Commentary: Transplanting lungs during a global respiratory pandemic

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Bo and colleagues present a timely retrospective analysis of the Chinese lung transplantation experience during the coronavirus disease 2019 (COVID-19) outbreak from January to March 2020 with comparison to the same period during 2019. The authors include changes to organ handling, patient transfers, provider protection, and COVID-19 screening that had to be undertaken quickly in response to the significant lockdowns implemented in China. The authors report logistical challenges with transporting patients out of COVID–19-designated hospitals/transplant centers and passing of organs between quarantine areas. Despite this, there was only a 50% decline in transplant volume from the prior year. The result was higher-acuity patients receiving transplants sooner after listing. Although the 90-day survival appears reasonable, it is unadjusted and unclear how it compares with results during prior years. Also, there is no information about volume and outcomes this summer after the lockdowns were lifted in China.

The decision to offer lung transplant during the COVID-19 pandemic is a difficult balance of safety and resource use. An important consideration is that lung transplantation does not traditionally improve recipient survival. Yet, performing these operations is extremely resource intensive, requiring blood products, extracorporeal membrane oxygenation circuits, ventilators, and personal protective equipment also needed in the care of patients with COVID-19. The transplant hospital will need to ensure adequate resources based on the number of COVID-19 patients in their hospital. However, as we learn how to safely care for COVID-19 patients with low transmission among health care personnel, a tiered system should be utilized to continue traditional medical care whenever feasible.

The authors of the present study used the same time period from 2019 as a control, with 50% fewer transplants performed. A similar reduction in lung transplant volume was seen in the United States, according to a recent study by Chan and colleagues. The use of different procurement and implant teams was used in a number of countries to circumvent travel restrictions and allow for some level of regional quarantine. The logistical changes need to be flexible based on the severity of the pandemic and will look very different between peaks and nadirs. Having an accurate estimate of regional prevalence is limited by testing shortfalls, but needed to ensure safety of health care personnel. The unique challenges the authors face with designating transplant centers are unique because COVID-19 hospitals will hopefully be able to be avoided in the future. The authors note that lungs in China are allocated by proximity; however, alternative allocation systems may need to be considered should a prolonged, severe pandemic emerge. As the world, and the United States in particular, heads toward another peak in the pandemic, collaborative efforts between hospitals and transplant teams will be critical to continue to perform lung transplantation.
Finally, lung transplant for COVID–19-related pulmonary failure is gaining support and has been reported by several centers across the United States, including our group. There are several important considerations, including viral clearance, extracorporeal membrane oxygenation support, and COVID–19-related coagulopathy in addition to complex patient selection. The authors report reduced induction immunosuppression protocols, with a high rate of rejection (25% of perioperative survivors). Altering induction regimens for patients with COVID-19 should be cautiously considered, although tailoring subsequent immunosuppression regimens should be performed as usual for complex transplant patients. It is unclear how late death from sepsis on postoperative day 71 relates to their immunosuppression regimen. As we head into the second winter of this pandemic, lung transplant will be another tool in the treatment of COVID-19. This will require a multidisciplinary collaborative approach to be successful.

References