith a 6 mm nodule in the right lung. Needle biopsy led to the diagnosis of CK19-positiveHCC. Durvalumab was initiated due to a performance status of 2 and Child-Pugh B.Subsequently, there was rapid normalization of the inflammatory reaction, improvement inthe performance status, and the lung nodule became indistinct. A total of 14 courses ofdurvalumab were administered, and the tumor shrank from 78 mm to 42 mm. Since thetumor was adjacent to the posterior portal branch, treatment was switched to atezolizumabplus bevacizumab. After one course of atezolizumab plus bevacizumab, we continued withseven courses of atezolizumab monotherapy due to proteinuria. The tumor diameter wasreduced to 36 mm, and needle biopsy showed partial viability of tumor cells. Although aright anterior segmentectomy was planned, a right hepatectomy was ultimately performed. Pathological examination revealed a pathological complete response.

SP2-4 10104

A Case of Retroperitoneal Metastasis of Hepatocellular Carcinoma Resected Laparoscopically

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An 83-year-old woman with a history of chronic hepatitis C was treated for hepatocellular carcinoma (HCC). In 2015, radiofrequency ablation was performed for an HCC lesion in liver segment 3. She achieved a sustained virological response after treatment with direct-acting antivirals in 2016. Subsequently, she experienced multiple intrahepatic recurrences: laparoscopic subsegmentectomy of segment 8 in 2019 and laparoscopic partial resection of segments 4 and 8 in 2023 for recurrence at the resection margin. In 2025, elevation of serum alpha-fetoprotein (AFP) and AFP-L3 levels was observed. Imaging studies revealed a growing 10-mm tumor protruding caudally from liver segment 6, and recurrent HCC was suspected. Laparoscopic surgery was performed in December 2025. Intraoperatively, the tumor was found to have no continuity with the liver and was identified as a retroperitoneal tumor. As no other lesions were detected and the tumor was solitary, laparoscopic resection of the retroperitoneal tumor was performed. Histopathological examination confirmed metastatic hepatocellular carcinoma. Retroperitoneal metastasis of HCC is rare. Proposed metastatic pathways include hematogenous spread, lymphatic spread, and peritoneal dissemination; however, there is no consensus. In this case, macroscopic findings suggested that peritoneal dissemination was unlikely. We report this rare case with a brief review of the literature.

Poster Group 20: Surgical Poster Session 2
SP2-5 10193

Multidisciplinary Management for Recurrence after Liver Resection for Hepatocellular Carcinoma

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To clarify the therapeutic efficacy of transarterial chemoembolization (TACE) and systemic therapies for intrahepatic recurrence after liver resection for hepatocellular carcinoma (HCC). A total of 435 patients underwent TACE or systemic therapy for intrahepatic recurrence after liver resection for HCC at our institution. Patients were classified into four groups: TACE alone (n = 277), TACE plus sorafenib (n = 61), TACE plus lenvatinib (n = 58), and TACE plus atezolizumab plus bevacizumab (n = 39). Univariate analysis was performed using the Mann-Whitney U test and the chi-squared test. Overall survival (OS) was estimated using the Kaplan-Meier method and compared using the log-rank test. Prognostic factors were identified using Cox proportional hazards models. Significant differences were observed in hepatitis virus infection (p = 0.01) and macroscopic vascular invasion (p = 0.02). OS was significantly better in the sorafenib group than in the TACE alone group, and significantly better in the lenvatinib and atezolizumab plus bevacizumab groups than in the sorafenib group (p less than 0.001). No significant difference was observed between the lenvatinib and atezolizumab plus bevacizumab groups (p = 0.18). In the Cox proportional hazards model, multivariate analysis identified tumor burden at treatment initiation as a significant prognostic factor. Regarding treatment modality, significant differences were observed among all comparisons except between the lenvatinib and atezolizumab plus bevacizumab groups (p = 0.22). Multimodal therapy combining TACE with lenvatinib or atezolizumab plus bevacizumab improves prognosis in patients with intrahepatic recurrence after liver resection for HCC.

Poster Group 21: Surgical Poster Session 3

SP3-1 10080

Characteristics of HCV-Related Hepatocellular Carcinoma Patients Achieving Long-Term Cancer-Free Survival after Repeated Hepatectomy in SVR Status

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Eradication of HCV reduces the incidence of HCC; however, HCC can still develop after achieving an SVR. Among them, some patients achieve relatively long-term cancer-free survival after repeated hepatectomy. This study aimed to clarify the characteristics of such patients. Between 2013 and 2022, 105 patients underwent hepatectomy for HCV-related HCC at our institution. Among them, 17 patients who subsequently underwent repeat hepatectomy for recurrence were retrospectively analyzed. Factors potentially associated with cancer-free survival after repeat hepatectomy were evaluated, including SVR status, time to first recurrence, hepatic functional reserve, primary tumor characteristics, recurrence pattern (genomic IM vs. MC), and degree of liver fibrosis. The cohort consisted of 11 men and 6 women. Fifteen patients had achieved SVR before or after the initial hepatectomy, while two remained untreated. Among the 15 SVR patients, 7 achieved a cancer-free status for more than 2 years after the final hepatectomy. In SVR patients, the interval to first recurrence was not significantly associated with cancer-free survival. However, a tendency toward longer cancer-free survival was observed in patients without vp at initial resection, those with MC-type recurrence, preserved liver function, and mild liver fibrosis (F1-2). Notably, one exceptional patient (F1) classified as IM in all four consecutive resected specimens also achieved more than 3 years of cancer-free survival. In conclusion, among patients with HCV-related HCC after SVR, aggressive repeat hepatectomy for recurrent disease can lead to long-term cancer-free survival, particularly in those with preserved liver function, mild fibrosis, absence of portal vein invasion, and MC-type recurrence.

SP3-2 10149

Cure by Liver Transplantation of HCV-related Decompensated Cirrhosis with Hepatocellular Carcinoma Developing 14 Years after IFN-induced SVR

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Background/Aim: Although SVR can improve liver function even in HCV-related decompensated cirrhosis, long-term outcomes remain unclear. We report a rare patient in whom general status was relatively stable for 14 years after IFN induced SVR, who then developed HCC, but ultimately underwent curative liver transplantation.

Case: A 54 year old man, given a blood transfusion at age 3, was diagnosed with early liver cirrhosis (Child-Pugh A) at age 26. His HCV-RNA was 7×10^6 copies/mL, genotype 1b. Viral clearance failed with conventional IFN therapy. At age 35, he progressed to Child-Pugh B, and low dose intermittent Peg-IFNα2a was administered for 34 months until treatment discontinuation due to refractory ascites (Child-Pugh C). Although ascites persisted for 20 months, viral clearance was achieved upon resolution, and SVR was subsequently maintained. Fourteen years after completing SVR, CT revealed a 32 mm multinodular confluent HCC in segment 3, prompting hospitalization. Due to impaired hepatic reserve and severe portal hypertension (Child-Pugh 10C, MELD 12), curative local therapy was not feasible. He underwent bridging TACE twice while awaiting deceased-donor liver transplantation. After 1.5 years, successful transplantation cured his liver disease.

Conclusion: While clinical stability may be maintained for more than a decade after IFN-induced SVR, once HCC develops liver transplantation is the only curative option. In Japan, with limited access to liver transplantation, achieving favorable long term outcomes in patients with decompensated cirrhosis requires meticulously managing hepatic fibrosis and portal hypertension even after SVR.

Poster Group 21: Surgical Poster Session 3

SP3-3 10206

ALPPS followed by Salvage LDLT for Recurrent HCC

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Background: Hepatocellular carcinoma (HCC) associated with chronic hepatitis B and cirrhosis remains a therapeutic challenge, particularly in patients with multifocal disease and insufficient future liver remnant (FLR). Associating Liver Partition and Portal Vein Ligation for Staged Hepatectomy (ALPPS) enables rapid liver hypertrophy, while liver transplantation remains the definitive treatment for selected cases with recurrence.
Case Presentation: A 58 year old male with hepatitis B related cirrhosis was diagnosed with multifocal HCC involving liver segments 6, 7, and 8. Preoperative volumetry revealed an FLR of 31.8%. Laparoscopic ALPPS stage 1 was performed, resulting in rapid hypertrophy with FLR increasing to 54.9% within 14 days. ALPPS stage 2 was subsequently completed without complications. Histopathology demonstrated a well-differentiated T3N0 HCC without portal vein thrombosis, lymphovascular, or perineural invasion. The patient was discharged uneventfully.In June 2025, follow-up imaging revealed multiple intrahepatic recurrent lesions without extrahepatic involvement. Liver function was preserved (Child-Pugh A, MELD-Na 9), and there were no signs of portal hypertension. The patient was therefore evaluated for transplantation and successfully underwent living donor liver transplantation in July 2025. He was discharged on postoperative day 8 without complications.
Conclusion: This case illustrates that ALPPS can be an effective strategy to achieve curative resection in advanced HCC with inadequate FLR. Furthermore, living donor liver transplantation represents a feasible and effective salvage treatment for carefully selected patients with recurrent HCC following complex hepatic surgery.

SP3-4 10215

Immunosuppressive Medication Non-adherence in Liver Transplantation Adult Recipients in Vietnam

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Background: Long-term graft survival after liver transplantation depends heavily on strict adherence to immunosuppressive therapy. Non-adherence remains a major cause of graft dysfunction, rejection, and unplanned hospitalization, yet data from Southeast Asia, particularly Vietnam, are limited.
Methods: A cross-sectional study was conducted among 136 adult liver transplant recipients followed at the Hepato-Biliary and Pancreatic Surgery Department, 108 Military Central Hospital (2017-2025). Adherence was assessed using the validated BAASIS questionnaire. Clinical, demographic, and psychosocial factors were analyzed for associations with non-adherence.
Results: Mean follow-up after transplantation was 25.7 +/- 17.4 months; 83 percent were male and 98.1 percent received living-donor grafts. The overall non-adherence rate was 14.6 percent. Significant determinants of poor adherence included transplant indication ($p = 0.027$), lack of encouragement or feedback from healthcare staff during follow-up ($p = 0.038$), and dissatisfaction with immunosuppressant therapy ($p = 0.001$). Patients with acute liver failure demonstrated the highest adherence rates.
Conclusion: Immunosuppressive adherence among liver transplant recipients in Vietnam is relatively high, though gaps remain. Strengthening post-transplant counseling, structured follow-up communication, and patient-centered medication education could further reduce non-adherence. These findings highlight modifiable behavioral and healthcare-system factors and support the need for multidisciplinary interventions in low- and middle-income transplant settings.
Keywords: liver transplantation, adherence, immunosuppression, BAASIS, Vietnam

Poster Group 21: Surgical Poster Session 3
SP3-5　10023

A Resected Case of Gallbladder Carcinoma Difficult to Differentiate from Metastatic Gastric Cancer to the Gallbladder

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Background: Differentiating primary gallbladder carcinoma from metastatic gastric cancer to the gallbladder is often challenging, particularly when imaging findings are atypical. We report a case in which preoperative distinction was especially difficult.
Methods: We retrospectively reviewed the clinical course, imaging studies, surgical findings, and pathological examinations of an 85-year-old man previously treated with laparoscopic distal gastrectomy for advanced gastric cancer.
Results: A gallbladder polyp detected four years after gastrectomy enlarged from 13 mm to 19 mm. Contrast-enhanced CT and endoscopic ultrasonography demonstrated a broad-based fundal lesion with a capsule-like appearance, atypical for gallbladder carcinoma and suggesting possible metastatic gastric cancer. Due to interval growth and the inability to exclude malignancy, liver bed resection was performed. The postoperative course was uneventful, with discharge on day 5. Lymph node recurrence developed four months later, and chemotherapy with gemcitabine monotherapy was ineffective, leading to best supportive care. Pathology showed predominantly poorly differentiated adenocarcinoma resembling the prior gastric cancer; however, partial squamous differentiation and focal continuity with intramucosal epithelium supported a final diagnosis of gallbladder carcinoma with subserosal invasion.
Conclusion: This case highlights the diagnostic challenge of distinguishing atypical gallbladder carcinoma from metastatic gastric cancer based solely on imaging and underscores the importance of comprehensive pathological evaluation.

Poster Group 22: Local Therapy Poster Session

LTP-1 10155

Percutaneous Radiofrequency Ablation in Early-stage Hepatocellular Carcinoma

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Radiofrequency ablation (RFA) is a minimally invasive treatment widely performed for the treatment of liver neoplasms. Recently, resulting of long prognosis has made by ablation in the clinical practice. In Japan, JSH consensus statements and recommendations 2021, Resection and RFA are equally recommended as first-line therapy in patients of less than 3cm, 3 nodules HCC in the result of a head-to-head randomized controlled trial (SURF trial). We introduced adjustable RFA electrode needle (VIVARF system) which became usable from 2015 in order to improve therapeutic results of RFA. In 125 patients with liver cancer. The 5-year survival rate of RFA at our institution is 70%. Although local recurrence rate after curative RFA is as low as 6.0%, the intrahepatic distant metastasis is as high as 70% at 5 years. Complications were skin burned in 4.2% due to cause by needle damage from induction needle. We use a variety of techniques such as artificial pleural effusion, artificial ascites, under sedation to improve the effectiveness of our treatments. After the treatment, the prevention of intrahepatic distant recurrence by direct-acting antivirals (DAAs) is very important.

LTP-2 10035

EUS-Guided Ethanol Injection for Hepatocellular Carcinoma Inaccessible by Percutaneous Approach: A Successful Case of Local Tumor Control

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Background: Radiofrequency ablation (RFA) is a standard local therapy for early-stage hepatocellular carcinoma (HCC). However, deeply located lesions or those with poor percutaneous access, especially in patients with ascites, may increase procedural risk. In Japan, EUS-guided RFA is not approved; therefore, EUS-guided ethanol injection (EUS-EI) is an alternative technique in selected cases.
Case Presentation: A 66-year-old man with alcoholic liver cirrhosis had previously undergone RFA for a 2.0-cm HCC in segment 6. Follow-up EOB-MRI revealed a new 10-mm lesion in segment 1. Because the percutaneous route was technically difficult due to the deep location and moderate ascites, EUS-EI was chosen. After administration of tolvaptan to reduce ascites, a linear scanning ultrasound endoscope (GF-UCT260, Olympus) was used to visualize a 10-mm hypoechoic mass in segment 1 from the esophagogastric junction. A safe puncture line without intervening vessels was confirmed, and 6 mL of absolute ethanol was injected into the lesion. Post-procedural contrast imaging showed complete loss of enhancement, indicating successful local ablation. During 1.5 years of follow-up, no local recurrence or new HCC was observed.
Discussion and Conclusion: Although percutaneous ethanol injection therapy has generally shown higher local recurrence rates than RFA, several studies report comparable outcomes for tumors less than 2 cm. For tumors in anatomically challenging locations or in patients with ascites, EUS-guided ethanol injection may be a feasible and effective local therapy. This case highlights the utility of EUS-EI for achieving local tumor control when percutaneous ablation is not feasible.

Poster Group 22: Local Therapy Poster Session

LTP-3 10037

Efficacy and Safety of Stereotactic Body Radiation Therapy for Hepatocellular Carcinoma in the Caudate Lobe: A Comparative Study with Radiofrequency Ablation Authors

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Background: This study compared the efficacy and safety of stereotactic body radiation therapy (SBRT) and radiofrequency ablation (RFA) for hepatocellular carcinoma (HCC) located in the caudate lobe.
Methods: This retrospective study included 57 patients with caudate lobe HCC who underwent either RFA (n = 39) or SBRT (n = 18) at seven institutions in Japan between January 2016 and August 2025. Local tumor progression (LTP), distant recurrence, overall survival (OS), and changes in albumin bilirubin (ALBI) scores were analyzed. Propensity score matching (PSM) was performed to minimize baseline imbalances between the two groups.
Results: The median ages were 74 years in the RFA group and 75 years in the SBRT group; 28 (71.8%) and 12 (66.7%) patients were male, respectively. There were no significant differences in LTP and distant recurrence between the two groups in either the crude cohort (p = 0.856 and 0.622, respectively) or the PSM-matched cohort (p = 0.286 and 0.907, respectively). Although OS did not differ significantly in the crude cohort (p = 0.090), the RFA group demonstrated superior survival compared with the SBRT group in the PSM matched cohort (p = 0.031). No grade 3 or higher adverse events occurred in either group. However, ALBI scores worsened significantly in the SBRT group compared with the RFA group (p = 0.025).
Conclusions: SBRT achieved favorable local control with an acceptable safety profile. It may represent a valuable alternative for patients in whom RFA is technically challenging.

LTP-4 10181

A Propensity Score-Matched Comparison of Particle Therapy and Transarterial Chemoembolization for Hepatocellular Carcinoma

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Background: Particle therapy (PT), including proton and carbon-ion therapy, and transarterial chemoembolization (TACE) are established locoregional treatments for hepatocellular carcinoma (HCC); however, direct comparative evidence between these modalities remains limited. We compared outcomes between PT and TACE using propensity score matching (PSM).
Methods: We retrospectively analyzed 242 patients treated with PT and 135 patients treated with TACE as initial therapy for primary HCC between March 2012 and August 2021. Propensity score matching was performed using age, modified albumin-bilirubin (mALBI) grade, maximum tumor diameter, and des-gamma-carboxy prothrombin (DCP), which differed between the two groups at baseline. Overall survival (OS) and progression-free survival (PFS) were evaluated using the Kaplan-Meier method and compared by the log-rank test. Treatment subgroup interactions were explored using Cox proportional hazards models with interaction terms.
Results: After PSM, 84 patients were included in each group with well-balanced baseline characteristics. PFS was significantly longer in the PT group than in the TACE group (p = 0.024), whereas no significant difference in OS was observed (p = 0.670). For PFS, TACE was associated with more favorable outcomes than PT in patients with bilobar disease (p less than 0.001). In contrast, for OS, TACE showed a relative advantage over PT in patients with centrally located tumors (p = 0.024).
Conclusions: After PSM, PT and TACE achieved comparable OS, while PT provided superior PFS. Interaction analyses suggest that tumor distribution and tumor location may modify the relative efficacy of PT and TACE, supporting complementary roles of these modalities in the management of HCC.

