Commentary: Hope for the failing heart awaiting multiorgan transplantation

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Melehy and colleagues\(^1\) have provided an important contribution to our understanding of mechanical support techniques among patients needing and receiving multiorgan heart transplants. This is an area in which many transplant clinicians are armed with incomplete knowledge of expected outcomes. Given the small numbers in several of the cohorts, this type of analysis requires access to a large national database. The authors’ findings offer an evidence-based opportunity for important adjustment in our attitudes regarding the support of patients with 2-organ failure.

Since the vast majority of multiorgan patients in this report were listed for heart-kidney (H-K) transplants, we are most informed about this group. Here the allocation system and listing attitudes carry considerable importance. In many institutions, intense discussions surround the fairness of allocating a kidney to a heart transplant recipient when there are so many patients in need of isolated kidney transplantation. The discussion is especially complicated when the potential H-K recipient requires a left ventricular assist device (LVAD), with many clinicians believing that outcomes after combined H-K transplant following LVAD support would be poor. This analysis provides convincing evidence that such patients can expect survival outcomes similar to those seen in H-K transplant recipients without LVAD support. However, when such patients require ongoing dialysis during LVAD support, the increased ongoing risk of death during support justifies higher priority in the allocation algorithm.

The details regarding extracorporeal membrane oxygenation (ECMO) are also informative, although the number of patients who underwent transplantation was small. The only relevant organ combinations supported by ECMO at transplantation were H-K and heart-lung (H-L), and the results were quite different. Among H-K recipients, the authors provide very useful analyses that inform programmatic decisions about the safe duration and conditions of ECMO support in this complex patient group. If the patient’s general condition remains good during support and the wait time is short, good posttransplantation outcomes can be expected. However, the high ongoing mortality on the waitlist for ECMO patients provides support for early transition to LVAD or total artificial heart support unless a suitable H-K donor is available soon after ECMO initiation. Specific programmatic criteria should be established for moving on to more stable and durable circulatory support rather than “taking it a day at a time” on ECMO, which often results in progressive multiorgan damage.

In the unusual setting of ECMO support while awaiting H-L transplantation, the attrition is high during support, and approximately one-third of patients may die soon after H-L transplantation. Only 26 such patients were transitioned directly from ECMO to H-L transplant in this large database. Unless the heart is strong enough to support veno-veno ECMO, with the greater potential for ambulation
and nutritional enhancement, patients requiring veno-arterial ECMO while awaiting H-L TX should be considered a high-risk group.

Perhaps the most important message here is the strong evidence for a potentially good waitlist and transplant outcome for patients whose circulatory performance continues to deteriorate while awaiting multiorgan transplantation. Far from being a hopeless situation, these patients should be considered for LVAD or total artificial heart support. With expert care at experienced centers, the expectation for survival to and long beyond multiorgan transplantation is surprisingly good.

Reference