See Article page 1361.

Commentary: Neonatal heart transplant: Conservation status—critically endangered

Aaron Eckhauser, MD, MS

Aaron Eckhauser, MD, MS

CENTRAL MESSAGE

Despite decreasing use, neonatal heart transplant can be performed safely and effectively with good long-term outcomes in patients with congenital heart disease.

In this month's edition of the *Journal*, Lin and colleagues¹ present their 30-year experience performing neonatal heart transplants for congenital heart disease, particularly in patients with hypoplastic left heart syndrome. Since 1991, 21 patients were successfully transplanted in the neonatal period with a 95% early survival (30-day) and good long-term outcomes, with 1-, 5-, 10-, and 20-year survival of 85.7%, 75%, 72%, and 50%. A significant number of patients developed coronary artery vasculopathy (40%) whereas 15% developed post-transplant lymphoproliferative disease, and the waitlist mortality was 25%. The authors noted a significant decline in both the number of neonatal patients listed and transplanted across the 3 decades of study, with no transplants being performed in the last 4 years. The authors conclude that neonatal heart transplant, once a more-common therapeutic approach, is currently considered for those patients who are too high risk for a single or biventricular repair.

The significance of this paper is that it lends credence to the fact that neonatal heart transplants can be performed very safely with good long-term outcomes and may even serve as a better surgical option compared with a high-risk single or biventricular neonatal repair. The focus on these 21 patients somewhat obscures the broader scope of their practice, in which a significant number (176) neonates were actually listed, the majority of whom ultimately received a transplant in the infant period. Although this paper paints a primarily historical picture, it provides significant insight and raises several questions about a rare procedure by contemporary standards.

I continue to question the role of neonatal heart transplant in our current practice. The number of patients transplanted by decade over the last 30 years was 10, 8, and 3, with the last transplant occurring more than 4 years ago. The number of patients listed for transplant similarly declined over these 3 decades. I surmise that this phenomenon is likely due, in part, to increased comfort and skill with complex neonatal repairs, better postoperative medical therapies, superior ventricular support devices, and a limited donor pool. The authors suggest that transplant be pursued when surgical risk is too high for either a single or biventricular repair, but what surgical risk is too high? This begs the question of what is the actual role of neonatal transplantation?

Finally, I would like to see the authors pursue further investigation into 2 areas. First, although all these patients were listed as a neonate, the majority were transplanted as an infant and it would be important to compare outcomes between these 2 cohorts. Second, it would be very important to understand how the transplant cohort compares with a propensity-matched cohort of patients with hypoplastic left heart syndrome who underwent single-ventricle palliation. Understanding the risk and rewards of both strategies is essential to help define in whom this particular treatment is most effectively deployed.

Reference

1. Lin Y, Davis TJ, Zorrilla-Vaca A, Wojcik BM, Miyamoto SD, Everitt MD, et al. Neonatal heart transplant outcomes: a single institutional experience. *J Thorac Cardiovasc Surg*. 2021;162:1361-8.

From the Pediatric Cardiothoracic Surgery, Division of Cardiothoracic Surgery, Department of Surgery, University of Utah, Salt Lake City, Utah.

Disclosures: The author reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

Received for publication Jan 24, 2021; revisions received Jan 24, 2021; accepted for publication Jan 25, 2021; available ahead of print Jan 30, 2021.

Address for reprints: Aaron Eckhauser, MD, MS, 100 N. Mario Capecchi Dr, Suite 2200, Salt Lake City, UT 84113 (E-mail: Aaron.eckhauser@hsc.utah.edu).

J Thorac Cardiovasc Surg 2021;162:1369

0022-5223/\$36.00

Copyright © 2021 by The American Association for Thoracic Surgery

<https://doi.org/10.1016/j.jtcvs.2021.01.098>