Poster Group 22: Local Therapy Poster Session

LTP-5 10068

Exploring the efficacy of Systemic Inflammatory Markers in predicting outcomes post Transarterial Chemoembolization (c TACE & deb TACE)

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Background: Tumour inflammation is the driving force behind tumour progression in hepatocellular carcinoma. Various markers can predict connection between inflammatory response and tumour microenvironment. Systemic inflammatory markers like LMR ratio, SII index, can offer insight into the inflammatory milieu, which may predict the response to locoregional therapy.
Methods: This is an ambispective study done from January 2023 to March 2025 encompassing 43 patients with intermediate stage HCC, undergoing TACE (cTACE & debTACE) for tumour downstaging. Patients were evaluated for biochemical and inflammatory panel, serum AFP levels and imaging prior. Post TACE follow up imaging was done at one and three months to identify response using mRESICT criteria.
Results: Total 43 patients were included in the study. The mean age of the participants was 55.84 &plusmn 9.87 years consisting of 25.5% females and 74.4% males. The most common etiology was Hepatitis B, followed by MASLD & Hepatitis C. 27.9% patients underwent debTACE and 72.09% patients underwent cTACE. Higher SII (p= 0.041) and lower LMR (p= 0.024) were associated with a poor tumour response. The ROC analysis for the LMR predicted treatment outcomes in patients with HCC with a cut-off value of &gt 2.2[AUC- 0.892,(95% CI0.619 -0.976)] having better prognosis. AFP levels also correlated with the outcome to TACE (p=0.033) There was no significant difference in the outcome with debTACE as compared to cTACE.
Conclusion: Peripheral inflammatory markers can unveil the dynamics between the tumour biology, microenvironment and immune response, that can be incorporated prior to TACE, paving way for an enhanced therapeutic precision.

LTP-6 10033

Objective Response, Survival, and Downstaging After Yttrium-90 Radioembolization in Intermediate and Advanced Hepatocellular Carcinoma

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Background and Aims: Yttrium-90 (Y-90) transarterial radioembolization (TARE) is an established locoregional therapy for hepatocellular carcinoma (HCC), particularly in intermediate and advanced stages. In the contemporary oncology paradigm, objective tumor response and disease downstaging may translate into improved survival and eligibility for curative treatment. This study evaluated treatment response, overall survival, and downstaging outcomes following Y-90 TARE in patients with Barcelona Clinic Liver Cancer (BCLC) stage B and C HCC at a single tertiary center.
Methods: We retrospectively analyzed patients with BCLC stage B or C HCC who underwent Y-90 TARE as the sole HCC treatment between January 2019 and December 2025. Patients lacking adequate pre-treatment dynamic imaging, lost to follow-up, or diagnosed with non-HCC malignancies were excluded. Tumor response was assessed using modified RECIST (mRECIST) criteria. Overall survival was analyzed according to radiologic response and post-TARE surgical conversion.
Results: A total of 47 patients were included. Objective response was achieved in most patients, with complete response (CR) in 4.3%, partial response (PR) in 68.1%, stable disease (SD) in 10.6%, and progressive disease (PD) in 17.0%. Median overall survival differed significantly by response: 24.0 months for CR, 14.8 months for PR, 13.8 months for SD, and 3.8 months for PD (P&It;0.01). Downstaging to surgical resection after TARE was achieved in 14.9% of patients, all attaining CR.
Conclusions: Y-90 TARE yields high objective response rates and meaningful survival benefit in selected patients with intermediate and advanced HCC. Objective response and successful surgical downstaging are key determinants of favorable outcomes.

Poster Group 22: Local Therapy Poster Session
LTP-7 10186

Widespread Peritoneal Seeding after Popping Phenomenon during Microwave Ablation for Hepatocellular carcinoma: A Case Report

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Background: Artificial ascites–assisted percutaneous microwave ablation (MWA) for subcapsular hepatocellular carcinoma (HCC) is widely used, but peritoneal metastasis is a rare, serious complication; a popping phenomenon during ablation may contribute in addition to needle–tract seeding.
Case report: A 63-year-old man with hepatitis B–related chronic liver disease had HCC for 18 years and had undergone radiofrequency ablation 18 times. He underwent artificial ascites–assisted percutaneous MWA for a 35–mm posterior subcapsular HCC in segment III adjacent to the stomach. Artificial ascites was created using 1,500 mL of 5% dextrose, and MWA was performed with a single puncture (total ablation time, 13 minutes). A popping phenomenon occurred during ablation, but no apparent increase in echo-free space was observed. Postprocedural hypotension prompted contrast-enhanced CT, which revealed a hematoma in and around the ablation zone without active extravasation. At 3 months post–MWA, contrast–enhanced MRI revealed more than 10 new peritoneal nodules on the liver surface, the lesser omentum, and the gastric and splenic surfaces. Tumor markers were markedly elevated (AFP 112,840 ng/mL; PIVKA–II 1,278 AU/mL). Systemic therapy with atezolizumab plus bevacizumab was initiated. After 6 cycles (8 months after MWA), peritoneal lesions regressed and became radiologically undetectable on contrast–enhanced MRI, and tumor markers normalized. At 12 months after MWA, he remained in complete response per RECIST 1.1 while continuing therapy.
Conclusion: The temporal sequence is consistent with intraperitoneal tumor spillage due to the popping phenomenon, with artificial ascites potentially facilitating widespread distribution of tumor cells. Strategies to prevent popping phenomena are warranted.

Poster Group 23: Systemic Therapy Poster Session 1

STP1-1 10014

Superiority of ICI-Based Regimens Over TKIs in Advanced HCC: A Systematic Review and Meta-Analysis

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Background: Hepatocellular carcinoma (HCC) remains a leading cause of cancer-related mortality worldwide, with limited therapeutic success in advanced stages. Tyrosine kinase inhibitors (TKIs), such as sorafenib and lenvatinib, have long been standard first-line treatments; however, their modest survival benefits and considerable toxicity underscore the need for more effective alternatives. Immune checkpoint inhibitors (ICIs) have shown encouraging results, yet direct comparisons between ICI-based regimens and TKI monotherapies remain limited.
Methods: A systematic review and meta-analysis were conducted following PRISMA guidelines, with a protocol registered in PROSPERO (CRD420251000417). PubMed, Embase, and CENTRAL were searched for studies comparing ICI-based regimens with TKI monotherapies in patients with advanced or unresectable HCC. Both randomized controlled trials and high-quality observational studies reporting clinical outcomes – including overall survival (OS), progression-free survival (PFS), objective response rate (ORR), and disease control rate (DCR) – were included.
Results: Seventeen studies (RCTs and observational studies) comprising patients with advanced HCC were included. Compared with TKI monotherapies, ICI-based regimens significantly improved OS (HR = 0.76; 95% CI: 0.65 – 0.88; I&sup2 = 72%) and PFS (HR = 0.71; 95% CI: 0.62 – 0.81; I&sup2 = 70%). Furthermore, ICI-based therapies achieved higher ORR (RR = 1.58; 95% CI: 1.09 – 2.29) and DCR (RR = 1.10; 95% CI: 1.00 – 1.20). In terms of safety, ICI regimens were associated with fewer adverse events of any grade and grade 3&ndsh4 severity.
Conclusions: ICI-based therapies demonstrate superior efficacy and tolerability compared with TKI monotherapies in patients with advanced HCC, supporting their growing role as preferred first-line treatment options.

STP1-2 10088

Comparative Outcomes of Immunotherapy plus Transarterial Therapy versus Systemic Therapy Alone in Hepatocellular Carcinoma: A Systematic Review

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Introduction: Hepatocellular carcinoma (HCC) remains a major global health challenge, with many patients presenting at intermediate or advanced stages where curative options are limited. Although immunotherapy and anti-angiogenic agents have improved systemic treatment outcomes, intrahepatic progression continues to compromise long-term survival. Transarterial therapies remain central for liver-dominant disease, prompting increasing interest in their integration with modern immunotherapy.
Objective: To compare clinical outcomes between immunotherapy-based systemic therapy alone and immunotherapy combined with transarterial therapy in intermediate and advanced hepatocellular carcinoma.
Methods: A systematic search of PubMed, Cochrane Library, and ScienceDirect identified comparative studies evaluating PD-1/PD-L1 based immunotherapy administered with or without transarterial therapy, including transarterial chemoembolisation (TACE) or hepatic arterial infusion chemotherapy (HAIC). Outcomes of interest included overall survival (OS), progression-free survival (PFS), objective response rate (ORR), disease control rate (DCR), and treatment-related adverse events. Data were synthesised narratively in accordance with PRISMA guidelines.
Results: Eight studies met the inclusion criteria. All demonstrated that adding TACE or HAIC to immunotherapy produced longer overall survival, prolonged progression-free survival, and higher objective response and disease control rates. Benefits were consistent across different systemic regimens and were especially notable in high-burden intrahepatic disease and portal vein invasion. Importantly, the incidence of severe adverse events remained comparable between treatment groups.
Conclusion: Combining transarterial therapy with immunotherapy-based systemic treatment offers meaningful survival and response advantages without compromising safety. This multimodal strategy represents a promising approach for selected patients with intermediate or advanced hepatocellular carcinoma, although prospective randomized trials are required to confirm these findings.

Poster Group 23: Systemic Therapy Poster Session 1

STP1-3 10016

COVID-19 Pandemic's Impact on the Global Disease Burden of HBV-related Hepatocellular Carcinoma in the Elderly

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Objective: The disease burden of HBV-related hepatocellular carcinoma (HCC) in the elderly has become a critical public health issue. Using data from the Global Burden of Disease Study (GBD) 2021, this study evaluated the global, regional, and national burden of HBV-related HCC in the elderly, focusing on trend changes before and after the COVID-19 pandemic, as well as differences across Socio-Demographic Index (SDI) categories and genders.
Methods: We analyzed age-standardized incidence and mortality rates (ASIR and ASDR) of HBV-related HCC in the elderly from 1990 to 2021, with emphasis on comparing 2019 to 2021 trends. Joinpoint regression, age period cohort (APC) analysis, decomposition analysis, and nonlinear regression were applied to assess trends, quantify driving factors, and explore associations between key indicators.
Results: Global ASIR and ASDR showed an overall declining trend with significant regional heterogeneity higher in African regions and lower in some American regions. Post-pandemic, the global decline accelerated, though some countries saw rising rates. Males consistently had higher ASRs than females, with faster post-pandemic declines. Epidemiological changes were the primary driver; aging's contribution to incidence increased after 2019. APC analysis revealed age-related risk fluctuations and notable birth cohort differences.
Conclusion: Despite progress in global HBV-related HCC control among the elderly, regional disparities persist, with elderly males bearing a heavier burden. Post-pandemic trends vary by country. Future strategies should prioritize the elderly, especially males, through enhanced screening and personalized treatment, alongside optimized public health measures and comprehensive surveillance systems to reduce the global disease burden.

STP1-4 10031

COVID-19 Pandemic Did not Affect the Treatment Uptake of Immunotherapy as the Treatment for Advanced Hepatocellular Carcinoma (HCC)

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Background: Immunotherapy as the first-line treatment for advanced hepatocellular carcinoma (HCC) has improved outcomes. Yet, in view of the high cost, health inequality issues in treatment access by socioeconomic status are increasingly recognised; the COVID-19 pandemic in 2020-2023 might have further exaggerated these.
Methods: All patients diagnosed with HCC between 2015 and 2024 were identified. Immunotherapy was defined with prescription of atezolizumab (+/-bevacizumab), ipilimumab and nivolumab, tremelimumab and durvalumab, or pembrolizumab; annual proportions used the HCC diagnosis year as the index year, counting immunotherapy prescribed at any time after diagnosis.
Results: 17,210 patients with HCC in 2015-2024 were identified (mean age 67.8 +/- 12.9 years); 1,459 (8.5%) received immunotherapy. Annual uptake increased from 45/1,711 (2.6%) in 2015 to 141/1,764 (8.0%) in 2019, 143/1,679 (8.5%) in 2020, 221/1,710 (12.9%) in 2023 and 210/1,654 (12.7%) in 2024, with no clear interruption during the COVID-19 period. Crude all-cause mortality rates were 0.98 deaths per person-year (456 events over 466 person-years; 95% CI 0.89-1.07) among immunotherapy recipients and 1.33 deaths per person-year (6,426 events over 4,849 person-years; 95% CI 1.29-1.36) among non-recipients. Before 2020, nivolumab and pembrolizumab were predominant; from 2022 onwards atezolizumab regimens were most used (82, 146 and 133 patients in 2022, 2023 and 2024, around 38-59% per year), with increasing use of regimens including durvalumab.
Conclusions: The pandemic did not have a major impact on immunotherapy use for advanced HCC. The impact of dramatic increase in newly approved regimens on clinical outcomes warrants further evaluation.

Poster Group 24: Systemic Therapy Poster Session 2

STP2-1 10062

Early Clinical Outcomes of Nivolumab plus Ipilimumab Combination Therapy for Advanced Hepatocellular Carcinoma

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Background/Aim: We evaluated the early safety and efficacy of nivolumab plus ipilimumab (Nivo/Ipi) combination therapy at our institution.
Methods: This retrospective study included 25 patients with hepatocellular carcinoma (HCC) who initiated Nivo/Ipi between July 1 and September 30, 2025. Patient characteristics and safety profiles, including immune-mediated adverse events (imAEs), were assessed. Efficacy was evaluated in 17 patients who underwent initial radiological assessment.
Results: The median age was 70 years (45 - 83). Child-Pugh class was A5 in 11 patients (44%), A6 in 10 patients (40%), and B7 in 4 patients (16%). 16 patients (64%) were classified as BCLC stage C. Macrovascular invasion and extrahepatic metastasis were each observed in 9 patients (36%). Nivo/Ipi was administered as first-line therapy in 13 patients (52%), second-line in 8 (32%), and third-line or later in 4 patients (16%). ImAEs occurred in 13 patients (52%), most commonly hepatitis (n=8, 32%), dermatitis (n=7, 28%), and colitis (n=2, 8%). More than 80% of imAEs developed within two weeks of treatment initiation, and 7 patients (28%) experienced imAEs involving two or more organs. High-dose corticosteroids were required in 4 patients (16%). Grade 3 or 4 imAEs occurred in 4 patients (16%). Among the 17 patients who underwent initial imaging assessment, 3 (18%) achieved a partial response, 9 (53%) had stable disease, and 5 (29%) showed progressive disease.
Conclusions: Our cohort included older patients and those with impaired liver function. Although imAEs frequently occurred early after treatment initiation, they were manageable with appropriate clinical interventions.

STP2-2 10189

Initial Experience with Nivolumab Plus Ipilimumab for Unresectable Hepatocellular Carcinoma, Including Predictions of Efficacy and Safety

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This study aimed to investigate the initial experience with nivolumab plus ipilimumab (Nivo/Ipi) for unresectable hepatocellular carcinoma. Eleven patients, including 4 patients of 1st line therapy, were treated with Nivo/Ipi. Outpatient follow-ups were performed weekly. Tumor response based on RECSTv1.1 was an objective response rate of 36% and a disease control rate of 55%. Changes in AFP and DCP values at week 4 relative to the baseline showed significant differences between responders and non-responders ($p=0.016$ and $p=0.016$, respectively). In the responder group, a decrease in DCP was observed one week prior to the decrease in AFP. The incidence rate of severe irAEs (grade 3 or more) was 45.5%. The median pretreatment peripheral blood CD4+/8+ T cell ratio (CD4/8-R) was 1.22. A receiver operating characteristic curve showed that the optimal cutoff value for predicting severe irAEs was 1.195. Of the six patients with a CD4/8-R >1.195, four (67%) developed severe irAEs. In contrast, of the five patients with a CD4/8-R <1.195, only one patient (17%) developed severe irAEs. In conclusion, DCP could serve as a surrogate marker for very early response, and the pretreatment peripheral blood CD4+/8+ ratio may also serve as a predictive marker for the development of severe irAEs.

Poster Group 24: Systemic Therapy Poster Session 2

STP2-3　10105

Effects and Side Effects for Unresectable Hepatocellular Carcinoma Treated by Atezolizumab plus Bevacizumab

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Background: For unresectable hepatocellular carcinoma in Japan, three combination therapies are available when immunotherapy is indicated, among these, five years have passed since our hospital initiated atezolizumab(Atezo) plus bevacizumab(Bev) combination therapy for hepatocellular carcinoma in November 2020, and the long-term prognosis is becoming clearer.
Methods: Twenty-five patients who started Atezo+Bev therapy at our hospital between October 2020 and December 2024. The observation period extended through December 2025.Treatment response was assessed every three cycles using contrast-enhanced CT or EOB-MRI based on mRECIST ver1.0. Adverse events were evaluated using CTCAE ver5.0.
Results: The 1-year survival rate after Atezo+Bev was 78.6%, and the 3-year survival rate was 43.7%. PFS was 49.3% at 1 year and 49.3% at 3 years. The best treatment response was CR in 7 cases (28%), PR in 8 cases (32%), SD in 2 cases (8%), and PD in 8 cases (32%). Of the 6 CR cases, Univariate analysis of factors associated with ORR (CR+PR) showed associations with DCP (<825) (P=0.041) and ALT (<21) (P=0.041). Multivariate analysis for survival-related factors identified Child-Pugh score 5 (A) (P=0.0016) and ORR cases (P=0.0084). Adverse events occurred in 13 patients (52%), with grade 3 events in 11patients (44%).
Conclusion: Atezo plus Bev therapy demonstrated favorable treatment efficacy, with some CR cases showing long-term survival. Treatment initiation at Child-Pugh A score five should be considered, and ORR cases were found to have a favorable prognosis. Management of grade 3 irAE side effects were deemed critical.

