

## Significance of Lung Transplantation for Acute Respiratory Distress Syndrome

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### DESCRIPTION

Lung Transplantation (LTx) is a well-established therapy for patients with chronic lung failure, such as interstitial lung disease, chronic obstructive pulmonary disease, cystic fibrosis, or pulmonary vascular disease. Excellent long-term survival can be achieved, making LTx a mainstay in the treatment of patients with these indications. In contrast to chronic lung diseases, the role of LTx in acute lung failure is less well established. Although most guidelines list Acute Respiratory Distress Syndrome (ARDS) as an acceptable indication, this practice varies widely. In general, numbers are low, and available evidence is almost entirely limited.

With the SARS-CoV-2 pandemic rapidly evolving and an increasing number of unweanable post-COVID-19 ARDS patients receiving Extracorporeal Membrane Oxygenation (ECMO), many LTx centers began to evaluate this practice.

This study aims to summarize the current literature on LTx for ARDS, report on the outcomes of LTx for ARDS practice, provide LTx for ARDS guidelines, and discuss selection criteria beyond evidence.

Rescue LTx is discussed in the bulk of these studies, frequently in patients who are young. Patients, pneumonia, trauma, paracetamol poisoning, ammonia inhalation, and recombinant interleukin-2 therapy each accounted for one patient's underlying etiology of ARDS. The majority of these preliminary investigations highlight the developing technique of transplantation supported by ECMO. There has been research on LTx for ARDS. There were transplants carried out by the transplant team from the ASAN Medical Center in Seoul.

There is already broad agreement that LTx is a visible choice for ARDS patients with irreparable damage to their native lungs, based on the encouraging long-term posttransplant outcome studies for patients with severe ARDS, although patient selection is critical. Similar general requirements apply to chronic indications for LTx patients, such as a normal body mass index, the absence of severe comorbidities and recent malignancies, and

adequate social support. ARDS continues to be high, with a rate of 40 to 50 percent. It is challenging and still debatable to predict whether the lungs will recover. The majority of intensive care doctors concur, nonetheless, that before LTx should be taken into consideration, adequate time should be given to allow native lung healing. After two weeks of ECMO, the Extracorporeal Life Support Organization's ECMO guidelines advise evaluating the possibility of lung recovery. But there are several accounts of lung healing, even following months-long ECMO treatments. We further recommend that for non-COVID-19 ARDS, at least 4 to 6 weeks should be given for a trend to appear in light of recent experience with COVID-19 ARDS. Repeated chest computed tomography scans can help guide patients and separate permanent abnormalities from reversible changes.

Acute liver damage is known to have a significant impact on mortality in ARDS patients. Although there is a lack of information regarding the prognostic significance of hepatic dysfunction in ECMO-bridged in LTx recipients, liver function indicators like aspartate transaminase, alanine aminotransferase, alkaline phosphatase, serum bilirubin, and international normalized ratio should be closely watched. Equivalent to a mild to moderate hepatic impairment. However, the coagulation of every patient was preserved. In particular, severe pleural adhesions, which are frequently encountered in ARDS, can bleed uncontrollably because platelet dysfunction may still be present after long-term extracorporeal circulation. To rule out secondary sclerosing cholangitis in critically ill patients is another reason to monitor liver function markers in this patient group.

ARDS has emerged as a well-established indication for LTx in recent years, particularly during the COVID-19 pandemic. Long-term survival can be achieved in well-chosen patients. These patients were generally healthy prior to the development of severe ARDS, had a brief period of severe critical illness, and have remarkable rehabilitation potential. Given the lack of treatment options and the poor prognosis of some patients, LTx should be actively considered in the ARDS treatment algorithm for patients who remain in single organ failure with signs of irreversible lung injury.

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**Received:** 07-Jul-2022, Manuscript No. APCR-22-18593; **Editor assigned:** 11-Jul-2022, Pre QC No. APCR-22-18593 (PQ); **Reviewed:** 20-Jul-2022, QC No. APCR-22-18593; **Revised:** 27-Jul-2022, Manuscript No. APCR-22-18593(R); **Published:** 04-Aug-2022, DOI: 10.35248/2161-0940.22.12.386.

**Citation:** Mut M (2022) Significance of Lung Transplantation for Acute Respiratory Distress Syndrome. *Anat Physiol*. 12: 386.

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