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The impact of COVID-19 on pediatric liver transplantation recipients in NCCHD

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Introduction: Patients with immunosuppression are reported to be at a high risk of severe and prolonged COVID-19. However, there is insufficient evidence of the clinical significance of COVID-19 and the therapeutic management after pediatric LT.

Methods: We retrospectively studied the SARS-CoV-2 infection, treatment, and management of immunosuppression drugs in 658 pediatric patients who underwent LT at our hospital between November 2005 and July 2022.

Results: SARS-CoV-2 PCR became positive in eighty eight recipients (13.4%) after LT and SARS-CoV-2 infection was identified during the operation in one patient. Median age of the recipients when they became COVID-19 positive was 8 years and 8 months (9 months-24 years and 8 months). 82 patients (93.2%) became positive after January 2022 in omicron surge. Only seven patients (8.0%) were vaccinated before infection because most of children were not old enough to be vaccinated. Regarding the severity of COVID-19, eighty seven patients (98.9%) were categorized in asymptomatic or mild infection, and there was no patient who required mechanical ventilation. Antibody preparations were administered to nine patients and antiviral drugs were done to six patients as the treatment for COVID-19. As adjusting immunosuppressive drugs, the calcineurin inhibitor was hold in 51 patients only for the duration of the fever. We reduced the dosage of mycophenolate mofetil by half in 11 patients and hold it off in one patient. As a result of adjusting immunosuppressant, one patient had the episode of acute cellular rejection (ACR) 14 days after COVID-19 positive result was confirmed, and he was treated by steroid bolus therapy. Median time from positive SARS-CoV-2 test to negative was 46 days (21 - 176 days).

Conclusion: COVID-19 infection did not lead to severe outcomes in the pediatric recipients after LT in this study. We should pay much attention not to provoke ACR after adjusting immunosuppressive drugs.