

Transforming Liver Tumor Care: Integrating Interventional Oncology into the Multidisciplinary Tumor

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Purpose

- This educational exhibit aims to evaluate how the integration of interventional oncology (IO) into multidisciplinary tumor boards (MTBs) influences treatment timing, procedural utilization, and clinical outcomes in patients with complex hepatic malignancies.

Materials and Methods

- A targeted literature review of hepatic tumor management was conducted using clinical cohort studies, national treatment guidelines, and retrospective analyses to evaluate the clinical impact of IO integration into MTBs
- Primary outcomes of this review included changes in referral patterns, procedural utilization, coordination of care, and survival metrics.
- Particular attention was paid to patients with advanced or anatomically complex hepatic tumors, where IO decision-making plays a uniquely critical role.

Results

- Management of hepatocellular carcinoma (HCC) by a multidisciplinary team rather than a single individual demonstrates significantly reduced patient mortality.¹
- Furthermore, patients with HCC under the care of MTB demonstrate earlier diagnoses, shorter wait times until treatment, increased access to curative treatment modalities, and overall improved survival rates.²
- A study involving matched cohorts of patients with HCC produced statistically significant improvements in 5-year survival rates when comparing patients under the care of MTB versus those without, a finding that was most profound in complex and advanced tumors.³
- Following the formation of MTB, a single-center study reported a significant rise in IO procedure referrals (31% to 58%, $P = 0.001$).⁴
- This shift represents an improvement in tumor management and clinic outcomes as locoregional treatment such as ablation demonstrates a three-fold survival advantage over chemotherapy alone.⁵
- Additionally, in a study producing time-varying Cox proportional hazards models, both ablative therapy and transarterial therapy were associated with reduced mortality in patients with HCC.⁶

Conclusions

- MTBs enhance patient care coordination, accelerates treatment initiation, and increases the use of effective locoregional therapies.
- Integration of IO into MTBs improves survival outcomes through enhanced referral networks and increased selection of treatment modalities.
- These findings underscore the vital role IO integration serves for streamlining care, improving clinical outcomes, and maximizing the therapeutic potential of treatment for complex hepatic malignancies.

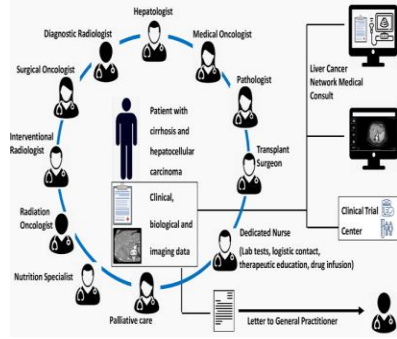


Figure 1:
Figure adapted from Cabibbo et al.
flowchart demonstrating a variety of roles necessary for patient management and treatment under the care of a multidisciplinary tumor board.

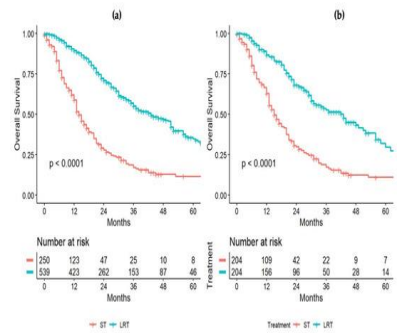


Figure 2:
Figure and caption adapted from Milana et al.
Overall survival comparison between patients undergoing systemic therapy (ST) or locoregional treatment (LRT: surgery/thermal ablation), before (a) and after (b) the propensity-score-matching process.

	Pre-DMT (n=70)	Post-DMT (n=134)	Pvalue
Medical oncology referral, n (%)	58 (83)	111 (83)	.567
Interventional radiology referral, n (%)	22 (31)	77 (66)	.001
Surgical oncology referral, n (%)	21 (30)	66 (49)	.018
Radiation oncology referral, n (%)	2 (3)	18 (13)	.019

Table 1:
Table adapted from Duinincx et al.
HCC patient referral data stratified by the initiation of disease management team (DMT) demonstrating a significant increase in IO referrals.

References

- Cabibbo G, Daniele B, Borzio M, et al. Multidisciplinary Treatment of Hepatocellular Carcinoma in 2023: Italian practice Treatment Guidelines of the Italian Association for the Study of the Liver (AISF), Italian Association of Medical Oncology (AIOM), Italian Association of Hepato-Bilio-Pancreatic Surgery (AICEP), Italian Association of Hospital Gastroenterologists (AIGO), Italian Association of Radiology and Clinical Oncology (AIRO), Italian Society of Pathological Anatomy and Diagnostic Cytology (SIAPeC-IAP), Italian Society of Surgery (SIC), Italian Society of Gastroenterology (SIGE), Italian Society of Medical and Interventional Radiology (SIRM), Italian Organ Transplant Society (SITO), and Association of Patients with Hepatitis and Liver Disease (EpaC) – Part I – Surgical treatments. Dig Liver Dis. 2024;56(2):223-234. doi: 10.1016/j.dld.2023.10.029
- Kinsey E, Lee HM. Management of Hepatocellular Carcinoma in 2024: The Multidisciplinary Paradigm in an Evolving Treatment Landscape. Cancers. 2024;16(3):666. doi:10.3390/cancers16030666
- Sinn DH, Choi GS, Park HC, et al. Multidisciplinary approach is associated with improved survival of hepatocellular carcinoma patients. PLoS ONE. 2019;14(1):e0210730. doi: 10.1371/journal.pone.0210730
- Duinincx G, Lopez-Aguilar AG, Lee RM, et al. Optimizing cancer care for hepatocellular carcinoma at a safety-net hospital: The value of a multidisciplinary disease management team. J Surg Oncol. 2019;120(8):1365-1370. doi: 10.1002/jso.25738
- Milana F, Famularo S, Luberto A, et al. Multidisciplinary Tumor Board in the Management of Patients with Colorectal Liver Metastases: A Single-Center Review of 847 Patients. Cancers. 2022;14(16):3952. doi: 10.3390/cancers14163952
- Serper M, Taddei TH, Mehta R, et al. Association of Provider Specialty and Multidisciplinary Care With Hepatocellular Carcinoma Treatment and Mortality. Gastroenterology. 2017;152(8):1954-1964. doi: 10.1053/j.gastro.2017.02.040