

Model for End-Stage Liver Disease (MELD) Exception for Uncommon Hepatic Tumors

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Liver transplantation has been performed for a wide variety of rare hepatic tumors. The anecdotal nature of this experience makes evidence-based decisions regarding suitability for transplantation very challenging. The largest reports of transplantation for tumors other than hepatocellular carcinoma and cholangiocarcinoma have been for neuroendocrine tumors. Hepatic metastases are present in approximately 75% of patients at the time a neuroendocrine tumor is diagnosed, and cure by liver transplantation (LT) is rare.

TUMORS

Noncarcinoid Neuroendocrine Tumors

Outcomes in patients with noncarcinoid tumors are inferior to those in patients with carcinoid tumors limited to the liver.¹ The largest series of patients with noncarcinoid tumors, a French multicenter experience, had survival rates of 38, 15, and 8% at 1, 3, and 4 years, respectively, with no disease-free survivors at 5 years.¹ Reports since then have failed to document better outcomes. Although LT is not curative, it probably offers substantial palliative benefit to selected patients. Nevertheless, given the overall dismal outcomes, it does not appear wise to offer LT to these patients as a standard Model for End-Stage Liver Disease (MELD) exception.

Carcinoid Neuroendocrine Tumors

In the French experience,¹ the survival rate for metastatic carcinoid tumors was 80, 80, and 69% at 1, 3, and 5 years, respectively. In comparison, the 5-year survival rate after nontransplant treatment of neuroendocrine tumors is 25 to 35%. Although this is not a fair comparison because of selection bias, it does suggest

that selected patients with this disease may benefit from LT.

Patients should be excluded if they have evidence of extrahepatic tumor deposits because these patients cannot be cured by LT. Ideally, the primary tumor should have been removed because tumor recurrence after upper abdominal exenteration is associated with high morbidity and has not been shown to improve the tumor-free survival rate. A bone scan and/or skeletal survey is important because the next most frequent site of distant metastasis after the liver is bone. It is suggested that LT be considered when patients are symptomatic and when tumor has failed to respond to other available treatments after presentation to the Regional Review Board.

Sarcoma

Although there are anecdotal cases of patients with long-term survival after LT for primary angiosarcoma of the liver, the preponderance of data indicates very poor survival and that cure is not possible.² These patients should not receive additional priority for LT as a standard MELD exception.

Hepatic Epithelioid Hemangioendothelioma

These tumors arise from the vascular endothelium and must be distinguished from sarcoma. Those affected are predominantly young adults, particularly young women. The extent of tumor involvement is difficult to define radiologically. Diagnosis is confirmed by positive immunohistochemical staining for factor VIII. In the first year of the MELD and Pediatric End-Stage Liver Disease policy, 16 requests were made for exceptions that were based on this diagnosis, and 14 were granted.

Abbreviation: LT, liver transplantation; MELD, Model for End-Stage Liver Disease.
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DOI 10.1002/lt.20970

Published online in Wiley InterScience (www.interscience.wiley.com).

Treatment can include observation alone, chemotherapy, resection, or LT, with long-term survival reported for each of these treatment options. The results for LT are quite good, despite the fact that the tumor is often widespread at the time of diagnosis. A 5-year tumor-free survival rate of 60% has been reported.³ Successful treatment of patients with extrahepatic disease has been described, and metastatic spread at the time of LT does not appear to correlate with posttransplantation survival.⁴⁻⁶ Therefore, this tumor is one of the circumstances where LT in the presence of extrahepatic disease may be justified. The highly variable clinical behavior of this tumor makes it impossible to provide objective data on when LT should be performed and how long the window of opportunity for LT is. Current opinion is that treatment should be individualized depending on symptoms and the rate of disease progression.

Biliary Cystadenocarcinoma

This tumor, which can arise in association with Caroli's disease, must be distinguished from benign biliary cystadenoma. It is usually multilocular, but unilocular cases have been reported. In general, this tumor is amenable to surgical resection. There are anecdotal cases of successful LT for this tumor, but long-term follow-up data are not available for patients treated with LT for this indication.²

Hepatic Adenoma in Patients With Glycogen Storage Disease

Multiple hepatic adenomas are seen in approximately half of patients with type I glycogen storage disease, and in approximately one-fourth of patients with type III glycogen storage disease. Rupture and malignant transformation of these tumors have been reported, but the risk of these complications is unclear.⁷ Determining when malignant transformation has occurred can be problematic, making management of these patients difficult. LT is indicated when malignant transformation is suspected or proven and curative resection is not possible.

SYNTHESIS OF AVAILABLE DATA

There are insufficient data to justify additional priority for candidates with noncarcinoid neuroendocrine tumors, hepatic sarcomas, or biliary cystadenocarcinoma. The available data justify additional priority for candidates with carcinoid tumors that are limited to the liver, hepatic epithelioid hemangioendotheliomas (even with extrahepatic spread), and hepatic adenomas in the setting of glycogen storage disease. A more efficient mechanism to assemble experience in LT for these tumors is needed.

PROPOSAL FOR STANDARDIZED MELD EXCEPTIONS FOR CANDIDATES WITH UNCOMMON TUMORS

At this time, we propose that candidates with uncommon tumors continue to be addressed by the Regional Review Boards and additional MELD priority assigned on a case-by-case basis. Additional MELD priority should not be automatically granted at this time.

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