Lung transplantation for patients with severe COVID-19-related acute respiratory distress syndrome in Korea

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Background: There are uncertainty of lung transplantation (LT) in patients with COVID-19-related acute respiratory distress syndrome (ARDS) who failed to recovery despite optimal management including extracorporeal membrane oxygenation (ECMO).

Methods: Nationwide multi-center retrospective observational study was performed with consecutive lung transplants for severe COVID-19-related ARDS in South Korea between June 2020 and June 2021. Data on patient demographics, pre-transplant and perioperative characteristics, and post-transplant outcomes were collected and compared with other LTs with ECMO bridge from the Korean Organ Transplantation Registry.

Results: A total of 11 patients with COVID-19-related ARDS underwent LT at the five centers in South Korea. The median age was 60.0 years (interquartile range [IQR], 57.5–62.5); six were male. At listing, all patients were supported with veno-venous ECMO. The median clinical frailty scale was 1.0 (IQR, 1.0–2.0) and three patients (27.3%) were on renal replacement therapy. All patients received rehabilitation for the median of 28.0 (IQR, 17.5–43.0) days before LT. Patients were transplanted a median of 49 days (IQR, 32–66) after ECMO cannulation. Primary graft dysfunction (PGD) within 72 hours of LT was developed in two patients (18.2%). Major postoperative complications were infection in seven (63.5%) and bleeding requiring interventions in four (36.4%). One patient died 4 days after LT due to sepsis and one patient underwent re-transplant for graft failure. After a median follow up of 112 days (IQR, 97–166), 10 patients are alive and recovering well. Compared to other LTs with ECMO bridge (n=27), post-transplant outcomes including PGD and mortality were not different between the two groups. However, infection was more frequent in patients with COVID-19-related ARDS (63.6% vs. 14.8%; P=0.005).

Conclusions: LTs in patients with unresolving COVID-19-related ARDS were effective with reasonable short-term outcomes, which was similar to other LTs with ECMO bridge.

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