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International multi-institutional comparison of liver transplantation for hepatocellular carcinoma: United States, United Kingdom and Canada

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Poster Presentations: Transplant Oncology

P-255**Liver transplantation for fibrolamellar hepatocellular carcinoma: an analysis of the European Liver Transplant Registry**

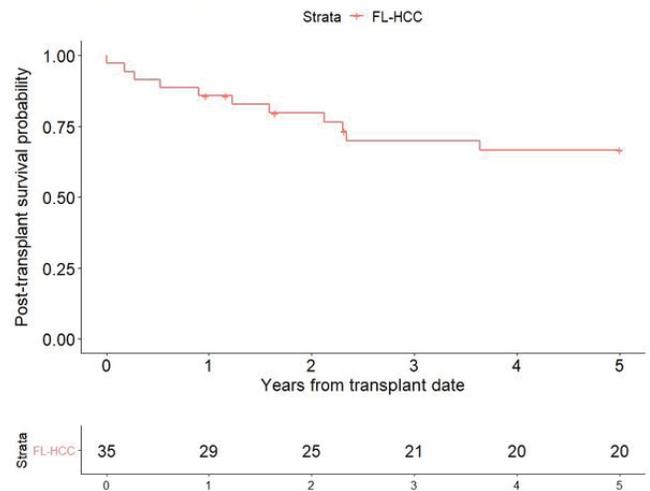
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Background: Liver transplantation (LT) for fibrolamellar hepatocellular carcinoma (FL-HCC) remains under debate. We sought to evaluate the oncological outcomes after LT for FL-HCC by analyzing data from the European Liver Transplant Registry (ELTR).

Methods: All ELTR-registered cases of LT before Jul-2021 were considered, but only those for patients with a confirmed diagnosis of FL-HCC were included. Overall survival (OS) and recurrence-free survival (RFS) rates were estimated using the Kaplan-Meier method. For cumulative incidence of recurrence, death without recurrence was considered a competing event.

Results: Thirty-five FL-HCC patients from 25 centers were included, all transplanted between 1985 and 2020. The median age was 30 years (interquartile range [IQR] 23-46). At listing, 46% of patients had already been diagnosed with FL-HCC, 43% were listed for HCC, and for 11% the listing reason was unknown. Only three patients (9%) had an underlying liver disease: alcoholic liver disease (two), non-alcoholic steatohepatitis (one). The median tumor number at listing was one (IQR:1-2) with a largest lesion size of 55mm (IQR:20-140). Pre-LT tumor marker levels were on median: AFP 6 (IQR:3-118), CA19.9 14.8 (IQR:2.7-13.0), CEA 1.25 (IQR:0.25-2.15). At explant pathology, the median tumor number was one (IQR:1-2) with a median maximum lesion size of 60mm (IQR:32-150). Vascular invasion was present in 37%. Recurrence occurred in 40% of the patients, most frequently extrahepatic (75%). Oncological outcomes at 1, 3, 5-years were: OS 86%, 70%, 67%; RFS 77%, 62%, 52%; cumulative incidence of recurrence 17%, 30%, 39%. Patients with a single tumor at explant pathology (median size 90mm, IQR:40-150) showed a 5-years OS of 81%, 5-years RFS of 57%, and 5-years cumulative incidence of recurrence of 43%.

5-year overall survival

Conclusions: Liver transplantation for FL-HCC yields acceptable long-term survival outcomes, especially for patients with a single lesion. However, recurrence rates remain high in all groups.

P-256**international multi-institutional comparison of liver transplantation for hepatocellular carcinoma: United States, United Kingdom and Canada**

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Background: Hepatocellular carcinoma (HCC) has become a leading indication for liver transplantation (LT) globally. Given the scarcity of organs, the general consensus has been that liver transplantation should be reserved for HCC patients who have a predicted 5-year survival similar to non-HCC patients. In the new era of transplant oncology, we sought to perform a multi-national comparison of donor and recipient characteristics, trends in LTs performed for HCC, and post-LT long-term survival.

Methods: We studied consecutive adults (≥18-years) who underwent

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first-time LT for HCC between Jan-2008 and Dec-2018 from three national liver transplantation registries (United Network for Organ Sharing STAR [United States (US)], National Health Service Blood and Transplant [United Kingdom (UK)], and Canadian Organ Replacement Registry [Canada]).