STP2-4　10156

Efficacy and Safety of Atezolizumab plus Bevacizumab in Advanced Hepatocellular Carcinoma with Child-Pugh Class B: A Single-Center Study

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Background: Although chemotherapy with atezolizumab plus bevacizumab is recommended for advanced hepatocellular carcinoma in patients with Child-Pugh (CP) Class A, there is limited data regarding the efficacy and safety in advanced hepatocellular carcinoma with CP B.
Methods: In this retrospective study, we enrolled 72 consecutive patients (59 patients with CP A and 13 patients with CP B) who received chemotherapy with atezolizumab plus bevacizumab at our institution from October 2020 to May 2025. The objective response rate (ORR), the disease control rate (DCR), progression-free survival (PFS), overall survival (OS) and adverse events were evaluated.
Results: 28 patients (38.9%) and 44 patients (61.1%) were classified as BCLC stage B and C, respectively. 59 patients (81.9%) received the chemotherapy in the first-line setting.
In CP A and B patients, the ORR was 35.6% and 38.4% (P=1.00), and the DCR was 88.1% and 61.5% (P=0.03). The median OS was 8.0 months in CP B, compared to 17.7 months in CP A (P=0.30), and the median PFS was 4.4 months in CP B, compared to 9.3 months in CP A (P=0.22). Grade 3 or higher adverse events occurred in 22.0% and 15.4% of CP A and B patients (P=0.72), respectively.
Conclusion: In advanced hepatocellular carcinoma with CP B, compared to CP A, there were no significant differences in ORR or the proportion of severe adverse events; however, OS and PFS tended to be shorter. This study included a small number of cases, and multicenter studies are needed in the future.

Poster Group 24: Systemic Therapy Poster Session 2

STP2-5 10092

Efficacy of Immunotherapy for Hepatocellular Carcinoma in the Elderly

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Objective: To clarify the efficacy of immunotherapy (IO) for elderly patients over 75yo (Over) patients with hepatocellular carcinoma (HCC), specifically comparing the combination therapy of Atezolizumab+Bevacizumab (Ate+Bev) and Durvalumab+Tremelimumab (Dur+Tre).
Methods: The study included 116 cases treated with Ate+Bev and 19 cases treated with Dur+Tre at our department. Overall survival (OS) was compared from the start date of IO treatment, and comparisons were also made between advanced-aged and non-advanced-aged patients.
Results: Among over 75yo patients, 5 cases received Dur+Tre. For Ate+Bev, 58 cases were included.(1) Comparison between Dur+Tre and Ate+Bev: No significant difference was observed in the mean OS after the start of treatment (Ate+Bev/Dur+Tre = 927/950 days). (2) Comparison of Dur+Tre between Over and under 75yo patients (Under): No significant difference was observed in mean OS, although there was a tendency for shorter OS in Over compared to Under (Over/Under = 604/1069 days). (3) Comparison of Ate+Bev combination therapy between Over and Under: No significant difference was observed in mean OS (Over/Under = 872/964 days). (4) Analysis of Dur+Tre combination therapy in Over: Blood tests, biochemical tests, and tumor markers before treatment and at 4 weeks after treatment were compared between Over and Under. No significant differences were found in any parameters. In addition, no significant differences were observed in any parameters before and after treatment in Over.
Conclusion: Dur+Tre treatment, over 75yo patients may not achieve the same extension of prognosis as under 75yo patients, indicating the need for further investigation.

STP2-6 10211

Bevacizumab only Treatment Outcomes After Invasive Treatment of HCC Classified by Hepatitis Virus Type, Gender, and Age Group

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Bevacizumab (Avastin), a vascular endothelial growth factor (VEGF) inhibitor, is widely used in targeted therapy for advanced HCC. This study compared Bevacizumab treatment outcomes measured by the number of treatment courses, reflecting long-term tolerance and treatment duration across viral infection types, gender, and age groups. Data were extracted from medical records of 559 HCC patients treated with Bevacizumab at Interferon Alpha Hospital during 2023to2025.
Methods: Age, gender, viral status, and number of treatment courses were collected from 559 patients. Average number of courses was calculated for each subgroup. Survival was assessed by a phone call.
Results: Among 559 patients, the overall average number of Bevacizumab courses was 7.13 (range 1to19). Males (n=346) had a slightly higher average (7.53 courses) than females (n=213, 7.16 courses). Mean age was 58.4 years (range 36to75). 2-year survival rate was 68.6% (n=384) By gender: Males demonstrated marginally better outcomes than females, though the difference was small. By age group: Patients aged more than 60 years had the highest average number of courses, while those younger than 50 years had the lowest. The correlation between age and number of courses was moderately positive (r=0.43).
Conclusion: Bevacizumab treatment tolerance and duration were highest in patients with HCV-only infection, males, and those over 60 years of age. 2-year survival rate was 68.6% which is much higher than patients without Bevasizumab which was 30-50%. We consider our results comparable to well developed countries of Asia.

Poster Group 25: Systemic Therapy Poster Session 3

STP3-1 10166

A Pretreatment Serum Cytokine Score Predicts Response to First-line Atezolizumab/Bevacizumab in Unresectable Hepatocellular Carcinoma

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Background: Although atezolizumab plus bevacizumab (Atezo/Bev) is widely used as first-line therapy for unresectable hepatocellular carcinoma (HCC), clinically practical biomarkers to predict benefit remain limited.
Methods: We retrospectively analyzed 75 patients who initiated first-line Atezo/Bev between October 2020 and December 2023. Pretreatment stored serum was profiled using the Bio-Plex Pro Human Cytokine GI 27-plex panel. Treatment response was assessed by RECIST v1.1 (best response). Cytokines associated with objective response were screened using the Mann-Whitney U test ($p<0.05$). Selected cytokines were dichotomized at the cohort median (low=0, high=1) and summed to generate a 0-5 cytokine score. Predictive performance was evaluated by ROC analysis, and the optimal cut-off was explored using the Youden index.
Results: Median overall survival was 19.6 months, and median progression-free survival was 6.6 months. Five cytokines were associated with objective response: G-CSF, IL-6, IL-8, IP-10, and MIP-1α (all $p<0.05$). Overall objective response rate was 26/75 (34.7%). Objective response rates by score were 56.3% (9/16), 40.0% (4/10), 45.5% (5/11), 30.8% (4/13), 15.4% (2/13), and 16.7% (2/12) for scores 0-5, respectively. The 5-cytokine score showed modest discrimination for objective response (AUC=0.686).
Conclusions: A pretreatment serum cytokine score integrating G-CSF, IL-6, IL-8, IP-10, and MIP-1α may help predict objective response to first-line Atezo/Bev in unresectable HCC. External validation is warranted.

STP3-2 10188

Predictive Factors for Response to Dual Immune Checkpoint Inhibitor Therapy in Advanced Hepatocellular Carcinoma

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Background: Dual immune checkpoint inhibitor (ICI) therapy is a key treatment for advanced hepatocellular carcinoma (HCC), yet individual responses vary significantly. While useful predictive factors such as FDG-PET/CT and the CD4/CD8 ratio (CD4/8-R) have been reported for durvalumab plus tremelimumab (Dur/Tre), effective predictors for nivolumab plus ipilimumab (Nivo/Ipi) remain undefined. We evaluated the utility of these markers across both regimens.
Methods: From July 2023 to November 2024, we analyzed 8 patients with advanced HCC who underwent FDG-PET/CT and peripheral blood CD4/8-R measurement before initiating Dur/Tre or Nivo/Ipi. Treatment response was assessed using RECIST version 1.1. PET positivity was defined as a tumor-to-normal liver ratio (TLR) >2.0.
Results: The cohort included 4 Dur/Tre and 4 Nivo/Ipi cases. Overall median age was 72 years; 7 patients were Child-Pugh class A. In the Dur/Tre group (3 PET-positive, median CD4/8-R: 1.9), outcomes included 1 partial response (PR) (PET-positive, CD4/8-R: 4.9) and 1 stable disease (SD) (PET-positive, CD4/8-R: 1.2). In the Nivo/Ipi group (1 PET-positive, median CD4/8-R: 1.0), 2 patients achieved SD despite being PET-negative with low CD4/8-R (0.9 and 1.0).
Conclusions: Our findings align with previous reports that PET positivity and high CD4/8-R predict response to Dur/Tre. Conversely, Nivo/Ipi may demonstrate efficacy even in PET-negative cases with low CD4/8-R, suggesting that predictive cutoff values may need to be regimen-specific. Further large-scale validation is required.

Poster Group 25: Systemic Therapy Poster Session 3

STP3-3 10061

Evaluation of Liver and Spleen Volume Changes during Systemic Therapy for Hepatocellular Carcinoma

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Background: Liver and spleen volume changes are observed in some cases during systemic therapy for hepatocellular carcinoma (HCC).
Methods: Among 120 patients who received systemic therapy for HCC between 2014 and 2024, 11 patients who continued the same regimen for at least 6 months and had analyzable 1-mm-slice contrast-enhanced CT data were included. Spleen volume was assessed in all patients except one who had undergone splenectomy. Liver and spleen volumes at treatment initiation and at 6 months were measured using a 3D image analysis system (SYNAPSE VINCENT; Fujifilm Medical).
Results: The mean age was 67.4 ± 10.3 years; 7 patients were male. BCLC stage was B in 1 patient and C in 10 patients. Treatment regimens included regorafenib (n=3), lenvatinib (n=5), and atezolizumab plus bevacizumab (n=3), administered as first-line (n=5), second-line (n=4), or third-line (n=2) therapy. At 6 months, treatment response was partial response in 2 patients, stable disease in 4, and progressive disease in 5. A ≥15% decrease in liver volume was observed in 66.7% of patients treated with regorafenib, 60.0% with lenvatinib, and none with atezolizumab plus bevacizumab. A ≥10% increase in spleen volume was observed in 33.3% of patients treated with regorafenib and in all patients treated with atezolizumab plus bevacizumab.
Conclusion: During systemic therapy for HCC, regorafenib and lenvatinib tend to be associated with liver volume reduction, whereas atezolizumab plus bevacizumab tends to be associated with spleen volume increase.

STP3-4 10112

Effects of Combination Therapy with Tremelimumab and Durvalumab on Skeletal Muscle Mass and Cardiac Function in Patients with Unresectable Hepatocellular Carcinoma

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Background: We previously reported that anti-VEGF agents such as sorafenib and lenvatinib reduce skeletal muscle volume (SMV) through impaired carnitine absorption in patients with hepatocellular carcinoma (HCC). In addition, bevacizumab was shown to reduce SMV and cardiac function (CF) in elderly patients, independent of carnitine metabolism. However, the effects of immunotherapy on SMV and CF remain unclear.
Objective: To investigate effects of therapy with tremelimumab and durvalumab (Tre/Dur) on SMV and CF in patients with HCC.
Methods: Nineteen patients with HCC were received Tre/Dur therapy at our hospital. Blood samples were collected before treatment and at 4 weeks treatment to measure serum levels of growth hormone (GH) and insulin-like growth factor-1 (IGF-1). Abdominal CT scans were performed at 8 weeks treatment to evaluate therapeutic response according to mRECIST and to calculate the psoas muscle index (PMI) based on the cross-sectional area of the psoas muscle. In addition, CF was assessed using global longitudinal strain (GLS) on transthoracic echocardiography.
Results: The study included 11 male and 8 female patients, all of whom had cirrhotic livers. Treatment responses were as follows: PR in 3 patients, SD in 8, and PD in 8. Serum GH and IGF-1 levels showed a significant increase at 4 weeks after treatment. However, PMI values significantly decreased at 8 weeks. There was no significant change in GLS at 4 weeks, indicating that left ventricular systolic function remained stable.
Conclusion: Tre/Dur combination therapy for HCC does not adversely affect cardiac function but is associated with a reduction in SMV.

Poster Group 25: Systemic Therapy Poster Session 3
STP3-5 10079

Intratumoral Vascular Lake Formation in Patients with Hepatocellular Carcinoma treated with Atezolizumab plus Bevacizumab or Lenvatinib

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Background: Intratumoral vascular lake formation is a complication observed during treatment with atezolizumab plus bevacizumab (Atezo+Bev) or lenvatinib (LEN) in patients with hepatocellular carcinoma (HCC). This study aimed to investigate the risk factors, subsequent management, and clinical outcomes associated with this complication.
Methods: Among 207 patients who received Atezo+Bev or LEN as first-line therapy at our institution between June 2013 and September 2025, the presence of intratumoral vascular lakes on contrast-enhanced imaging was retrospectively evaluated. Potential risk factors, including tumor size, laboratory parameters, and baseline clinical factors associated with the development of vascular lakes were analyzed using univariable logistic regression. Subsequent clinical courses were also examined.
Results: Intratumoral vascular lakes developed in 7 (4 with Atezo+Bev and 3 with LEN) patients (3.4%). A tumor diameter of ≥50 mm (odds ratio [OR] 5.91, p = 0.017) and an AFP level ≥100 ng/mL (OR 4.35, p = 0.047) were identified as risk factors. Intratumoral vascular lakes were incidentally detected on scheduled imaging in 2 patients and following HCC rupture in 5 patients. Transarterial embolization (TAE) was performed in 6 patients, all of whom achieved hemostasis. However, one patient died from massive intraperitoneal hemorrhage before TAE could be performed. After achieving hemostasis, systemic therapy was resumed for 4 patients, while the remaining 2 patients were transitioned to best supportive care.
Conclusions: Larger tumor size was identified as a risk factor for intratumoral vascular lake formation. Although most cases were successfully managed with TAE, this complication may occasionally result in serious clinical outcomes.

Poster Group 26: Systemic Therapy Poster Session 4

STP4-1 10110

Outcomes of Locoregional Therapy Followed by Combination Immunotherapy for Unresectable Hepatocellular Carcinoma

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Background: Combining locoregional therapy (LRT) with immunotherapy-based systemic therapy (ST) is an emerging strategy for unresectable hepatocellular carcinoma (uHCC). Although multiple phase III trials have demonstrated progression-free survival (PFS) benefit with combined approaches, the optimal sequencing and choice of LRT and ST remain undefined.

Methods: We retrospectively evaluated patients with uHCC who received LRT within 3 months before initiation of immunotherapy-based ST between 2020 and 2024. Outcomes were assessed at the patient level.

Results: Twelve episodes meeting the inclusion criteria were observed in 11 patients. Median age was 76 years, and 91% were male. BCLC stage was B in five patients and C in six. LRT consisted primarily of transarterial chemoembolization (TACE; n = 9). Selected immunotherapy-based ST before LRT was atezolizumab plus bevacizumab (AB) in seven patients, durvalumab plus tremelimumab (DT) in four, and durvalumab in one. The overall response rate was 25%, including two complete responses. Median PFS was 146 days. Five patients achieved prolonged PFS exceeding 500 days; all had prior TACE exposure and received AB. Three long-term responders initially received DT after LRT and transitioned to AB before disease progression, including two who underwent AB rechallenge. On-demand TACE was performed in three long-term responders.

Conclusions: Outcomes following LRT combined with immunotherapy-based ST were heterogeneous. Prolonged disease control was observed predominantly in patients with prior TACE exposure who received AB, suggesting a potential interaction between TACE and anti-VEGF-containing immunotherapy regimens. Add-on TACE and DT followed immediately by AB may warrant further research in this population.

STP4-2 10152

Continuing or Switching Systemic Therapy Combined with Locoregional Therapy Defines a Personalized Strategy for Oligoprogression in Hepatocellular Carcinoma: A Multicenter Retrospective Study

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Background: The optimal management of oligoprogression during first-line immune checkpoint inhibitor-based therapy for advanced hepatocellular carcinoma (HCC) remains unclear. This study compared the outcomes between continuing first-line systemic therapy combined with locoregional therapy (FLST+LRT), switching to second-line systemic therapy combined with LRT (SLST+LRT), or switching to SLST alone.

Methods: This multicenter, retrospective study enrolled 226 patients with oligoprogressive HCC. Patients were stratified into FLST+LRT (n = 87), SLST+LRT (n = 93), and SLST alone (n = 46) groups. Overall survival (OS) and progression-free survival were analyzed. Factors associated with overall were identified.

Results: Median OS was significantly longer in both FLST+LRT (26.4 months) and SLST+LRT (24.9 months) groups compared to SLST alone (18.1 months; p = 0.041 and p = 0.029, respectively). Subgroup analyses demonstrated that among durable responders, FLST+LRT achieved a median OS of 42.5 months, superior to SLST+LRT (19.1 months, p = 0.049) and SLST alone (18.3 months, p = 0.006). In non-durable responders, SLST+LRT resulted in longer median OS than both FLST+LRT (p = 0.030) and SLST alone (p = 0.042). For intrahepatic progression, both LRT-based strategies improved OS compared to SLST alone (p = 0.004 and p<0.001, respectively). Multivariate analysis identified ALBI grade (hazard ratio [HR] 1.846, p = 0.013), no LRT after oligoprogression (HR 1.683, p = 0.040) and AFP>200 ng/mL (HR1.795, p = 0.012) as independent prognostic factors for OS.

Conclusions: Integrating locoregional therapy for oligoprogressive HCC significantly improves survival compared to switching systemic therapy alone. Treatment should be individualized based on the prior response duration and progression pattern.

