

HBP SURGERY WEEK 2021 **VIRTUAL** & ONSITE

MARCH 25-27, 2021 GRAND WALKERHILL HOTEL, SEOUL, KOREA www.khbps.org

& The 54th Annual Congress of the Korean Association of HBP Surgery



LV OP 1-6

Cross-match as an immuno-oncological risk factor for hepatocellular carcinoma recurrence and inferior survival after living donor liver transplantation: A call for further investigation

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Introduction : The success of immunotherapy for patients with hepatocellular carcinoma (HCC) suggest that immune dysregulation occurs in HCC patients. This warrants an immuno-oncological risk assessment in the platform of liver transplantation.

Methods : This retrospective single-center study analyzed risk factors for—particularly cross-matching performed through conventional complement-dependent cytotoxicity cross-match tests—and the outcomes of HCC recurrence following living donor liver transplant.

Results : A total of 71 patients were included. The median follow-up period was 29.1 months. Seventeen (23.9%) patients had posttransplant HCC recurrence, and their 1-, 3-, and 5-year survival rates were 70.6%, 25.7%, and 17.1%, respectively, which were inferior to those of patients without HCC recurrence (87.0%, 80.7%, and 77.2%, respectively [P < 0.001]). In addition to microvascular invasion, positive cross-match results for B cells at 37° C (B- 37° C) or T cells at 4° C (T- 4° C) was associated with inferior overall survival in multivariable analysis after adjustment for tumor status beyond Milan criteria and elevated alpha-fetoprotein levels. Rejection alone cannot be the mechanism underlying the effects of positive cross-match results on patient outcomes. Adjusted survival curves suggested that positive cross-match B- 37° C or T- 4° C was associated with inferior recurrence-free and patient survival, but the robustness of the finding was limited by insufficient power.

Conclusions : Additional large-scale studies are required to validate positive cross-match as an immunooncological factor associated with HCC recurrence and inferior patient survival.

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