

Transplant Oncology II

Downstaging outcomes for hepatocellular carcinoma before liver transplantation

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For patients with early-stage HCC who are ineligible for resection due to liver dysfunction or tumor multifocality, liver transplantation (LT) is an optimal treatment strategy as it provides cure for both HCC and the underlying liver disease. The Milan criteria has been established worldwide as the standard for optimal patient selection. Proposals for patients with larger tumor burden have been developed including the UCSF criteria, up-to-seven criteria, total tumor volume cut-offs, and Kyoto criteria though these criteria do not account for the effects of local-regional therapy (LRT). Down-staging of HCC is a process involving expanded transplant criteria and the effects of local-regional therapy to reduce size of tumor(s) to meet acceptable LT criteria. This process likely serves as a selection tool to identify a subgroup with favorable tumor biology. In HCC patients exceeding Milan criteria but meeting well-defined upper limits of tumor size and number, post-LT outcome in those successfully downstaged to Milan criteria do not significantly differ from those always within Milan criteria. Additionally, recent multi-center prospective studies have further confirmed the feasibility of tumor downstaging as well as the clear survival benefit of downstaging. In a prospective multi-regional study based on UNOS-DS criteria (1 lesion 5.1-8 cm; 2-3 lesions <5 cm; and 4-5 lesions <3 cm with total tumor diameter <8 cm), we observed successful down-staging rate exceeding 80%, and similar efficacy of TACE and Y-90 radioembolization as initial down-staging treatment. However, despite excellent 2-year post-LT survival of 95%, the tumor under-staging rate was higher than expected at >40%. In another recent randomized clinical trial of 74 patients who presented beyond Milan criteria, were downstaged, and then subsequently randomized to LT versus non-LT therapies, 5-year survival was 77% in the LT group versus 31% for controls (HR 0.32, 95%CI 0.11-0.92). Based on these data, patients who are otherwise transplant-eligible with initial tumor burden exceeding the Milan criteria should be considered for LT following successful downstaging. Currently in the United States, patients downstaged to within Milan criteria from UNOS-DS criteria are eligible to receive an automatic exception score after a 6-month waiting period (Table). However, liberalizing downstaging criteria results in a lower rate of successful downstaging and a higher rate of waitlist dropout as well as inferior post-LT survival.