Poster Group 26: Systemic Therapy Poster Session 4

STP4-3 10044

Clinical Outcomes of TACE/TAI using Cisplatin Combined with Lenvatinib as Second-line Therapy After Failure or Intolerance to Immune Checkpoint Inhibitors

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Purpose: This study aimed to evaluate the clinical outcomes of transarterial chemoembolization (TACE) or transarterial infusion (TAI) using cisplatin combined with lenvatinib as second-line therapy following ICI failure or intolerance.
Methods: We retrospectively analyzed 10 patients who underwent hepatic arterial therapy using cisplatin combined with lenvatinib after failure or intolerance to ICIs between February 2019 and August 2025. The median age was 65 years (range: 31-79), with 9 males and 1 female. Liver function was Child-Pugh class A in 8 patients and class B in 2 patients. According to the BCLC staging system, 2 patients were stage B (Up-to-7-11: n=1; beyond Up-to-11: n=1) and 8 were stage C (macrovascular invasion: n=3; extrahepatic spread: n=5). All patients received this combination therapy as second-line treatment. Prior ICI regimens included atezolizumab plus bevacizumab (n=5), durvalumab plus tremelimumab (n=4), and other regimens (n=1). Seven patients underwent TACE (HepaSphere: n=6; lipiodol: n=1) using cisplatin, and three underwent TAI.
Results: Tumor response included partial response (PR) in 6 patients (TACE: 4; TAI: 2), stable disease (SD) in 1 patient (TACE: 1), and progressive disease (PD) in 3 patients (TACE: 2; TAI: 1), yielding an overall response rate (ORR) of 70%. Grade ≥3 adverse events included elevations in AST/ALT (n=2), biliary stricture (n=1), hand-foot syndrome (n=1), and proteinuria (n=1).
Conclusion: TAI or TACE using cisplatin combined with lenvatinib demonstrates acceptable and promising clinical outcomes as second-line therapy after failure or intolerance to immune checkpoint inhibitors in patients with advanced HCC.

STP4-4 10093

Two Cases of Unresectable Hepatocellular Carcinoma Treated with LEN-TACE for Local Control during Dual Immune Checkpoint Inhibitor Therapy

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Introduction: In Japan, several combination immunotherapies are available for unresectable hepatocellular carcinoma (HCC), including Atezolizumab/Bevacizumab (Atezo/Bev), Durvalumab/Tremelimumab (STRIDE), and Nivolumab/Ipilimumab (Nivo/Ipi). We report two cases highlighting the integration of locoregional therapy with immune checkpoint inhibitor combinations.
Case presentation: Case 1: A male in his 70s with extrahepatic metastases (BCLC C) received Nivo/Ipi as third-line therapy. Baseline liver function was Child-Pugh A (6 points), mALBI grade2b. At 8 weeks, imaging showed a partial response in extrahepatic lesions, but the soleintrahepatic lesion progressed with an elevation of tumor markers. LEN-TACE was performed for local control, resulting in marked improvement in tumor markers, and Nivo/Ipi was continued. Case 2: An 80s male with multiple HCCs (BCLC B, up to 11 out) started STRIDE as first-line therapy. Baseline liver function was Child-Pugh A (6 points), mALBI 2b. After 8 weeks, most intrahepatic lesions regressed, except for one in segment 8, which progressed with contrast enhancement of the tumor. LEN-TACE was performed for local control, leading to decreased tumor markers, and STRIDE was continued.
Discussion: In both cases, local progression showing arterial enhancement was controlled with LEN-TACE, enabling continuation of systemic therapy. While locoregional therapy combined with Atezo/Bev is reported to improve prognosis, evidence for such combinations with IO/IO regimens remains limited. We discuss these cases with a brief literature review.

Poster Group 26: Systemic Therapy Poster Session 4

STP4-5 10198

The Evaluation of Clinical Impact of Additional TACE to Lenvatinib for HCC Patients

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Background: We have experienced the advantage of additional TACE to systemic chemotherapy for controlling intrahepatic lesions. Here, we evaluate the effect of additional TACE to Lenvatinib (LEN).
Methods: HCC patients treated with LEN from 2018 May to 2025 May at our institute were enrolled. Totally seventy-six patients were categorized into scheduled LEN-TACE (N=12), LEN-on demand TACE (N=35), and LEN monotherapy (N=29). The median PFS and OS were compared to evaluate the appropriate candidates for additional TACE.
Results: In BCLC-B, scheduled LEN-TACE (N=11) tended to be worse hepatic reserve ($p<0.05$) and less proportion with previous systemic chemotherapy ($p=0.07$) compared to LEN-on demand TACE (N=18) and LEN monotherapy (N=15) groups. The periods (days) of median OS/PFS of each group were not reached/not reached, 1207/238, and 368/122, respectively. Both OS and PFS of LEN monotherapy were significantly shorter compared to other groups ($p<0.01$). Furthermore, by evaluating with up-to-11 status, the same phenomena were observed.On the other hand, patients with BCLC-C, LEN-on demand TACE (N=17) tended to be older ($p<0.05$) compared to LEN monotherapy (N=14), whereas there were no other significant differences in other patient's characteristics. The periods (days) of median OS/PFS of each group were 744/257, and 314/175, showing that additional TACE provides significantly longer PFS than LEN monotherapy ($p<0.05$).
Conclusion: Among BCLC-B HCC patients, additional TACE to LEN provided significant longer PFS and OS compared to LEN monotherapy. In terms of the tumor burden, up-to-11 in status is particularly efficacious factor to undergo TACE with LEN for achieving better clinical outcome.

STP4-6 10168

The Impact of Scheduled LEN-TACE on Tumor Microenvironment for BCLC-B HCC

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Background: The BCLC-B HCC group constitutes a very heterogeneous patient population. In TACTICS-L trial, scheduled Lenvatinib (LEN) with TACE (LEN-TACE) has shown promising efficacy even in TACE-unsuitable patient groups. Although TACTICS-L trial enrolled Child-Pugh classification A, we often encounter cases with impaired hepatic reserve capacity. Therefore, the efficacy of scheduled LEN-TACE in the clinical practice was evaluated.
Methods: 11 HCC patients treated with scheduled LEN-TACE at our institute were enrolled. In recent 4 cases, blood samples were collected 1) before treatment, 2) 1week after the LEN therapy, 3) 1week after TACE, and 4) 1week after reinitiation of LEN. The concentrations of sera Ang-2 were measured with ELISA kit and peripheral PBMC was analyzed with FACS to evaluate the proportion of effector Treg as CD4+CD45RA-FOXP3+ cells.
Results: In 10 patients out of 11 patients, the status of up to 7 criteria was within. In terms of the best response, ORR ratio was 90.9% (10/11) because CR and PR were achieved in 7 and 3 patients, respectively. Even among the patients with non-single nodular type or mALBI 2b, ORR ratios were 87.5% (7/8) or 85.7% (6/7), respectively. During the scheduled LEN-TACE therapy, the concentrations of Ang-2 were significantly decreased after the administration of LEN and the proportion of effector Treg in PBMC was decreased.
Conclusion: Scheduled LEN-TACE provides high therapeutic efficacy even in the patients categorized as TACE-unsuitable group. From the viewpoints of tumor microenvironment, LEN-TACE could contribute to ideal change for cancer immunity by reducing the proportion of peripheral effector Treg.

Poster Group 26: Systemic Therapy Poster Session 4
STP4-7 10099

Lenvatinib plus Drug-eluting Bead Transarterial Chemoembolization for Large Hepatocellular Carcinoma beyond the Up to 7 Criteria

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Aims: To evaluate the efficacy and safety of lenvatinib combined with drug-eluting bead transarterial chemoembolization (LEN-DEB TACE) for large HCC beyond the up-to-7 criteria and to identify prognostic factors.
Methods: Between November 2022 and September 2025, 15 patients with HCC (>6 cm) were retrospectively analyzed. Lenvatinib was administered for 4 days before TACE, followed by DEB TACE using epirubicin-loaded DC Beads. Additional cTACE was performed later in cases with residual viable tumor. After TACE, lenvatinib was restarted at a reduced dose and adjusted as clinically indicated. Tumor response, progression free survival (PFS), TACE specific PFS, and overall survival (OS) were evaluated. Prognostic factors were analyzed using the Cox proportional hazards model.
Results: The objective response rate (CR+PR) was 93.3%, including 80.0% CR rate. Median PFS was 6 months (95%CI, 0.0-13.1), with a 1 year PFS rate of 39.6%. Median TACE specific PFS was not reached, and the 1 year rate was 66.0%. Median OS was 26 months (95%CI, 17.5-35.0), with a 1 year OS rate of 71.0%. Post TACE lenvatinib relative dose intensity (RDI; median 46.7%) showed a trend toward improved PFS (HR, 0.87; 95%CI, 0.73-1.03). The high RDI group demonstrated longer PFS than the low RDI group (17 vs. 2 months, p=.048). Grade>3 adverse events included AST/ALT elevation (30.8%) and acute kidney injury related to tumor lysis syndrome (15.4%), all managed conservatively.
Conclusions: LEN-DEB TACE achieved a high response rate in large HCC beyond the up-to-7 criteria. Continuation of lenvatinib after TACE may be crucial for prolonging PFS.

Poster Group 27: Systemic Therapy Poster Session 5

STP5-1 10002

Toxicity Turned Tolerance: Hematologic Adverse Events Managed Successfully in Hepatocellular Carcinoma with VP4 Portal Vein Tumor Thrombus Under Atezolizumab-Bevacizumab: A Case Report from Vietnam

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Background: Atezolizumab plus bevacizumab is the standard first-line therapy for unresectable hepatocellular carcinoma (HCC). Although uncommon, hematologic toxicities can be clinically significant, with thrombocytopenia (10.6%) and leukopenia (4-5%) reported in IMbrave150 trial. Given the limited guidance on management, we present a case highlighting safe mitigation of hematologic toxicity while preserving treatment efficacy
Case Presentation: A 45-year-old woman was diagnosed with BCLC C hepatocellular carcinoma with portal vein tumor thrombus (VP4) on a background of HBV-related cirrhosis, Child-Pugh A (5 points), confirmed by liver biopsy. Baseline: tumor 31 mm; AFP 272 ng/mL; platelets 151 x 10^9/L; ANC 5.4 x 10^9/L. She initiated of treatment with atezolizumab-bevacizumab. After eight cycles, CT showed disappearance of the intrahepatic lesion and reduction in PVTT size with normalization of AFP, consistent with a partial response. After 10 cycles, platelets declined to 70 x 10^9/L while cirrhosis remained stable, supporting bevacizumab-related thrombocytopenia. Bevacizumab was discontinued and atezolizumab continued every 3 weeks; platelet counts recovered and stabilized more than 100 x 10^9/L after the first monotherapy cycle. During monotherapy, neutropenia (ANC 1.3 x 10^9/L) with fatigue emerged; the dosing interval was extended to every 4 weeks, with hematologic improvement and symptom resolution. After two years of sustained disease control, therapy was discontinued; the patient remains clinically, biochemically, and radiologically stable under active surveillance.
Conclusion: Bevacizumab discontinuation and atezolizumab interval extension corrected hematologic toxicity and maintained disease control, enabling planned treatment discontinuation with continued stability.

STP5-2 10170

Efficacy and Safety of Lenvatinib for Unresectable Hepatocellular Carcinoma in Patients with Severe Renal Impairment

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Background: Systemic therapy for unresectable hepatocellular carcinoma (uHCC) has rapidly advanced; however, with the aging population, the number of patients with concomitant renal impairment is increasing. Even in the era of immunotherapy, lenvatinib remains a potential therapeutic option for HCC patients with renal impairment.
Aim: To evaluate the efficacy and safety of lenvatinib in patients with uHCC complicated by severe renal impairment.
Patients and Methods: Between November 2020 and May 2024, six patients with uHCC and severe renal impairment (eGFR <30 mL/min/1.73 m2) who received lenvatinib were retrospectively analyzed.
Results: The etiologies were hepatitis B in two patients, hepatitis C in three patients, and non-B non-C in one patient. Two patients were receiving hemodialysis. Child-Pugh class A, B, and C were observed in 2, 4, and 0 patients, respectively, and BCLC stage A, B, and C in 0, 4, and 2 patients, respectively. Median AFP was 41.5 ng/mL (range: 93-2978), and median DCP was 320 mAU/mL (range: 112-49,125). All patients initiated lenvatinib at a dose of 4 mg/day. Overall survival rates at 6, 12, and 18 months were 66.7%, 50.0%, and 25.0%, respectively, with a median OS of 10.9 months (95% CI: 3.03-NA). Initial tumor response assessed by RECIST1.1 showed PR in 1 patient, SD in 2, PD in 2, and no CR. Adverse events included hepatic dysfunction, hand-foot skin reaction, anorexia, fatigue, worsening renal function, and proteinuria.
Conclusion: Lenvatinib appears to be a relatively safe and effective therapeutic option for patients with uHCC complicated by severe renal impairment.

Poster Group 27: Systemic Therapy Poster Session 5

STP5-3 10084

A Super-Elderly Male with Multiple Hepatocellular Carcinoma Achieving Long-Term Survival by Repeated Percutaneous Ablation Combined with Lenvatinib

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Background: Recent advances in systemic therapy have expanded treatment options for patients with intermediate-stage hepatocellular carcinoma (HCC). The combination of molecular targeted agents and percutaneous ablation may contribute to prolonged survival. However, evidence regarding this approach in super-elderly patients with multiple comorbidities remains limited. We report a super-elderly patient with recurrent HCC treated by percutaneous ablation combined with lenvatinib.
Case Presentation: An 88-year-old man with alcohol-related cirrhosis (Child-Pugh A) underwent anterior sectionectomy and partial S6 resection for HCC at the age of 81. He was accompanied by diabetes, hypertension, coronary artery disease with low heart function, and prostate cancer. Seven months later, he got multiple intrahepatic recurrences, which were treated sequentially with percutaneous ablation. Further, lenvatinib was initiated at 8 mg/day because of rapid multifocal recurrence with elevation of alpha-fetoprotein (AFP) to 8,507 ng/mL. Contrast-enhanced MRI images showed loss of arterial enhancement or shrinkage in most lesions; however, one lesion enlarged, and AFP further increased to 25,761 ng/mL. This lenvatinib-resistive lesion revealed moderately to poorly differentiated HCC by biopsy, and was treated with percutaneous ablation. AFP subsequently decreased to 98 ng/mL. Lenvatinib was discontinued following dose-reduction at the age of 86 due to pleural effusion and ascites. Thereafter, small recurrent lesions were repeatedly treated with percutaneous ablation. At the age of 88, the patient remains alive without recurrence.
Conclusion: Dose-adjusted lenvatinib combined with a minimally invasive percutaneous ablation may be an effective treatment for HCC even in a super-elderly patient with multiple comorbidities, who achieved nearly six years of survival.

STP5-4 10129

Desired Outcome of the STRIDE Regimen in an Advanced HCC Patient with Multiple Poor Prognostic Factors Outside HIMALAYA Trial Criteria: A Case Report

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Background: Advanced hepatocellular carcinoma (HCC) with severe cirrhosis presents significant clinical challenges. We report a case of BCLC stage C HCC involving poor prognostic factors outside the HIMALAYA trial criteria - including Child-Pugh B cirrhosis, thrombocytopenia, severe ascites and HBV/HCV co-infection - that achieved stable disease with the STRIDE regimen.
Case Presentation: A 53-year-old male with chronic HBV/HCV co-infection and alcohol abuse was diagnosed with BCLC stage B HCC, Child-Pugh A. After two sessions TACE and radiotherapy (54 Gy/18 Fr) to the hepatic lesion, the disease progressed to BCLC stage C with pulmonary metastasis. His liver function also worsened to Child-Pugh B (7 points), complicated by severe ascites and thrombocytopenia (50 to 60 x 109/L). The STRIDE regimen was initiated: a single priming dose of tremelimumab (300 mg) plus durvalumab (1500 mg), followed by durvalumab every 4 weeks. After 8 months, the patient achieved stable disease. Serum alpha-fetoprotein levels decreased significantly from 737 ng/mL to 373 ng/mL. The only immune-related adverse event was grade 2 dermatitis, successfully managed with topical corticoids. The patient experienced four episodes of acute decompensation (hypoalbuminemia and worsening ascites, pleural effusion), these were managed with oral diuretics spironolactone/furosemide (100 mg/40 mg) and albumin, acid amin supplementation.
Conclusions: The STRIDE regimen demonstrated efficacy and an acceptable safety profile in an advanced HCC patient with complex comorbidities excluded from the HIMALAYA trial. This regimen may be an optimal therapeutic option for patients with a high bleeding risk where VEGF inhibitors are contraindicated.

Poster Group 27: Systemic Therapy Poster Session 5
STP5-5 10039

Successful Transcatheter Aortic Valve Implantation Enabling Continuation of Systemic Chemotherapy in a Patient with Hepatocellular Carcinoma and Severe Aortic Stenosis: A Case Report

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Case Report: An 80-year-old man with cirrhosis due to metabolic dysfunction-associated steatohepatitis was diagnosed with hepatocellular carcinoma (HCC) in 2019. He had a history of ischemic heart disease requiring three percutaneous coronary interventions. In addition, mitral regurgitation, tricuspid regurgitation, aortic stenosis, and aortic regurgitation had been documented. For the HCC, the patient underwent four sessions of transcatheter arterial chemoembolization, two sessions of radiofrequency ablation, and one course of radiation therapy; however, local control was difficult to achieve. In February 2024, systemic therapy with tremelimumab and durvalumab was initiated. Four months later, new lesions were detected, and the treatment regimen was switched to four cycles of atezolizumab plus bevacizumab (Atez/Bev). Subsequently, he developed exertional dyspnea and presented for an unscheduled medical evaluation. Transthoracic echocardiography revealed progression to severe aortic stenosis. He was diagnosed with congestive heart failure. Bevacizumab, which has potential cardiotoxic effects, was discontinued, and atezolizumab monotherapy was continued for an additional four cycles. Despite dietary sodium restriction and the initiation of diuretics, symptomatic improvement was limited. The patient subsequently underwent transcatheter aortic valve implantation (TAVI). Following the procedure, the exertional dyspnea resolved, and brain natriuretic peptide (BNP) levels improved. After careful cardiovascular evaluation, Atez/Bev therapy resumed. To date, the patient has received 17 cycles of treatment and has maintained a partial response.
Discussion: In selected patients with an anticipated favorable oncological prognosis, TAVI in patients with severe heart failure may be considered a therapeutic option to allow the continuation of life-prolonging anticancer treatment.

