

# Cystic Fibrosis Research News

## **Title:**

Intraoperative extracorporeal membrane oxygenation for lung transplantation in cystic fibrosis patients: predictors and impact on outcome

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## **What was your research question?**

During lung transplant (LUTX), extracorporeal membrane oxygenation (ECMO) is frequently needed to support the heart and the lungs. ECMO is an advanced life-support technique during which blood is drained from the patient, passed through an artificial lung, and then returned to the patient using a blood pump and specific tubing. Unfortunately, ECMO may be associated with more complications (i.e., more bleeding, more transfusions, longer intensive care stay, more frequent early dysfunction of the new lungs). We studied risk factors and effects on results (outcomes) of ECMO during LUTX.

## **Why is this important?**

Knowing that an individual has a higher chance for ECMO may allow appropriate clinical planning, development of innovative diagnostics, preventive therapies, and approaches for the selection for ECMO connection for high-risk individuals.

## **What did you do?**

We retrospectively analyzed the clinical charts, X-rays and scans of the lungs, and enlistment tests, of adults with cystic fibrosis (CF) undergoing double LUTX from January 2013 to December 2018 from an Italian referral center for treating people with CF (i.e., Fondazione

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IRCCS Ca' Granda - Ospedale Maggiore Policlinico). Individuals undergoing re-transplantation were excluded from the analyses.

## What did you find?

During the study period, 70 people with CF were included. Twenty-eight (40%) of those included needed ECMO during the operation. Small participant size, diabetes, high oxygen requirement, and problems with the function of the right chamber of the heart increased the risk of the need for ECMO. Compared to individuals who did not need ECMO, those who needed ECMO required more blood transfusions during the operation, longer mechanical ventilation after the intervention, longer stay at the Intensive Care and the hospital, as well as having a more than threefold risk for less functioning of the new lungs at 72 hours after operation. The number of patients who died during or shortly after transplantation did not differ between patients with or without ECMO.

## What does this mean and reasons for caution?

ECMO is an irreplaceable salvage procedure that, in our opinion, should be only utilized to rescue the most critical patients, after the adjustment of the functionality of the heart and lungs by the optimization of ventilation, use of cardioactive drugs, and less-invasive salvage therapies (e.g., inhalation of nitric oxide).

## What's next?

Future studies should focus on medical treatment beforehand of the functioning of the heart and the possible improvements of ECMO technique in the particular setting of LUTX for CF.

## Original manuscript citation in PubMed

<https://www.ncbi.nlm.nih.gov/pubmed/?term=Intraoperative+extracorporeal+membrane+oxygenation+for+lung+transplantation+in+cystic+fibrosis+patients%3A+predictors+and+impact+on+outcome>