Damned if you do or damned if you don't: Should heart allocation policy change for patients receiving prolonged durable mechanical support?

Simon Maltais, MD, PhD

From the Division of Cardiovascular Surgery, Mayo Clinic, Rochester, Minn.

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Address for reprints: Simon Maltais, MD, PhD, Division of Cardiovascular Surgery, Mayo Clinic, 200 First St, SW, Rochester, MN (E-mail: Maltais.Simon@Mayo.edu).

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In each action we must look beyond the action at our past, present, and future state, and at others whom it affects, and see the relations of all those things. And then we shall be very cautious.

— Blaise Pascal (1623-1662)

In this issue, Fukuhara and colleagues¹ report on the influence of prolonged continuous-flow left ventricular assist device (CF-LVAD) support and posttransplant outcomes. Using the United Network for Organ Sharing (UNOS) database, the authors demonstrate an increased risk of mortality after orthotopic heart transplantation (OHT) in patients supported for > 2 years on CF-LVAD support. They conclude that there should be an effort to offer OHT sooner for this subpopulation. The authors raise several concerns about the growing population of patients supported with durable devices. Defining donor appropriateness will influence on our ability to maintain expected outcomes after OHT.

THE PROBLEM

The use of CF-LVAD has rapidly become the standard of care for patients with advanced heart failure.² The bridge-to-transplant strategy is especially reasonable for patients with unfavorable blood types, large body sizes, or a high degree of sensitization. As a result of this, however, rather than focusing on survival improvement, our field continues to struggle with device- and nondevice-related complications following implantation.³ The Interagency Registry for Mechanically Assisted Circulatory Support data show that almost 70% of patients experience a significant adverse event after only 12 months of support.² While the number of patients living with CF-LVADs grows, there is still limited heart donor availability.⁴ Because device- and nondevice-related complications are unpredictable, there is national consensus that patients with CF-LVADs should have priority on the list of patients waiting for donor hearts.

Priority for devices limit heart donors, creating the feeling of deck chairs waiting to be rearranged.

Central Message

Heart allocation for patients with a left ventricular assist device who are awaiting transplant is reviewed and heart donor appropriateness for prolonged support is questioned.

See Article page 872.

Epidemiologic concerns have to be raised because this group continues to expand and be upgraded on the transplant listing status with device complications.⁵ Smedira and colleagues⁶ reported that a longer duration of support may adversely effect posttransplant outcomes. Allosensitization has been variably reported after LVAD placement.⁷ Recurrent gastrointestinal bleeding and blood transfusions can also lead to increased sensitization while on support. Frequent readmissions on device support have also been associated with adverse posttransplant outcomes.⁸ Furthermore, the use of marginal donors for bridge-to-transplant patients has also been associated with worse posttransplant outcomes.⁹ These questions and the observations made by Fukuhara and colleagues,¹ lead one to question whether patients with long-term CF-LVADs should be upgraded on the transplant list or considered for transplant at all.

IS STATUS UPGRADE FOR SUPPORTED PATIENTS JUSTIFIED?

It is important to recognize that the growing LVAD population on the waiting list means that other populations are listed with lower priority. For example, patients with restrictive disease are less likely to be upgraded based on inotropic support. The justification for upgrading patients living with LVAD support is based on first-generation devices. Furthermore, the donor allocation algorithm accurately estimated

FIGURE 1. Priority for devices limit heart donors, creating the feeling of deck chairs waiting to be rearranged.

mortality for patients supported with pulsatile-flow LVADs, but it provides an advantage for patients with CF-LVAD over other groups of candidates.¹⁰ Whereas the UNOS database is only sanctioned for OHT and carries limitations related to documentation of time on support, the report by Fukuhara and colleagues¹ report highlights the concept of careful donor selection for this subpopulation.

Widespread CF-LVAD use not only increased the number of patients on the waiting list by salvaging patients who otherwise would have died, it also created a new population of candidates: bailout transplants.¹¹ Patients implanted as destination therapy are transformed into reasonable candidates.¹² Consequently, given how the demand exceeds supply, it would be quite possible that OHT could be performed only in patients with LVAD complications. We are “rearranging deck chairs”¹¹ and living with “elephants in the room,”¹¹ all the while avoiding a real discussion about allocation of an important, limited resource (Figure 1).

LESSONS LEARNED FROM OTHERS’ MISTAKES

Our community needs to learn from other specialties to make better decisions for better use of donated organs. A recent UNOS review of more than 73,000 patients by Meier-Kriesche and colleagues¹³ confirmed that a longer waiting time on dialysis is a significant risk factor of mortality and graft malfunction after renal transplantation. These observations should prompt us to review our allocation policy.

Although retrospective in nature, the study by Fukuhara and colleagues¹ calls for further refinement of allocation criteria for patients living with prolonged support. It questions whether a subgroup of patients with CF-LVADs should be upgraded or simply denied transplantation. It calls for a best practice policy review where prioritizing candidates with the best chances of long-term graft survival will ensure the continued success of OHT for the appropriate patient population.

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