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Commentary: Post-COVID-19 acute respiratory distress syndrome and post-COVID-19 fibrosis—the new kids in town

Thomas Schweiger, MD, PhD, and
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We read with great interest the manuscript “Lung Transplantation for COVID-19: The Who, What, Where, When, and Why,” published by Schaheen and colleagues.¹ This invited expert opinion provides a comprehensive summary of the practice of lung transplantation (LTx) for coronavirus disease 2019 (COVID-19).

LTx for patients with acute respiratory distress syndrome (ARDS) is not a new concept. Although the vast majority of LTx is performed for patients suffering from chronic lung failure, some centers have traditionally offered transplantation also to well-selected patients with ARDS.²⁻⁴ Based on this experience, it is not surprising that the same centers have reported successful LTx for post-COVID-19 ARDS already in an early phase of the pandemic.⁵⁻⁷ Meanwhile, the best evidence on this practice comes from an international consortium of North American and European lung transplant centers, and more than 60 patients have been transplanted for post-COVID-19 ARDS in Gainesville (Florida), Vienna (Austria), Chicago (Illinois), Phoenix (Arizona), and Milan (Italy). Reported outcomes are excellent, with >95% 3-month and similar encouraging mid-term survival.⁸ Nowadays, LTx is considered a valid therapeutic option for post-COVID-19 ARDS when patients fail to recover despite several weeks of extracorporeal membrane oxygenation (ECMO).

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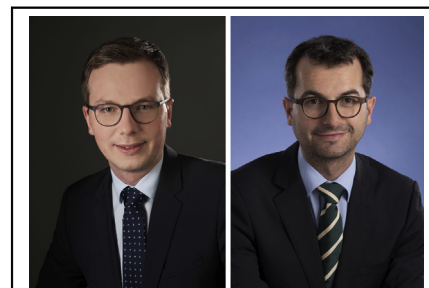
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CENTRAL MESSAGE

Lung transplantation is a valid therapeutic option for selected post-COVID-19 patients.

Our center has meanwhile screened a large number of patients with COVID-19 for a possible LTx. We found that LTx for post-COVID comprises 2 distinct indications: post-COVID-19 ARDS and post-COVID-19 fibrosis. The first describes patients who are usually in the early phase of their disease, with ECMO times ranging between 4 and 6 weeks. The indication for LTx is mainly given due to the severity of lung damage combined with pulmonary complications that are unlikely to resolve. These include lung necrosis, severe pulmonary thrombosis, cavitations with secondary bacterial superinfections, persistent pneumothoraces and lungs unable to expand. Patients in this acute phase are usually severely sick, and an awake-bridging concept is often impossible. Consequently, the recovery phase after LTx is prolonged, as patients suffer from extensive muscle waste and critical illness polyneuropathy.

This severe form of COVID-19 ARDS is opposed by a rather chronic type of post-COVID-19 lung failure—a “fail to recover” situation due to irreversible fibrotic lung changes. Patients suffering from such a postinfectious fibrosis are also dependent on ECMO or mechanical ventilation, but they are awake, mobile, and regularly participate in physiotherapy. Based on the irreversibly damaged lung parenchyma with traction bronchiectasis and end-stage fibrosis, the indication for LTx is set. As patients with post-COVID-19 fibrosis are not deconditioned and usually have a preserved muscular status, their post-transplant recovery is fast.

The expert opinion published by Schaheen and colleagues shows that LTx for COVID-19 is a moving target and several lessons have and will be learned. Facing the challenges of the COVID-19 pandemic, a peer-to-peer discussion of

selection criteria for LTx and treatment strategies is essential. This timely expert opinion will hopefully stimulate the community to talk about the new kid(s) in town.

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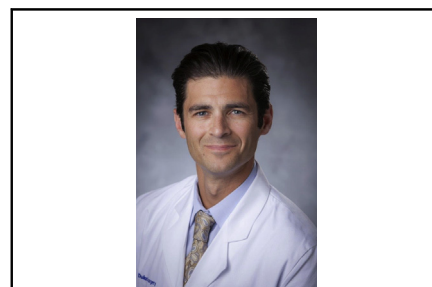
 Check for updates

Commentary: In the aftermath, what awaits us?

Jacob A. Klapper, MD, FACS

There are those of us who follow current events with rapturous interest, reading, watching, and searching for every piece of information on a topic, like say the pandemic of the last year and a half. A need to know in the moment. Others, and I would put myself in this category, prefer the aftermath. Let time pass and the fallout coalesce into what becomes a new reality. How has life changed by what we have been through?

We may now be in the aftermath of the pandemic; fingers crossed. As health care providers, and particularly as thoracic surgeons, we must now contend with what will most likely be an influx of coronavirus disease 2019 (COVID-19) survivors with end-stage pulmonary fibrosis. The expert opinion provided by Schaheen and colleagues¹ is valuable as it contains real insights from a busy and



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CENTRAL MESSAGE

In the aftermath of the pandemic, the field of lung transplant faces new challenges and realities.

highly successful transplant program. They also address some important unknowns.

When to bridge someone off extracorporeal membrane oxygenation (ECMO) is a fundamentally difficult question. I think all of us who have dealt repeatedly with these clinical scenarios would agree that recovery is preferable and should be pursued. Lung transplant is an option for these patients just as it has been for similar patients in the past who have suffered devastating lung injury from the flu. The sober statistics regarding long-term survival, however, mean that in reality these recipients are exchanging one acute illness (end-stage lung disease) for another more chronic problem (post-transplant management of their graft).

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