Poster Group 28: Systemic Therapy Poster Session 6

STP6-1 10050

Subconjunctival Hemorrhage and Corneal Graft Failure following Atezolizumab plus Bevacizumab Treatment for Hepatocellular Carcinoma: A Case Report

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Background: Immune checkpoint inhibitors (ICIs) have become the first-line treatment for unresectable hepatocellular carcinoma (HCC). However, ICIs are known to potentially trigger rejection in transplant recipients. While the risk in liver transplant recipients is well-documented, reports of rejection in corneal transplant cases are extremely rare. We report a case of HCC where atezolizumab plus bevacizumab (Atezo/Bev) led to corneal graft failure and subconjunctival hemorrhage.
Methods: A 75-year-old male with HCV-related HCC and a history of two corneal transplantations for bullous keratopathy was indicated for systemic therapy due to lymph node metastasis. Considering both the potential risk of graft rejection and the expected therapeutic efficacy, Atezo/Bev was initiated. Six days after the first dose, the patient developed acute right eye pain and was diagnosed with right subconjunctival hemorrhage and corneal graft failure.
Results: Two weeks after the diagnosis of graft failure, the patient underwent a successful corneal re-transplantation. With the use of topical steroids, no further rejection occurred. Regarding HCC, the patient transitioned to lenvatinib as second-line therapy, achieving stable disease. However, he eventually died of liver failure nine months after the initiation of Atezo/Bev.
Conclusions: This case demonstrates that Atezo/Bev can induce severe corneal graft rejection and subconjunctival hemorrhage. When administering ICIs to patients with a history of corneal transplantation, clinicians must carefully weigh the risks and benefits and maintain close collaboration with ophthalmologists.

STP6-2 10150

Progressive Multifocal Leukoencephalopathy During Atezolizumab Plus Bevacizumab Therapy for Hepatocellular Carcinoma: A Case Report

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Background: Progressive multifocal leukoencephalopathy: PML is a rare demyelinating disorder of the central nervous system caused by reactivation of the JC virus, usually occurring in severely immunocompromised patients. While atezolizumab plus bevacizumab has become a standard first line therapy for advanced hepatocellular carcinoma: HCC, rare neurological complications remain poorly characterized.
Case Presentation: A 72 years old man with chronic hepatitis B related HCC BCLC stage C had received long term systemic therapy centered on atezolizumab plus bevacizumab since 2022, combined with locoregional treatments including transarterial chemoembolization and stereotactic body radiotherapy. Two weeks after the 26th course of atezolizumab plus bevacizumab, he developed rapidly progressive behavioral abnormalities and mild left sided hemiparesis. Brain magnetic resonance imaging revealed non enhancing T2 weighted and FLAIR hyperintense lesions involving the right frontal white matter, corpus callosum, and left frontal white matter. Cerebrospinal fluid analysis showed no pleocytosis or evidence of infection, however, JC virus DNA was detected at 2×10^5 copies /μL, confirming the diagnosis of PML. Given the suspected drug association, atezolizumab plus bevacizumab was discontinued, and the patient was managed with close clinical observation.
Conclusion: This case highlights PML as a rare but serious neurological complication during long term atezolizumab plus bevacizumab therapy for HCC. Awareness of atypical neurological symptoms is essential for early recognition and appropriate management in patients receiving immunotherapy.

Poster Group 28: Systemic Therapy Poster Session 6

STP6-3 10071

A Case of Hepatocellular Carcinoma with Rectal Fistula Induced by Lenvatinib in a Patient with Crohn's Disease

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Background: Lenvatinib is a standard molecular targeted therapy for hepatocellular carcinoma (HCC). However, its inhibition of vascular endothelial growth factor (VEGF) receptors can lead to serious adverse events, including gastrointestinal perforation. We report a case of rectal fistula during lenvatinib treatment in a patient with pre-existing Crohn's disease (CD).
Methods: A 60s male with a long history of CD presented with multiple HCC (cT3N0M0, Stage IIIA, Child-Pugh B). CD was managed with 5-ASA, azathioprine, metronidazole, and nutritional therapy. For HCC, after two sessions of transarterial embolization (TAE), lenvatinib was initiated.
Results: One month after starting lenvatinib, the patient developed abdominal pain and fever. Contrast-enhanced CT revealed a new rectal abscess and fistula. Lenvatinib was immediately discontinued. He was managed with intensive nutritional therapy and antibiotics (tazobactam/piperacillin), which led to the successful resolution of the abscess and fistula. Currently, HCC is being managed with TACE alone without further molecular targeted agents.
Conclusions: This case suggests that lenvatinib may exacerbate underlying inflammatory bowel disease or impair mucosal healing, leading to fistula formation. While lenvatinib is effective for HCC, we should exercise extreme caution and closely monitor gastrointestinal symptoms when administering VEGF inhibitors to patients with a history of Crohn's disease.

STP6-4 10164

Stepwise Immune Re-Sensitization Induced by Short-Term VEGF Inhibition Enhances Antitumor Efficacy of Repeated Durvalumab Re-Challenge in Advanced Hepatocellular Carcinoma: A Case Report

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Background: The clinical benefit of immune checkpoint inhibitor (ICI) re-challenge after treatment failure remains unclear in hepatocellular carcinoma (HCC), particularly in patients showing primary resistance to initial ICI-based therapy. Emerging evidence suggests that vascular endothelial growth factor (VEGF) inhibition may modulate the tumor immune microenvironment and restore ICI sensitivity; however, clinical examples remain extremely limited.
Case: A man in his 70s with metabolic dysfunction associated steatohepatitis-related advanced HCC received atezolizumab plus bevacizumab as first-line therapy, achieving long-term stable disease. Upon progression, second-line durvalumab plus tremelimumab resulted in radiological progression with increasing tumor markers. Short-term VEGF-targeted therapies with lenvatinib and cabozantinib were subsequently administered but discontinued due to adverse events and disease progression. Durvalumab monotherapy was then reintroduced, leading to a marked reduction in alpha-fetoprotein (AFP) levels (2100 to 966 ng/mL at 8 weeks) and radiological stable disease lasting approximately 15 months. After further progression, short-term lenvatinib was re-administered, followed by durvalumab re-re-challenge. This resulted in a more rapid and pronounced AFP decline (13,633 to 436 ng/mL within 5 months) compared with the prior re-challenge. Transarterial chemoembolization was added for residual disease control, and the patient continues durvalumab monotherapy with sustained disease control.
Conclusions: This rare case suggests that short-term VEGF inhibition may induce stepwise immune re-sensitization, restoring and accelerating responsiveness to durvalumab despite prior ICI failure. Repeated ICI re-challenge following VEGF modulation may represent a feasible therapeutic strategy in selected patients with advanced HCC.

Poster Group 29: Systemic Therapy Poster Session 7

STP7-1 10000

Exceptional Long-term Survival with Low-dose FP Regimen Hepatic Arterial Infusion Chemotherapy after Immune and TKI Failure in Advanced Hepatocellular Carcinoma: A Case Report from Vietnam

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Background: Treatment options for late-line advanced hepatocellular carcinoma (aHCC) remain undefined, with survival beyond the second line are generally modest. Evidence is scarce, while novel systemic therapies are costly and not always accessible. In contrast, hepatic arterial infusion chemotherapy (HAIC), particularly with low-dose FP regimen, has demonstrated antitumor efficacy Asian studies, yet long-term survival reports remain rare.
Case Representation: A 67-year-old man with chronic hepatitis B-related HCC was diagnosed radiologically according to AASLD criteria, showing a large hepatic mass (12&times13 cm) with arterial phase hyperenhancement and portal venous washout on contrast-enhanced CT, Vp3 portal vein invasion and no extrahepatic spread. Baseline AFP was 9181 ng/mL, ECOG 0 and Child-Pugh A5. Patient received atezolizumab-bevacizumab and lenvatinib as first- and second-line therapies, both achieving stable disease for 8 and 6 months. Salvage HAIC with low-dose FP regimen was initiated (cisplatin 7mg/m&sup2 and 5-fluoruracil 170mg/m&sup2, day 1-5, every 2 weeks).
During follow-up, tumor size decreased progressively and continuously at each 4-cycle assessment. After 18 months of uninterrupted HAIC, the tumor has shrunk to 5.7&times5.1cm, AFP reduced to 740 ng/mL. Liver function remained Child-Pugh A, with no significant toxicities. A single liver abscess resolved with antibiotics. Patient discontinued treatment by personal choice, and remarkably, remains alive over 3 years after HAIC, maintaining preserved hepatic and good quality of life.
Conclusion: HAIC with the low-dose FP regimen may serve as a salvage option for aHCC patients who have failed multiple systemic therapy and preserved liver function, offering the potential for durable tumor regression and long-term survival.

STP7-2 10153

Evaluation of the Efficacy of Sequential Therapy with New FP and Atezolizumab plus Bevacizumab in Unresectable Hepatocellular Carcinoma

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Background: In this study, we retrospectively evaluated the outcomes of sequential treatment in patients who received both New FP (HAIC regimen consisting of infusion of CDDP mixed with lipiodol followed by continuous infusion of 5- FU) and Atezo+Bev.
Methods: The study included 39 HCC patients who received Atezo+Bev at our institution. Among them, 9 patients who received New FP as first-line therapy followed by Atezo+Bev were classified as Group A, and 8 patients who received New FP after progression on Atezo+Bev were classified as Group B.
Results: In the overall cohort, CR was observed in 3 patients, PR in 9, SD in 15, PD in 11, yielding ORR of 32% and DCR of 71.0%. Group A: The outcomes of first-line New FP therapy were PR in 3 patients, SD in 5, with ORR of 38% and DCR of 100%. For second-line Atezo+Bev, CR was observed in 2 patients, PR in 2, SD in 2, and PD in 3, resulting in ORR of 44% and DCR of 67%. Group B: The outcomes of first-line Atezo+Bev were PR in 1 patient, SD in 5, and PD in 2, with ORR of 13% and DCR of 75.0%. For second-line New FP therapy, PR was observed in 2 patients, SD in 3, PD in 2, yielding ORR of 29% and DCR of 71%.
Conclusion: In this cohort, a certain degree of tumor reduction was achieved regardless of whether New FP or Atezo+Bev was administered first. However, favorable responses to Atezo+Bev were also observed after prior New FP therapy.

STP7-3 10157

5-fluorouracil plus Cisplatin Versus Cisplatin in Hepatic Arterial Infusion Chemotherapy for Advanced Hepatocellular Carcinoma: A Multicenter Randomized Controlled Trial

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Background: Hepatic arterial infusion chemotherapy (HAIC) has been a treatment option for advanced hepatocellular carcinoma (HCC); however, its optimal regimen remains unclear. We compared the efficacy and safety of a cisplatin (CDDP) regimen and a 5-fluorouracil plus cisplatin (FP) regimen.
Methods: This multicenter, randomized phase II trial (jRCTs041180176) enrolled patients with unresectable HCC who were unsuitable for locoregional treatments, had a Child-Pugh score ≤8, an ECOG performance status ≤2, and were intolerant of or refractory to systemic therapy. The primary endpoint was progression-free survival (PFS), and secondary endpoints included overall survival (OS), objective response rate (ORR), subsequent conversion therapy rate, and adverse events.
Results: Thirty-three patients were enrolled until April 2020. The main analysis was performed although the target number of events had not been reached because of poor accrual. Baseline characteristics did not differ significantly between groups. PFS was significantly longer in the FP group than in the CDDP group (median 5.00 vs. 1.38 months; stratified log-rank test, P = 0.0023). OS tended to be longer in the FP group (median, 9.53 vs. 5.69 months). The ORR was higher (41.2% vs. 18.8%), and subsequent conversion therapies were performed more frequently in the FP group (23.5% vs. 12.5%). Catheter-related adverse events were more frequently observed in the FP group (23.5% vs. 6.3%).
Conclusions: The FP regimen was associated with significantly prolonged PFS compared with the CDDP regimen. Further studies are warranted to clarify the positioning of HAIC in the era of immunotherapy.

STP7-4 10043

Near-Complete Response to Nivolumab+Ipilimumab in HCC With IVC Invasion: An Exceptional Outcome Beyond Trial Eligibility

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Background: Hepatocellular carcinoma (HCC) with inferior vena cava (IVC) invasion carries an extremely poor prognosis, and no robust evidence supports immunotherapy in this population. Nivolumab plus Ipilimumab (Nivo/Ipi) has shown benefit in selected advanced HCC, yet patients with macrovascular invasion were largely excluded from pivotal trials such as CheckMate-9DW.
Case: A 66-year-old woman with HCV-related cirrhosis(F4) achieved SVR but developed repeatedly recurrent HCC from 2017 onward. Despite multiple locoregional therapies, including RFA, TAE, TACE, PSE, BRTO, and PTO, the disease remained refractory. In 2021, recurrence was accompanied by a 1.5cm IVC tumor thrombus. With limited effective options and ineligibility for guideline-supported systemic therapies, Nivo/Ipi was initiated in August 2025. Four cycles were administered; however, therapy was interrupted when the patient developed severe endocrine immune-related adverse events, including fulminant type 1 diabetes mellitus leading to diabetic ketoacidosis and concomitant painless thyroiditis. Intensive multidisciplinary management enabled stabilization.
Results: Despite early cessation, contrast-enhanced CT demonstrated marked shrinkage and complete loss of enhancement of the IVC tumor thrombus. According to mRECIST, the response was classified as near-complete response(near-CR). Intrahepatic lesions also regressed, and no new lesions were observed.
Conclusion: This case represents a rare instance of near-CR induced by Nivo/Ipi in HCC with IVC invasion. Even after severe endocrine irAEs, coordinated multidisciplinary care preserved therapeutic benefits. Nivo/Ipi may offer an exceptional salvage option for selected patients with advanced HCC and macrovascular invasion.

Poster Group 29: Systemic Therapy Poster Session 7

STP7-5 10194

Dramatic Complete Response to Atezolizumab Plus Bevacizumab in Advanced Hepatocellular Carcinoma with Massive Liver Involvement

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Background: Immune checkpoint inhibitor-based regimens are currently recommended for patients with advanced hepatocellular carcinoma (HCC); however, their efficacy and safety remain unclear in patients with extensive hepatic tumor involvement (>50% liver occupancy) and main portal vein tumor thrombosis (Vp4). Here, we report a successfully treated case of Vp4-positive HCC with >50% liver involvement using atezolizumab plus bevacizumab (Atez/Bev).

Case Presentation: A man in his 60s with alcoholic liver cirrhosis was referred to our hospital because of jaundice and impaired liver function. Laboratory findings revealed marked hyperbilirubinemia (T-Bil 3.9 mg/dL) and substantially elevated tumor markers (AFP 9,426 ng/mL, DCP 1,069 mAU/mL). Contrast-enhanced CT demonstrated HCC occupying approximately 70% of the liver, accompanied by main portal vein tumor thrombosis and multiple bilateral lung metastases. Based on radiological findings and tumor marker levels, the patient was diagnosed with unresectable advanced HCC associated with alcoholic chronic liver disease. Esophagogastroduodenoscopy revealed no esophageal varices. After thorough discussion, systemic therapy was initiated at the patient's strong request. After two cycles of Atez/Bev therapy, jaundice improved, lung metastases resolved on imaging, and marked tumor regression was observed. After four cycles, tumor markers normalized, and a complete response was achieved by RECIST without any immune-related adverse events. Six months after initiation of Atez/Bev therapy, the patient remains alive without disease progression.

Conclusion: Atez/Bev may represent an effective therapeutic option for selected patients with advanced HCC characterized by extensive liver involvement (>50%) and Vp4.

STP7-6 10140

Selective Control of Pulmonary Metastases by Chemotherapy in Hepatitis C-related Hepatocellular Carcinoma: A Case Report

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Case Report: The patient is a man in his late 60s with hepatitis C cirrhosis resulting from blood transfusion during cardiac surgery in his childhood. The initial hepatocellular carcinoma (HCC) was treated with posterior segmentectomy. The second and third HCCs were treated via radiofrequency ablations, after 1.1 and 1.6 years, respectively. The third HCC recurred at the tumor periphery, and was resected by segment 5 subsegmentectomy at 2.7 years. Five years after the initial diagnosis, he developed recurring bilateral lung and the right ilium metastases, which were treated with radiation therapy. However, these lesions recurred. Atezolizumab plus Bevacizumab were initiated at 5.3 years, followed by switching to Lenvatinib Mesilate at 5.8 years. Genetic testing revealed high microsatellite instability, and Durvalumab plus Tremelimumab was initiated after 6.5 years. This regimen achieved good control of the lung metastases, however, the other metastases continued to progress. At 6.9 years, he underwent resection of a large intraabdominal disseminated tumor. At 7.1 years, a palliative radiation therapy was required for the right buttock. The patient's general condition gradually deteriorated, and he died of fatal hemoptysis at 7.3 years, despite the absence of radiographic lung metastases, in the presence of extensive non-pulmonary metastases.

Conclusions: This case highlights the heterogeneity of metastatic HCC. We report histopathological findings of the primary and metastatic lesions to explore differences in therapeutic responsiveness between pulmonary and the other metastases.