Results: A total of 22,404 LTs performed for HCC were identified (US n=19,776, Canada n=1,005, UK n=1,623) (Figure 1). The UK had the shortest waitlist time but longest cold ischemia times, highest donor ages, and the highest proportion of deceased after circulatory death donor use. Canada had the highest proportion of living donor liver transplant donor use. 5- and 10-year post-transplant survival exceeded 72% and 58% in all countries (Figure 2). Relative to the US, the overall adjusted mortality hazard was equivalent for Canada but lower in the UK (Canada:HR 0.90, 95% CI 0.76-1.07; UK:HR 0.87, 95% CI 0.77-0.99).

Figure 1. Temporal trends in proportion of liver transplants for hepatocellular carcinoma in Canada, United Kingdom, and United States

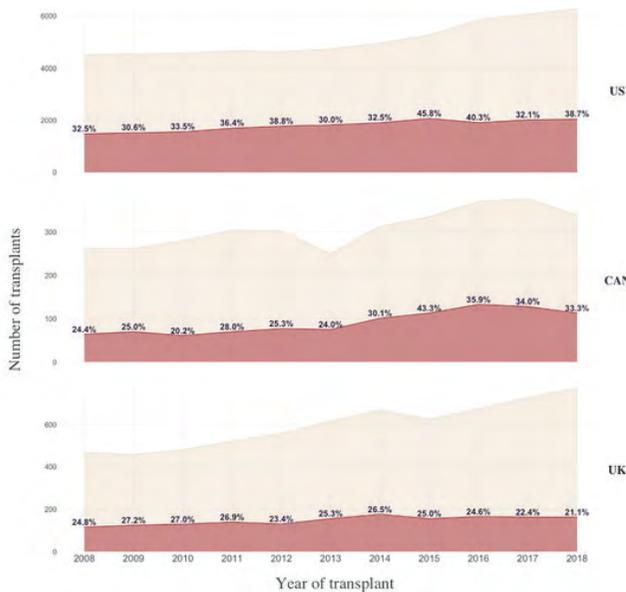
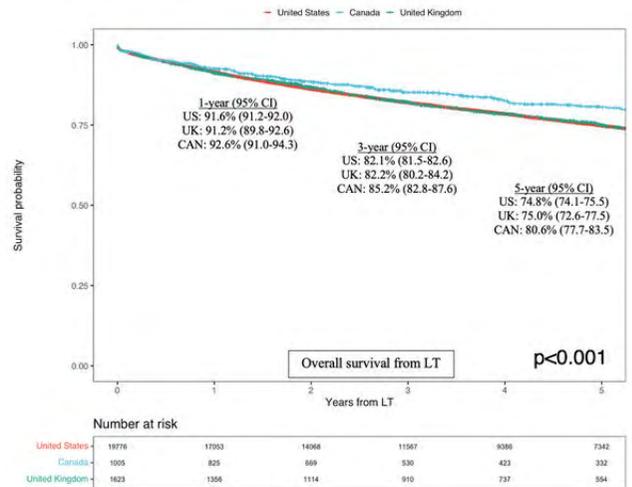


Figure 2. Kaplan-Meier survival analysis of overall survival



Conclusions: This represents the largest and only population-based multi-national analysis of LT for HCC. Identifying differences in recipient, donor, and transplant characteristics between countries offers opportunities for benchmarking, optimization of transplant practices, and ultimately improved post-transplant outcomes.

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Robotic liver resection for HCC as a bridge to transplantation

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Background: Minimally invasive approach to the liver reduces the risks of intraoperative complications and is linked to lower incidence of post-hepatectomy liver failure (PHLF), compared to the traditional open approach. We report our experience with patients affected by hepatocellular carcinoma (HCC) treated at our Institution with robotic liver resection (RLR) before liver transplantation.

Methods: 221 RLR were performed at University of Modena and Reggio Emilia between May 2014 and November 2021. Clinical data of patients underwent RLR for HCC were prospectively collected.

Results: 108 patients underwent RLR for HCC in the study period and, 22 underwent LT. Median MELD score at RLR was 8 (range 6-14) and 50% of the patients had a clinically significant portal hypertension (CSPH), by the mean of a hepatic venous pressure gradient (HVPG) higher than 10 mmHg or presence of esophageal varices (table 1). Median in-hospital stay was 4 days (range 2-23 days), without any 30-days readmission, 0% 90-days mortality, no PHLF (table 2). Median tumor size was 30 mm (range 12-85 mm), and median resection margin was 10 mm (range 1-20 mm) (figure 1). Mean interval between RLR and LT was 11.5 months (±9.5). All patients are alive and only one developed pulmonary HCC recurrence after LT, and is currently alive under Sorafenib treatment 16 months after LT.