

**TRANSPLANT ONCOLOGY: UTILIZATION OF IMMUNOTHERAPY IN THE PERI-TRANSPLANT SETTING**

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**Background** Transplant oncology is an emerging concept of cancer treatment with a promising prospective outcome. The application of oncology, transplant medicine, and surgery to improve patients' survival and quality of life is the core of transplant oncology. Hepatobiliary malignancies have been treated by liver transplantation (LT) with significantly improved outcomes. The indications of LT for hepatobiliary malignancies have been slowly expanded over the years in a stepwise manner; however, they have only been shown to improve patient survival in the setting of limited systemic therapy options. Recently, the use of anti-programmed cell death protein 1 and programmed cell death ligand 1 (PD-1 and PD-L1) checkpoint inhibitors in the treatment of cancers have evolved rapidly and these therapies have been approved for the treatment of HCC. Immune checkpoint inhibitors have resulted in good clinical outcomes in pre-and post-transplant HCC patients, although, some reports showed that certain recipients may face rejection and graft loss.

**Methods** In this abstract, we aim to illustrate and summarize the utilization of immune checkpoint inhibitor therapies in pre-and post-liver transplants for HCC patients and discuss the assessment of immune checkpoint inhibitor regulators that might determine liver transplant outcomes.

**Results** The ICPI therapies have tolerable side effects and excellent responses in the treatment of cancer patients as well as pre-transplant patients in the bridging therapy setting. In contrast, for post-transplant patients in the palliative setting, the existing data have eliminated the contraindication of using ICPIs in liver transplant patients. However, the main concerns about organ rejection in liver transplant patients who will be treated with ICPIs are still the same in both pre-and post-transplant setting.

**Conclusions** The decision to administer ICPI treatment in liver transplant patients should be made on a case-by-case basis according to the goal of care and the availability and efficacy of other treatment options. Biopsies of liver allografts might be used to predict rejection and decide the proper ICPI class to be used based on PD-1/PDL-1 expression, however, larger and prospective studies are missing to support this conclusion. The role and type of immunosuppression in the setting of peri-transplant use of ICPI are not defined yet whether one kind can be safer than others is yet to be decided. ICPI treatment is an evolving and promising therapeutic option in oncology. Further investigations of these agents in the pre-and post-transplant settings are highly needed.

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