Poster Group 29: Systemic Therapy Poster Session 7
STP7-7 10028

Dual Tumor Response to Sequential Immune Checkpoint Inhibitors in Synchronous HCC and ESCC: A Case Report

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Background: Synchronous hepatocellular carcinoma (HCC) and esophageal squamous cell carcinoma (ESCC) are uncommon and pose therapeutic challenges, particularly when both tumors are unresectable and exhibit distinct biological features. Immune checkpoint inhibitors (ICIs) have become a key treatment option for advanced HCC and ESCC, but evidence for dual tumor responses and optimal sequencing in synchronous disease remains limited.
Methods: We describe a case of multifocal unresectable HCC with synchronous superficial ESCC that was treated with sequential ICI therapy, and we retrospectively reviewed the clinical course as well as radiological, endoscopic, and serological responses.
Results: A 78-year-old man with alcoholic liver disease presented with multifocal HCC and a PD-L1 negative ESCC. Systemic therapy for HCC was prioritized. Atezolizumab plus bevacizumab achieved tumor shrinkage in both lesions, as demonstrated by dynamic computed tomography and upper endoscopy, together with concordant reductions in tumor markers, but treatment was discontinued after the onset of an acute cerebral infarction. The regimen was then switched to durvalumab plus tremelimumab, which induced further HCC regression and complete endoscopic disappearance of the ESCC without severe immune-related adverse events.
Conclusions: Sequential ICI therapy achieved durable control of both HCC and ESCC despite PD-L1 negativity in the esophageal lesion. This case raises the possibility that tumor-agnostic immune modulation and immune crosstalk between coexisting malignancies may enhance antitumor activity, and suggests that further accumulation of similar cases and exploratory studies on predictive biomarkers and treatment strategies are needed.

Poster Group 30: Late Breaker Poster Session 1

LBP1-1 10245

Recurrence After Achieving a Drug-Free State Following Response to Systemic Therapy in Hepatocellular Carcinoma: A Retrospective Case Series

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Background: Recent advances in systemic therapy for advanced hepatocellular carcinoma (HCC) have enabled deep responses, including complete response (CR) according to RECIST or modified RECIST (mRECIST). Consequently, some patients discontinue systemic therapy and achieve a so–called "drug–free" state. However, data regarding recurrence after treatment discontinuation remain limited.
Methods: Among 888 patients who received systemic therapy for HCC at our institution between 2009 and 2025, we retrospectively identified 15 patients who discontinued systemic therapy after achieving a response. Five patients who developed recurrence during follow–up were analyzed.
Results: All five patients achieved radiological CR and/or sustained normalization of tumor markers before treatment discontinuation. Recurrence occurred 6–14 months after achieving the drug–free state. Three patients developed intrahepatic recurrence alone, while two experienced recurrence involving extrahepatic lesions. At recurrence, re–initiation of systemic therapy was feasible in two patients, and local therapies were administered in two patients. One patient transitioned to best supportive care due to deterioration in performance status.
Conclusions: Recurrence can occur even after achieving a drug–free state following a favorable response to systemic therapy in HCC. Careful surveillance after treatment discontinuation is warranted, and further accumulation of cases is needed to clarify recurrence patterns and optimal management strategies after relapse.

LBP1-2 10258

An Analysis of Progression Patterns After Response to Atezolizumab/Bevacizumab in Unresectable Hepatocellular Carcinoma

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Background: Atezolizumab plus bevacizumab (Atez/Bev) is a standard systemic therapy for unresectable hepatocellular carcinoma, and a subset of patients achieves RECIST PR/CR. However, real-world data on progression patterns and prognostic factors after initial response remain limited.
Methods: We retrospectively reviewed patients treated with Atez/Bev at our institution between November 2020 and November 2022. Patients who achieved RECIST 1.1 PR or CR and subsequently met PD criteria were included (n=14). We analyzed baseline clinical and tumor factors, treatment response, progression patterns, and post-progression management.
Results: Best response was CR in 2 patients and PR in 12 patients. At baseline, macrovascular invasion (MVI) was present in 5 patients and extrahepatic metastasis (EHM) in 3 patients. Median time from treatment initiation to best response was 5.9 months (1.4-24.1), and median time from best response to PD was 7.8 months (2.0-17.8). Progression was intrahepatic-only in 12 patients (86%). In the remaining 2 patients (14%), PD was driven by extrahepatic lesion growth without intrahepatic progression. Post-progression management included systemic therapy (n=9), conversion surgery (n=1), and best supportive care (BSC) (n=4, 29%).
Conclusions: Among 14 patients who achieved PR/CR and subsequently progressed, 86% had intrahepatic-only progression. Post-progression management was diverse: 1 patient underwent successful conversion surgery, 9 received systemic therapy, and 4 (29%) transitioned to BSC due to clinical deterioration. Larger studies are needed to define optimal post-progression strategies, including criteria for locoregional therapy and surgical resectability in patients with intrahepatic-confined progression.

Poster Group 30: Late Breaker Poster Session 1

LBP1-3 10270

Real-World Outcomes and Characteristics of Responders in Advanced Hepatocellular Carcinoma Treated with Durvalumab/Tremelimumab

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Background: Durvalumab/Tremelimumab combination therapy (Dur/Tre) demonstrates efficacy in advanced hepatocellular carcinoma (HCC). However, concerns remain regarding the high incidence of immune-mediated adverse events (imAEs) in real-world practice. This study analyzes clinical data to evaluate treatment outcomes and characteristics of responders.
Methods: We retrospectively collected and analyzed clinical data from 96 patients with advanced HCC treated with Dur/Tre at Chiba University Hospital, Japan, from April 2023 to January 2025.
Results: Median age was 73 years. All patients had ECOG PS 0-1, and 82 patients (85.4%) had Child-Pugh A. Forty-eight patients (50.0%) received Dur/Tre as first-line treatment. Median progression-free survival was 4.4 months (95% CI: 3.1-4.9), and median overall survival was 20.4 months (95% CI: 14.9-29.1). Best overall response by RECIST criteria showed CR in 2 patients (2.1%), PR in 14 (14.6%), SD in 48 (50.0%), PD in 28 (29.2%), and NE in 4 (4.2%); mRECIST criteria showed CR in 5 patients (5.2%). ImAEs occurred in 54 patients (56.3%), with 36 patients (37.5%) requiring corticosteroid treatment. Among patients achieving RECIST CR or mRECIST CR, 3 had extrahepatic lesions only (all lymph node metastases) and 2 had intrahepatic lesions only (one with Vp4 invasion).
Conclusions: Dur/Tre frequently causes severe imAEs requiring corticosteroid treatment. Given the high toxicity, identification of responders is crucial to optimize patient selection for this therapy.

LBP1-4 10238

Real-World Early Experience with Ipilimumab Plus Nivolumab (IPINIVO) for Advanced Hepatocellular Carcinoma

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Background: The combination of ipilimumab plus nivolumab (IPINIVO) was approved for unresectable hepatocellular carcinoma (HCC) in 2025. We report our early clinical experience with IPINIVO and discuss treatment outcomes, safety, and management.
Methods: Eight patients with unresectable HCC who received IPINIVO were retrospectively analyzed. Patient characteristics, best overall response according to RECIST, and immune-related adverse events (irAEs) were evaluated.
Results: The median age of cases was 75 years. Non-viral etiology accounted for 75% of cases. All patients had Child Pugh class A liver function, with 63% classified as ALBI grade 1. Treatment lines included first-line therapy in 3 patients and fourth-line or later in 2 patients. BCLC stages B and C each accounted for 50%. Best overall response included partial response (PR) in 1 patient, yielding an overall response rate of 13% and a disease control rate of 63%. All patients ultimately discontinued treatment, and only one patient completed four planned cycles of IPINIVO. However, 63% were able to proceed to subsequent therapy, including those who discontinued due to irAEs. Severe irAEs were frequent; 88% of patients with grade 3-4 irAEs required high-dose corticosteroids, and one patient with steroid-refractory colitis required infliximab.
Conclusions: IPINIVO may provide meaningful clinical benefit even in advanced-stage HCC. However, early-onset and severe irAEs are common, underscoring the importance of close monitoring and intensive patient education to prevent delays in management of irAEs.

Poster Group 30: Late Breaker Poster Session 1
LBP1-5 10269

Lessons Learned from 1,716 Hepatobiliary Cancers: Real World Outcomes of Immune Checkpoint Inhibitor Therapy

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Objective: Our hospital initiated a cancer registry in 2006 based on predefined criteria and has conducted annual survival surveys in collaboration with local municipalities. Over the past 17 years, survival status has been ascertained for nearly all patients, encompassing 35,316 cases across 25 cancer types. Using this comprehensive real–world dataset, we aimed to evaluate the impact of immune checkpoint inhibitor (ICI) therapy on the treatment of hepatobiliary cancers.
Methods: Between October 2006 and December 2024, 608 patients with biliary tract cancer and 1,108 patients with hepatocellular carcinoma were registered. This analysis included 121 patients with unresectable advanced biliary tract cancer and 61 patients with unresectable advanced hepatocellular carcinoma.
Results: In biliary tract cancer, the median survival time (MST) was 10.8 months (95% CI, 4.7–17.0) in the ICI group (n=15) and 5.4 months (95% CI, 2.5–8.3) in the non-ICI group (n=106). In hepatocellular carcinoma, the MST was 49.5 months in the ICI group (n=10); confidence intervals could not be reliably estimated due to the limited number of events, whereas the MST was 3.3 months (95% CI, 1.9–4.7) in the non-ICI group (n=51).
Conclusion: Real-world data demonstrated improved survival outcomes with ICI therapy in both biliary tract cancer and hepatocellular carcinoma. Further analyses are warranted to identify factors associated with therapeutic benefit.

Poster Group 31: Late Breaker Poster Session 2

LBP2-1 10234

Exploring the Value of Imaging Indicators in Predicting TACE Refractoriness in Hepatocellular Carcinoma Based on Contrast-enhanced CT

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Background: To establish a predictive model for transarterial chemoembolization (TACE) refractoriness in unresectable hepatocellular carcinoma (HCC) based on tumor burden and radiomic features, and to assess its potential for early identification.
Methods: A retrospective cohort of 255 HCC patients treated with initial TACE between 2013 and 2024 at three Chinese centers was analyzed. Patients were divided into training (n = 110), internal testing (n = 47), and external testing (n = 98) cohorts. Logistic regression was used to construct a model from radiomic features extracted from preoperative arterial-phase CT, combined with clinical and semantic imaging predictors of TACE refractoriness after three cycles. Two additional TCGA cohorts (n = 70 and 40) were used for prognostic and biological validation.
Results: The combined model achieved AUCs of 0.85, 0.81, and 0.77 in training, internal, and external cohorts, respectively. Overall survival was significantly different between low- and high-risk groups across all datasets ($P < 0.05$). Transcriptomic analysis indicated that high-risk patients had upregulated genes and pathways linked to tumor aggressiveness and treatment resistance.
Conclusion: A biologically interpretable combined model was developed and externally validated to effectively predict post-TACE refractoriness in HCC, providing a robust tool for personalized therapeutic decision-making.

LBP2-2 10233

Trans Arterial Chemoembolization Combined with Immunotherapy for BCLC Stage B Hepatocellular Carcinoma: A Systematic Review and Meta-analysis

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Background: Trans arterial chemoembolization (TACE) is the standard treatment for Barcelona Clinic Liver Cancer (BCLC) stage B hepatocellular carcinoma (HCC), yet outcomes remain heterogeneous. Combination strategies incorporating immune checkpoint inhibitors (ICIs) may enhance treatment efficacy.
Methods: Databases were searched for comparative and single arm study evaluating TACE plus immunotherapy in BCLC stage B HCC. Outcomes included overall survival (OS), progression free survival (PFS), objective response rate (ORR), disease control rate (DCR), and grade >3 adverse event (AE). Pooled hazard ratio (HR) and risk ratio (RR) with 95% confidence interval (CI) were calculated using random effects models.
Results: Eleven studies were included qualitatively, and five contributed to quantitative synthesis. ICI used across studies included atezolizumab, pembrolizumab, Sintilimab, Camrelizumab, tislelizumab, Toripalimab, and PD-1 inhibitors combined with Lenvatinib or Sorafenib. Combination therapy significantly improved OS and PFS. ORR was higher with combination therapy using both RECIST and mRECIST. While DCR did not differ significantly. Qualitatively, both phase III and real-world studies consistently demonstrated improved tumour response and survival. Grade >3 AEs were more frequent with combination therapy, with low treatment-related mortality.
Conclusion: In BCLC stage B HCC, TACE combined with immunotherapy across multiple ICI platforms improves survival and tumour response, at the cost of increased but manageable toxicity.

Poster Group 31: Late Breaker Poster Session 2

LBP2-3 10252

Safety and Recurrence Patterns of Ablation After Immune Checkpoint Inhibitor Therapy for Hepatocellular Carcinoma

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Background: Ablation (ABL) after immune checkpoint inhibitor (ICI) therapy for hepatocellular carcinoma (HCC) is increasingly used for tumor eradication and potential immune-mediated systemic effects. However, real-world data on peri-procedural safety, inflammation, liver function changes, and recurrence patterns remain limited.
Methods: We retrospectively analyzed consecutive HCC patients who underwent ABL within 1 year of the last ICI dose at a single center. The primary outcome was 30-day complications by Society of Interventional Radiology (SIR) criteria. Secondary outcomes were inflammation (change in C-reactive protein [CRP] from baseline to postoperative day [POD] 7; duration of fever >38 C), liver function (ALBI at baseline, POD7, and POD28), and initial recurrence patterns.
Results: Among 213 ICI-treated patients, 14 (6.6%) underwent ABL: 13 after atezolizumab/bevacizumab and 1 after durvalumab (RFA n=12; MWA n=2). Median age was 78 years (IQR 75-85); all were male. One minor pneumothorax occurred and was managed conservatively; no major complications occurred. Median CRP increased by +3.28 mg/dL (IQR -0.28 to 11.89) at POD7. Median fever duration >38 C was 0 days (0/1/2 days in 11/2/1 patients). Median delta ALBI was +0.29 at POD7 and -0.01 at POD28, indicating transient worsening with recovery by 1 month. Two patients developed rapid multifocal intrahepatic progression originating near the ablation zone with peripheral spread; both had poorly differentiated HCC on biopsy.
Conclusion: ABL after ICI therapy was generally safe with limited inflammation and minimal impact on liver function. However, caution may be warranted for poorly differentiated HCC given a potential risk of aggressive post-ABL intrahepatic progression.

LBP2-4 10243

Clinical Response of Brain Metastasis from Hepatocellular Carcinoma Treated with a Multimodal Approach Using Lenvatinib and Radiotherapy: A Case Report

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Background: Brain metastasis from hepatocellular carcinoma (HCC) is rare and associated with poor prognosis. Optimal management of brain metastases from HCC remains undefined.
Methods: We report a case of advanced HCC with brain metastases managed using a multimodal approach incorporating lenvatinib and radiotherapy.
Results: A 42-year-old woman with chronic hepatitis B underwent hepatectomy for HCC in December 2023 and developed local recurrence in March 2024, which was treated with transarterial chemoembolization. In November 2024, she was referred to our department with headache and nausea. Brain magnetic resonance imaging revealed multiple brain metastases, with the largest lesion measuring 30 × 44 × 40 mm and causing a 12-mm midline shift. She was diagnosed with BCLC stage C HCC with brain and lung metastases and preserved liver function (Child-Pugh A, score 5). Despite intensive anti-edema therapy, her neurological condition rapidly deteriorated with decreased consciousness and quadriplegia. Lenvatinib was initiated at 8 mg/day, resulting in marked improvement in consciousness and muscle strength within one week. Lenvatinib was continued for one month before whole-brain radiotherapy (30 Gy in 10 fractions) was initiated to enhance intracranial disease control. After three months, imaging demonstrated a partial response (RECIST 1.1). The patient maintained a good quality of life, remained independent in self-care, and experienced no clinically significant adverse events. Disease control was maintained until November 2025. PFS and OS from lenvatinib initiation were 12 and 14 months, respectively.
Conclusions: Lenvatinib combined with radiotherapy may provide meaningful clinical benefit in selected patients with HCC and brain metastases. .

Poster Group 31: Late Breaker Poster Session 2

LBP2-5 10242

Hepatocellular Carcinoma with Submandibular and Sternal Manubrial Metastases: Tumor Growth Rate Based Dynamic Assessment and Regorafenib Combined with a Tonifying Eliminating Harmonizing Strategy

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Background: To report an advanced hepatocellular carcinoma case with metastases to the right submandibular soft tissue and manubrium, and to evaluate tumor growth rate (TGR) as a complement to RECIST 1.1.
Methods: Clinical data from November 2023 to September 2025 were retrospectively reviewed. TGR was estimated from serial CT measurements of the manubrial lesion at 2024-05-07, 2024-10-08, and 2025-05-09 using an ellipsoid surrogate based on orthogonal diameters. Findings were interpreted with RECIST 1.1, Child-Pugh, ALBI, MELD-Na, AFP, and DCP. Regorafenib was given at 80 mg once daily on days 1-21 every 28 days, then increased to 120 mg in May 2025. Traditional Chinese medicine decoctions were individualized.
Results: Biopsy of the right submandibular lesion (HepPar-1 positive, Arginase-1 positive, Ki-67 about 40 percent) confirmed hepatic origin. Multiple bone metastases were identified in June 2024. The manubrial lesion enlarged from 48 x 68 mm to 77 x 92 mm to 89 x 107 mm, with TGR values of about 16.6 percent per month and 4.3 percent per month. After about 18 months of radiologic stability, progression was documented in May 2025. Over 22 months, liver function remained relatively stable; ascites first appeared in July 2025. No grade 3 or higher adverse events were documented.
Conclusion: TGR may complement RECIST 1.1 by detecting growth-kinetic shifts during transition from stable disease to progression. Integrated traditional Chinese medicine plus regorafenib may help preserve hepatic reserve and treatment continuity.

LBP2-6 10271

Triple Trouble: A Case of Hepatocellular Carcinoma in a Patient with Previous Renal and Colonic Malignancies

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Background: Multiple primary tumors (MPTs) are two or more synchronous or metachronous primary malignancies in a single patient. The frequency ranges from 2% to 17%, with triple primary cancers being exceedingly rare. We report a case of a patient with three primary malignant tumors: Renal cell carcinoma, colon adenocarcinoma and hepatocellular carcinoma.
Methods: We describe the clinical course, imaging findings, histopathology, and management of a 74-year-old male with a history of synchronous renal cell carcinoma and stage IA colon adenocarcinoma diagnosed in 2008, both managed surgically with partial nephrectomy and left hemicolectomy. In 2025, the patient developed progressive weight loss with elevated AST, ALT, carcinoembryonic antigen, and PIVKA-II (441.42 mAU/mL). Magnetic resonance imaging of the whole abdomen was performed, followed by ultrasound-guided liver biopsy for definitive diagnosis
Results: Imaging revealed a large right hepatic mass demonstrating arterial phase hyperenhancement and washout, initially suggestive of metastatic disease. Histopathologic examination showed hepatocytes arranged in trabecular patterns with positive Arginase and Glypican-3 immunostaining, confirming a diagnosis of hepatocellular carcinoma rather than metastatic recurrence. Based on this diagnosis, the patient was planned for combination therapy with selective internal radiation therapy (SIRT) and immunotherapy.
Conclusion: This case underscores the importance of considering de novo hepatocellular carcinoma in patients with prior malignancies presenting with hepatic lesions. Biopsy confirmation remains crucial when imaging findings are inconclusive. Recognition of multiple primary cancers allows appropriate treatment selection, including liver-directed therapy, and emphasizes the need for vigilant long-term surveillance to improve patient outcomes.

Poster Group 32: Late Breaker Poster Session 3

LBP3-1 10251

A CT-Based Hybrid Model for Predicting CK19-Positive Hepatocellular Carcinoma and Assessing Prognosis: A Multicenter Study

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Background: Cytokeratin 19 (CK19)-positive hepatocellular carcinoma (HCC) is an aggressive subtype associated with early recurrence, metastasis, and poor prognosis.
Methods: This retrospective multicenter study included 509 patients with HCC from five hospitals (2012-2023). Patients were divided into training, internal test (n=382) and external test (n=127) sets. A hybrid model integrating clinical variables, CT semantic features, and radiomics signatures was developed. Feature selection was performed using maximum relevance minimum redundancy (mRMR) and least absolute shrinkage and selection operator (LASSO) regression. Model performance was evaluated using area under the receiver operating characteristic curve (AUC). Prognostic stratification and treatment subgroup analyses were conducted using Kaplan - Meier survival analysis and propensity score matching (PSM).
Results: The hybrid model demonstrated AUCs of 0.80 (95% CI: 0.70-0.89) and 0.76 (95% CI: 0.66-0.87) in the internal and external test sets, respectively, outperforming clinical-only (AUCs: 0.689-0.652) and radiomics-only (AUCs: 0.712-0.722) models. The model successfully stratified patients into high- and low-risk groups, with the high-risk group showing significantly worse overall survival (OS) and early recurrence-free survival (eRFS). Subgroup analyses suggested that high-risk patients may benefit from minimally invasive surgery and wider resection margins, but not from postoperative adjuvant transarterial chemoembolization.
Conclusion: A CT-based hybrid model can noninvasively predict CK19-positive HCC and stratify prognosis, offering potential for personalized surgical planning and risk-adapted management.

LBP3-2 10263

Development of a Novel Erythrocyte-Related Risk Score for Prognosis Prediction in Hepatocellular Carcinoma Patients

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Background: Hepatocellular carcinoma (HCC), a highly dangerous malignancy to human health, requires accurate prognostic tools. In this study, we developed a novel risk score related to erythrocyte to predict the prognosis of HCC patients.
Methods: HCC datasets were obtained from The Cancer Genome Atlas (TCGA) and Gene Expression Omnibus (GEO) databases, while a gene set related to erythrocyte development and differentiation was obtained from Molecular Signature Databases. Using the least absolute shrinkage and selection operator (LASSO) regression model, we developed the risk score on erythrocyte-related genes. Additionally, a user-friendly visualization model was established, incorporating clinical parameters, to evaluate its calibration, accuracy, and clinical utility. The relationship between the erythrocyte-related risk score and molecular pathways, immune cells, and functions was explored, along with the predictive abilities of the hub genes across various cancer prognoses.
Results: The study found that the erythrocyte-related risk score effectively differentiated the prognosis of HCC patients and was associated with molecular and immune-related features, providing new strategies for personalized treatment.
Conclusion: This investigation has developed a risk scoring system based on genes associated with erythrocyte development, which can predict OS and PFS in patients with HCC. Additionally, this risk scoring system can provide insight into immune cell infiltration and their response to anti-tumor treatment in patients.

Poster Group 32: Late Breaker Poster Session 3

LBP3-3 10262

Anemia Predicts Poor Prognosis in HBV-Related Hepatocellular Carcinoma: a Large-Scale Retrospective Study

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Hepatitis B virus-related hepatocellular carcinoma (HBV-HCC) poses a major global health burden. While anemia correlates with tumor progression and prognosis in various cancers, its specific role in HBV-HCC is unclear. This study examined anemia as an independent prognostic factor for long-term survival, identifying potential therapeutic targets. Methods: This retrospective cohort included 2,642 newly diagnosed HBV-HCC patients at Beijing Ditan Hospital (January 2008 to December 2019), divided into anemia (n=911) and non-anemia (n=1,731) groups. Baseline characteristics were compared. Scatter plots assessed hemoglobin correlations with clinical parameters. Multivariate Cox regression identified prognostic factors. Kaplan-Meier curves evaluated 5-year overall survival (OS) and progression-free survival (PFS) by anemia severity and subgroups (BCLC stages, Child-Pugh classes, portal vein tumor thrombosis [PVTT] status). Results: Anemia group had higher hyperlipidemia, cirrhosis, complications, tumor burden, HBV-DNA positivity, and conservative treatment rates, with lower antiviral therapy. Anemia was an independent risk factor for 5-year OS. Anemic patients showed lower 5-year OS (median survival: 28.4 vs. 45.2 months) and PFS, worsening with severity. In BCLC A-B, Child-Pugh A-B, and no-PVTT subgroups, anemic patients had significantly inferior OS. Conclusions: Anemia independently worsens 5-year OS in HBV-HCC, linking to liver dysfunction, tumor burden, and complications. It represents a novel therapeutic target, especially in early-stage (BCLC A-B), preserved-function (Child-Pugh A-B), and no-PVTT patients.

LBP3-4 10253

Assessment of Liver Fibrosis Severity in Patients Infected with Hepatitis B and C Viruses

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Background: According to the World Health Organization (WHO), cancer-related deaths are projected to reach 20.3 million by 2030 due to global population growth. Hepatocellular carcinoma is a leading cause of cancer deaths and is strongly associated with chronic hepatitis B virus (HBV) and hepatitis C virus (HCV) infections. Mongolia has the highest liver cancer mortality rate worldwide. This study assessed liver fibrosis severity in HBV- and HCV-infected patients and its association with age and sex.
Methods: A cross-sectional study was conducted using medical records of 90 patients treated at Happy Veritas Hospital. Biochemical parameters, including ALT, AST, and platelet count (PLT), were collected. Liver fibrosis severity was assessed using the FIB-4 index, and APRI scores were calculated.
Results: Elevated ALT, AST, and bilirubin indicated hepatic inflammation. Most patients had mild to moderate fibrosis. Age-stratified analysis showed higher advanced fibrosis in older groups: 40% in patients aged 30-39, 52% in 40-49, and 42.9% in 50-59. Among males, mild, moderate, and advanced fibrosis were 42.9%, 21.4%, and 35.7%, while in females, mild and advanced fibrosis were 39.6%. Advanced fibrosis was slightly more frequent in HCV-infected patients than HBV-infected patients (40% vs 36.2%), not statistically significant.
Conclusion: Liver fibrosis severity increases with age in chronic HBV and HCV patients. APRI and FIB-4 indices are useful non-invasive tools to identify patients at higher risk of advanced fibrosis.

Poster Group 32: Late Breaker Poster Session 3
LBP3-5 10227

Level of IL-6 is Directly Correlated with the Severity of Hepatitis B

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Introduction: Hepatitis B virus (HBV) causes hepatitis, fulminant hepatic failure, liver cirrhosis and hepatocellular carcinoma. Cytokines have been shown to engaged in regulating hepatocyte functions, and play an important role in HBV infection immunopathogenesis.
Method: About 52 HBV subjects ranging from 18 years old to 80 years old that were recruited. Venous blood was taken and centrifuged at 4500rpm. The sera were withdrawn and divided into two aliquots and kept under temperature of -20 to -70 degrees. The first group of sera were subjected to a hybrid capture, tube-based signal amplification using HBV Digene Hybrid-Capture I, Digene Corporation, USA. While the second group of sera were subjected to a sandwich-ELISA test using LEGEND MAX Deluxe set human IL-6 kit to quantify the IL-6 levels. Both data were recorded and analyzed using IBM SPSS version 26 software.
Results: The severe the infection, the higher the IL-6 level, taking the mean value of IL-6 as 132.6pg/ml. A linear scatter plot was derived between the levels of IL-6 and HBV viral load. Pearson correlation coefficient showed a linear correlation between the two variables. Higher levels of IL-6 were detected in the subjects with HBV for longer than 6 months which proved that IL-6 levels correspond to the chronicity of the disease.
Conclusion: IL-6 is an acute phase reactant in the liver. Our studies proved that serum IL-6 levels were positively correlated with HBV severity and chronicity. Thus, IL-6 may be a useful indicator of disease activity and therapeutic efficacy in hepatitis B patients.

Poster Group 33: Late Breaker Poster Session 4

LBP4-1 10244

The Mongolian and the Southeast Asian Cluster: Mapping the 2022 Liver Cancer Epidemic Across Asia

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Background: Liver and intrahepatic bile duct carcinoma represents a critical oncological burden in Asia. This study elucidates the sexual dimorphism and regional heterogeneity of its incidence in 2022.
Methods: We analyzed incidence data extracted from the 2022 global cancer observatory (GLOBOCAN) database, covering 47 Asian countries/territories. Indices included Age-Standardized Rates (ASR) per 100,000 and absolute case volumes, stratified by sex.
Results: The analysis reveals profound geographic variance and consistent male predominance. Mongolia exhibits hyper-endemic status, recording the highest ASRs globally (Male: 113.46; Female: 80.95). A significant high-incidence cluster was identified in Southeast Asia (Cambodia, Thailand, Vietnam), where male ASRs exceed 34.0. China bears the highest absolute disease burden (> 367,000 combined cases), driven by population size rather than extreme ASRs relative to Mongolia. Conversely, South and West Asian nations (e.g., India, Israel) show the lowest incidence (ASR < 5.0). Sexual disparity is pronounced, with male-to-female ratios exceeding 3:1 in high-incidence zones.
Conclusion: The 2022 data highlights a persistent public health crisis in East and Southeast Asia. The extreme incidence in Mongolia and the massive volume in China necessitate stratified health policies prioritizing viral hepatitis eradication and targeted surveillance in high-risk male populations.

LBP4-2 10264

Temporal Trends in Hepatocellular Carcinoma Mortality in a Historically High-Risk Region of Japan: A Population-Based Study from Yamanashi Prefecture

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Background: Yamanashi Prefecture has historically exhibited one of the highest prevalences of hepatitis C virus (HCV) infection in eastern Japan. This unique epidemiological background is largely attributable to iatrogenic transmission during intravenous treatment for schistosomiasis japonica, which was once endemic in the region. Consequently, Yamanashi had long been regarded as a region with an exceptionally high incidence of hepatocellular carcinoma (HCC).
Objective: This study aimed to evaluate temporal trends in age-standardized mortality from HCC in Yamanashi Prefecture and to compare these trends with national data in Japan.
Methods: Publicly available epidemiological statistics were analyzed to assess age-standardized HCC mortality rates in Yamanashi Prefecture and nationwide. Longitudinal data over multiple decades were examined, with particular emphasis on recent trends.
Results: Age-standardized HCC mortality in Yamanashi Prefecture was substantially higher than the national average in earlier periods. However, a marked and sustained decline was observed over time. In recent years, the mortality rate in Yamanashi has decreased to a level comparable with the national average, indicating a significant narrowing of the regional disparity.
Discussion: The substantial reduction in HCC mortality in a historically high-risk region suggests major improvements in HCC management. Widespread HCV eradication, establishment of systematic surveillance, and advances in therapeutic strategies may have collectively contributed to improved survival outcomes at the population level.

Poster Group 33: Late Breaker Poster Session 4

LBP4-3 10256

Long-term Trends in Incidence, Stage, and Survival of Hepatitis B Virus-Related Hepatocellular Carcinoma: A Prospective Cancer Registry Analysis from 2006 to 2024

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Background: Hepatitis B virus-related hepatocellular carcinoma (HBV-HCC) remains a major cause of liver cancer in the Asia-Pacific region. However, long-term temporal changes in incidence, disease stage at diagnosis, and survival in the real-world setting have not been fully elucidated. Leveraging a long-standing prospective cancer registry, we evaluated longitudinal trends in HBV-HCC and compared them with hepatitis C virus-related (HCV-HCC) and non-B non-C HCC (NBNC-HCC).
Methods: Using a prospective institutional cancer registry covering 25 malignancies, we analyzed 33,140 cancer cases registered between October 2006 and December 2024. Among 1,086 hepatocellular carcinoma cases, 69 HBV-HCC cases were identified. Patients were divided into three periods: early (2006-2011), middle (2012-2017), and late (2018-2024). Incidence, UICC stage distribution, and overall survival were compared across periods and etiologies. Fisher's exact test, chi-square test, and log-rank test were applied.
Results: The number of HBV-HCC cases significantly declined in the late period, similar to HCV-HCC, while NBNC-HCC significantly increased. Unlike HCV-HCC, which showed a significant shift toward earlier-stage diagnosis, HBV-HCC demonstrated no significant stage migration across periods (p=0.356). Overall survival of HBV-HCC did not significantly improve over time, whereas survival significantly improved in both HCV-HCC and NBNC-HCC in the late period.
Conclusion: Although the incidence of HBV-HCC has markedly decreased, no significant improvement in stage at diagnosis or survival was observed. Further studies are needed to clarify the impact of functional cure of HBV on hepatocarcinogenesis and long-term outcomes.

LBP4-4 10266

Increasing Proportion but Stable Incidence of Non-B Non-C Hepatocellular Carcinoma in the Post-DAA Era: A Real-World Cohort Study

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Background: With the widespread use of direct-acting antivirals (DAAs), the etiology of hepatocellular carcinoma (HCC) has been shifting from virus-related to non-viral causes. However, nationwide fieldwork across Japan is not practically feasible. Therefore, analyses based on large real-world data from key regional medical centers, particularly those covering a substantial proportion of the prefectural population, are essential. Whether the increasing proportion of non-B non-C (NBNC) HCC reflects a true increase in patient numbers remains unclear.
Aim: To clarify temporal changes in both the proportion and absolute number of NBNC-HCC patients using a large real-world cohort.
Methods: We analyzed 1,120 HCC patients diagnosed at a single center between 2006 and 2024. Etiology was classified as hepatitis B virus (HBV), hepatitis C virus (HCV), or NBNC. Annual proportions and absolute numbers were assessed, with particular focus on changes before and after the introduction of DAA therapy in 2015.
Results: The proportion of HBV-related HCC remained stable throughout the study period. In contrast, the proportion of HCV-related HCC declined markedly after 2015 following widespread DAA use. Consequently, the proportion of NBNC-HCC increased over time, whereas the absolute number of NBNC-HCC patients remained largely unchanged.
Conclusion: The increasing proportion of NBNC-HCC primarily reflects a decline in HCV-related HCC after effective antiviral therapy rather than a true increase in NBNC-HCC incidence, highlighting a paradigm shift in HCC etiology in the post-DAA era.

Poster Group 33: Late Breaker Poster Session 4

LBP4-5 10265

Efforts to Combat Hepatitis C in a Leading High-Prevalence Prefecture in Eastern Japan

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Background: The prevalence of hepatitis C virus (HCV) infection has declined following the introduction of direct-acting antiviral (DAA) therapy. Because asymptomatic hepatocellular carcinoma (HCC) is difficult to detect, early identification and treatment of viral hepatitis are essential for HCC prevention. Yamanashi Prefecture is a high-prevalence region in eastern Japan, partly due to historical parenteral administration of antischistosomal therapy for schistosomiasis japonica, a former endemic disease in this area. Although nationwide fieldwork is challenging, our institution provides medical care for approximately 30% of the prefectural population, enabling assessment of HCV status at the prefectural level and providing a basis for future nationwide fieldwork.
Methods: Between January 2008 and December 2025, 184,428 individuals who underwent anti-HCV antibody testing at our institution were included. Annual anti-HCV antibody positivity rates, HCV-RNA testing rates, and HCV-RNA positivity rates were analyzed.
Results: In 2008, the anti-HCV antibody positivity rate was 7.4%, the HCV-RNA testing rate was 18.6%, and the HCV-RNA positivity rate was 55.6%. By 2025, these values changed to 1.6%, 57.9%, and 8.8%, respectively. Over time, anti-HCV antibody positivity and HCV-RNA positivity decreased, whereas HCV-RNA testing increased.
Conclusions: The decline in HCV-RNA positivity suggests that DAA therapy introduced in 2015 has substantially advanced HCV elimination. However, complete elimination has not yet been achieved. Improving HCV-RNA testing rates and awareness among physicians in other specialties remains essential.

LBP4-6 10229

Advancing Toward WHO's HCV Zero Goals: Performance Evaluation of the Elecsys HCV Duo for Simultaneous Antibody and Core Antigen Detection

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Background: Hepatitis C virus (HCV) diagnosis typically requires sequential HCV antibody (HCV-Ab) and HCV-RNA testing, which can delay confirmation. The Elecsys HCV Duo (HCV Duo) enables simultaneous detection of HCV-Ab and HCV core antigen (HCV-Ag) from a single serum sample. This study evaluated the performance of HCV Duo and the utility of HCV-Ag.
Methods: A total of 1,335 serum samples were analyzed to assess concordance of HCV-Ab results between HCV Duo and the Alinity Anti-HCV assay. HCV-Ag detection was examined in 18 HCV-RNA positive samples. Longitudinal changes in HCV-Ag and HCV-RNA were compared in five patients receiving antiviral therapy over two months.
Results: HCV-Ab concordance between HCV Duo and Alinity Anti-HCV was 100% (1,355/1,355). Among 1,335 samples, 1,298 were Ab-/Ag-, 2 were Ab-/Ag+, 32 were Ab+/Ag-, and 3 were Ab+/Ag+. Of the 18 HCV-RNA positive samples, 13 (72%) were Ag positive. In treated patients, HCV-Ag generally became negative one month after therapy initiation, paralleling HCV-RNA kinetics, with minor early discrepancies.
Conclusion: The HCV Duo assay reliably detects HCV-Ab and shows good concordance between HCV-Ag and active infection. Simultaneous Ab/Ag detection may streamline diagnostic workflows, support earlier identification of active infection, and reduce reliance on HCV-RNA testing.

Poster Group 33: Late Breaker Poster Session 4
LBP4-7 10249

Identification of Patients with Positive Hepatitis Virus Markers by Hepatitis Medical Care Coordinators

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Background: In May 2016, the World Health Organization announced a global strategy to eliminate hepatitis C virus (HCV) infection by 2030, emphasizing the importance of systematic identification of infected individuals.
Aim: To evaluate the effectiveness of a multidisciplinary program led by Hepatitis Medical Care Coordinators in identifying patients with positive hepatitis virus markers in a general hospital.
Methods: Since 2019, an in-hospital identification program centered on Hepatitis Medical Care Coordinators has been implemented. For anti-HCV-positive cases, 18,043 inpatients and outpatients who underwent anti-HCV antibody testing between July 2018 and March 2025 were included. Laboratory coordinators extracted positive cases, pharmacy coordinators prepared clinical summaries, and gastroenterologists reviewed cases before recommending referral. For hepatitis B surface antigen positive cases, 17,558 patients tested between January 2019 and March 2025 were evaluated using the same workflow.
Results: Anti-HCV antibodies were detected in 903 patients (5.0%), of whom 395 newly identified cases required referral recommendations. Among these, 157 patients (40%) were already managed by the Department of Gastroenterology at the initial visit, and 92 patients (23%) visited the department following coordinator-led recommendations. Among these patients, 42 (46%) were negative for HCV RNA, and 9 received direct-acting antiviral therapy. Among 16 patients with liver cirrhosis, hepatocellular carcinoma (HCC) was diagnosed in 5 patients, and hepatic resection or local ablative therapy was performed in 4. The hepatitis B surface antigen positivity rate was 476(2.7%), and 232 newly identified patients required referral recommendations.
Conclusion: A coordinator-led multidisciplinary approach promoted identification, specialist referral, and early detection of HCC, supporting hepatitis elimination strategies.

Poster Group 34: Late Breaker Poster Session 5

LBP5-1 10257

Single-Cell Profiling Reveals Novel Insights into Vessel Co-Option in Human Colorectal Liver Metastases

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Colorectal cancer liver metastases (CRCLM) develop through two major histopathological growth patterns: desmoplastic (dHGP), which depends on angiogenic vessel formation, and replacement (rHGP), which expands by co-opting the native liver vasculature. The molecular mechanisms underlying vessel co-option remain incompletely understood. We performed single-nucleus RNA sequencing on snap-frozen CRCLM tissues from both patterns across 10 donors. After data integration and clustering, we annotated liver, stromal, immune, and vascular compartments, focusing on endothelial and cancer cell heterogeneity. Differential gene expression and CellChat-based ligand-receptor analyses identified signaling pathways enriched in vessel-co-opting regions. Key findings related to endothelial cell activation were tested in primary liver sinusoidal endothelial cells exposed to conditioned medium or extracellular vesicles from patient-derived organoids. Endothelial cells exhibited distinct transcriptional states. Replacement lesions showed increased expression of adhesion-, integrin-, and cytoskeleton-related genes consistent with remodeling and mechanical adaptation, whereas desmoplastic lesions displayed signatures of endothelial proliferation and sprouting angiogenesis. Tumor-derived conditioned media partially reproduced these states in vitro. Our data define growth pattern-specific endothelial programs linked to vessel co-option and angiogenesis in CRCLM, highlighting vascular heterogeneity and candidate pathways that may affect therapeutic response.

LBP5-2 10259

Unbiased Single-Cell Transcriptome-Proteome Co-Profiling Reveals Post-Transcriptional Buffering in Rare CSF-CTCs

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Simultaneous profiling of the transcriptome and proteome is essential for decoding regulatory mechanisms but remains constrained by sensitivity trade-offs and the bias inherent in targeted approaches. Here, we present a single-cell Magnetic-Assisted Partitioning Sequencing (scMAPS) strategy for unbiased simultaneous transcriptome-proteome profiling within the same single cell. By chemically segregating RNA and proteins without physical splitting, scMAPS minimizes sample loss and obviates special device. We demonstrate its precision in multi-modal cell-type classification and marker cross-validation. Furthermore, by combining scMAPS and microfluidic chips to rare cerebrospinal fluid circulating tumor cells (CSF-CTCs) from lung cancer patients, we uncover a coordinated malignant dormancy phenotype characterized by synchronized immune evasion and metabolic suppression. Validated against clinical cohort data, these findings highlight the power of scMAPS to dissect complex post-transcriptional buffering mechanisms. This robust workflow democratizes single-cell proteogenomics, offering a versatile platform for deep phenotyping across diverse biological systems, from complex tissues to scarce clinical specimens.

Poster Group 34: Late Breaker Poster Session 5

LBP5-3 10268

Research on Targeted TGF-beta Pathway Inhibitors in Hepatocellular Carcinoma

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Objective: TGF-beta signaling promotes HCC progression and therapy resistance. This study reviews preclinical/clinical advances of its inhibitors in HCC, summarizing mechanisms, efficacy, safety, combinations and key challenges.
Methods: PubMed/Embase/ClinicalTrials.gov were searched for relevant studies updated to February 9, 2026; agents were grouped by modality.
Results: ALK5 inhibition suppresses SMAD/EMT/angiogenesis, reducing HCC invasion. TGF-beta blockade relieves immune exclusion and enhances PD-1/PD-L1 therapy. It also intercepts the fibrosis-cirrhosis-cancer axis, supporting stage-adapted combinations.
Conclusion: Targeting TGF-beta reshapes HCC's TME and limits metastasis. Future research should refine predictive biomarkers, optimize combination timing and clarify long-term safety.

LBP5-4 10267

Research on Targeted FGFR4 Inhibitors in Hepatocellular Carcinoma

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Background: The fibroblast growth factor 19 (FGF19)-FGFR4-KLB axis is liver-enriched and links bile-acid homeostasis to oncogenic signaling. In hepatocellular carcinoma (HCC), pathway activation promotes proliferation, survival, and therapeutic resistance, nominating FGFR4 as a precision target. We review recent advances in FGFR4-targeted inhibitors and biomarker-driven combination strategies in HCC.
Methods: PubMed, Embase, and ClinicalTrials.gov were searched for preclinical and clinical studies of FGFR4 inhibition in HCC (updated February 9, 2026). Agents were grouped as selective FGFR4 inhibitors or pan-FGFR inhibitors with FGFR4 activity, and evidence was synthesized around efficacy, biomarkers, safety, resistance, and combinations.
Results: (1) Biomarker-enriched anti-tumor activity: Clinical benefit is mainly observed in FGF19-driven tumors. In a first-in-human study of fisogatinib (BLU-554), objective response rate (ORR) was 17% in FGF19 immunohistochemistry (IHC)-positive patients, with no objective responses in FGF19-negative/unknown tumors.(2) On-target pharmacology and safety: Because FGFR4 regulates bile-acid feedback, class toxicities include diarrhea and bile-acid perturbation; in fisogatinib once-daily cohorts, diarrhea occurred in 74% of patients and was grade greater than or equal to 3 in 8%, supporting proactive supportive care and monitoring.(3) Resistance and combination strategies: Acquired on-target FGFR4 kinase-domain mutations and bypass signaling can limit durability, motivating next-generation inhibitors and biomarker-enriched combinations.
Conclusion: FGFR4 inhibition represents a biomarker-driven therapeutic avenue for FGF19-activated HCC. Future studies should harmonize FGF19/FGFR4/KLB assays, integrate dynamic resistance monitoring, optimize combination timing, and refine bile-acid-related toxicity mitigation to improve depth and durability of response.

Poster Group 35: Late Breaker Poster Session 6

LBP6-1 10237

Development of a Novel Flavonoid Derivative with a Potent Anti-steatosis Activity in HepG2 Cells for Therapeutic Use in Metabolic Dysfunction Associated Steatotic Liver Disease (MASLD)

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Metabolic dysfunction associated steatotic liver disease (MASLD), a chronic liver disease previously known as non-alcoholic fatty liver disease (NAFLD), is a global health concern with a prevalence of about 30% worldwide. Uncontrolled MASLD leads to liver fibrosis that ultimately resulting in cirrhosis, liver failure, or hepatocellular carcinoma, causing significant burden to the patients and the healthcare system. Treatment of MASLD mainly employs lifestyle modifications such as diet controls. However, lack of patient compliance to lifestyle modifications is the key factor affecting the low rate of successful MASLD management. Resmetirom, a thyroid hormone receptor beta agonist, is a single drug that has been approved by the United States Food and Drugs Administration (US-FDA) in 2024 for use in MASLD patients. However, alternative drugs/regimens are still in need as resmetirom safety profiles in clinical use are limited and further studies are still required to evaluate the true drug adverse effects. With natural compound libraries in our hands and HepG2 human hepatoma cell-based fluorescence high-throughput steatosis model, we found that a flavonoid derivative AD14, without any cytotoxic activity observed at any concentrations tested, exhibited anti-steatosis activity in HepG2 cells in a dose-dependent manner with half-maximal inhibitory concentration (IC50) at 186 nanomolar. In addition, flow cytometric analysis at the single cell level showed that AD14 had higher anti-steatosis activity than resmetirom. This study suggests that our AD14 could be a promising therapeutic agent for use in MASLD, however further animal and clinical studies are needed to assess its toxicity/adverse effects.

LBP6-2 10247

A Systematic Evaluation of Network Pharmacology Approaches for Elucidating Mechanisms and Therapeutic Effects of Herbal Medicines

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Background: Network pharmacology has become an increasingly popular approach for uncovering the mechanisms and therapeutic benefits of herbal remedies. However, the wide variability in current methodologies highlights a critical need for systematic assessment to guarantee consistency and reliability. Therefore, this study aimed to critically evaluate network pharmacological strategies, focusing on their ability to identify the underlying mechanisms and therapeutic efficacy of herbal medicines.
Methods: We utilized a holistic strategy encompassing systematic data collection, network construction, and analytical evaluation. Constituents and targets of herbal medicines were rigorously sourced from five separate databases to ensure robust coverage and high data integrity. We applied advanced network algorithms to isolate key targets and forecast therapeutic outcomes, thereby enhancing the analysis's scope. Furthermore, computational predictions were substantiated through experimental validation using prostate cancer models.
Results: Performance evaluations revealed unique trends depending on the network construction and aggregation techniques employed. While methods such as network centrality and path counts demonstrated specific advantages and limitations, assessing the influence on the multiscale interactome provided the superior accuracy in distinguishing known therapeutic effects. By optimizing these conditions, we successfully discovered novel indications for herbal treatments, which were subsequently confirmed via in vitro and in vivo assays.
Conclusion: This research offers a pioneering, comprehensive critique of existing network pharmacology methodologies within the field of herbal medicine. The findings provide essential guidelines for enhancing the precision and reliability of future studies aimed at elucidating the mechanisms and therapeutic potential of herbal drugs.

Poster Group 35: Late Breaker Poster Session 6

LBP6-3 10255

The Mechanism of Compound Kushen Injection in Regulating Phosphatidylcholine-Mediated NK Cell Suppression of Liver Cancer Ascites

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Background: This study aims to explore the mechanism of action of Compound Kushen Injection in the treatment of malignant liver cancer ascites and identify the related drugs and their target points involved in inhibiting ascites formation.
Methods: The study utilized the Balb/c mouse liver cancer ascites model, divided into four groups: control, low-dose Compound Kushen Injection, medium-dose, and high-dose. Mice were treated for 15 days with different doses of the injection. The changes in metabolic and immune environments of the ascites were assessed using LC-MS, H&E staining, immunohistochemistry, and flow cytometry to analyze immune cell variations.
Results: Compared with the control group, the medium and high doses of Compound Kushen Injection significantly inhibited ascites formation, with reductions of 11.6% and 19.9% in ascites volume, respectively. The median survival time increased by 22.5% and 37.8%. Metabolomic analysis showed alterations in phosphatidylcholine and other metabolites, especially in the COP-choline metabolic pathway. Histological and immunological analysis revealed significant reductions in peritoneal hyperplasia, fibrosis, and immune cell infiltration.
Conclusion: Compound Kushen Injection significantly reduces ascites in the malignant liver cancer mouse model, primarily by regulating phosphatidylcholine metabolism and enhancing immune responses. This study provides experimental evidence for its potential application in liver cancer ascites treatment and lays the foundation for future clinical use.

LBP6-4 10261

Efficacy of Yangyin Fuzheng Jiedu Prescription for Hepatocellular Carcinoma with Portal Vein Tumor Thrombosis: An Evaluation Using Five Propensity Score Methods

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Objectives: djuvant therapy selection for advanced hepatocellular carcinoma (HCC) with portal vein tumor thrombus (PVTT) remains challenging. This study evaluated Traditional Chinese Medicine (TCM)'s value in improving outcomes, comparing hospital-prepared Yangyin Fuzheng Jiedu Formula (YFJP) decoction with approved Chinese patent medicines (CPMs) like Ganfule Capsule and Huaier Granule.
Methods: We retrospectively analyzed 892 HCC patients with PVTT treated 2012 to 2022, divided into Western medicine (WM; n=579) and integrated Chinese-Western medicine (ICWM; n=313) groups. WM followed 2019 guidelines (antitumor, antiviral, anti-inflammatory, complication, and supportive care). ICWM added YFJP. TCM duration was from records. Propensity score matching and weighting adjusted confounders. Multivariable Cox models identified 5-year overall survival (OS) factors. Forest plots assessed HR differences across subgroups; Kaplan-Meier curves compared TCM patterns/durations/types; STEPP analysis identified YFJP-benefiting subpopulations.
Results: After adjustment using propensity score methods, TCM therapy was identified as an independent protective factor for prognosis in PVTT patients. Other independent factors influencing 5-year OS included etiology, WM treatment modality, platelet count, creatinine level, gamma-glutamyl transferase level, alpha-fetoprotein level, mean platelet volume, and CD8+ T-cell count. Prolonged duration of TCM administration was associated with a stronger protective effect on prognosis, indicating greater patient benefit. STEPP analysis revealed that patients with mild to moderate thrombocytopenia, prothrombin activity approaching 70%, or an inflammatory burden index greater than 4 derived significantly more benefit from the YFJP decoction than from CPMs.
Conclusion: Long-term TCM adjunct improves PVTT prognosis; CPM efficacy confirmed. YFJP benefits subgroups with better coagulation or severe inflammation, warranting mechanistic studies.

Poster Group 35: Late Breaker Poster Session 6
LBP6-5 10260

Yangyin Fuzheng Jiedu Prescription Improves Survival in HBV Related Hepatocellular Carcinoma Patients with Anemia: A Promising Herbal Formula Under Translation

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Objective: This study aimed to identify independent prognostic factors for patients with concurrent hepatitis B virus-related hepatocellular carcinoma (HCC) and cancer-related anemia (CRA), and to investigate the impact of compound Yangyin Fuzheng Jiedu Prescription (YFJP) on patient outcomes. Furthermore, the objective was to determine the patient subset most likely to benefit from YFJP intervention for guiding clinical practice.
Methods: A total of 532 patients diagnosed with coexisting HBV-related HCC and CRA at Beijing Ditan Hospital between June 2008 and June 2017 were analyzed, with 318 receiving YFJP treatment and 214 undergoing exclusive modern medical treatment. Multivariable Cox regression analysis was employed to assess the effect of YFJP on hazard ratio (HR), while Kaplan-Meier survival curves and dendrograms were used to examine mortality risks and factor correlations among HBV-HCC patients with CRA.
Results: The Cox regression analysis revealed that YFJP was a significant protective factor for 1-year survival in this patient cohort. Patients using YFJP for over 6 months showed significantly higher overall survival rates compared to those using it for less than 6 months. Alpha-fetoprotein (AFP) and C-reactive protein (CRP) emerged as independent risk factors for 1-year survival in HBV-HCC patients with CRA, with the highest survival rates observed in subgroups having low AFP and CRP levels.
Conclusion: YFJP demonstrated protective effects in patients with HBV-related HCC and CRA, and survival was positively associated with the duration of YFJP use. Patients with low CRP and AFP levels represent the optimal population for YFJP treatment to enhance prognosis.