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Commentary: Pediatric myocardial recovery with a ventricular assist device: “Chance favors the prepared mind”

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Despite extensive investigations,¹ cardiac recovery with ventricular assist device (VAD) support remains a mystery. In this issue of the *Journal*, Philip and colleagues² describe their experience of 2 infants with pulsatile biVAD support that resulted in sustained cardiac recovery. As the authors emphasize, myocardial recovery in children is rare. Interestingly, the recovery rate reported in the PediMACS registry (age <19 years) is even lower than that reported in the INTERMACS registry (age ≥19 years), which completely contradicts the anecdotal wisdom established in the adult population of “the younger the patient, the greater the chance of recovery.”^{3,4} Does the potential for cardiac recovery have a curious unimodal distribution with a peak at age 19? Alternatively, are pediatric clinicians not seeing as much recovery as they should, due to the mindset of just getting to transplantation while on VAD support, turning a blind eye to the possibility of recovery? This report could elicit fierce debate on this controversial matter.

The critical contribution of this report is to emphasize the importance of an active surveillance protocol to avoid overlooking an “unexpected” recovery. If the singular focus of VAD support is just rushing to heart transplantation, which

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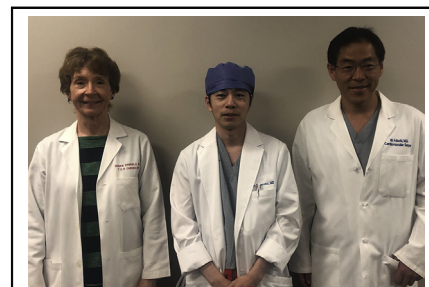
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CENTRAL MESSAGE

Myocardial recovery with ventricular assist device support is the silver lining in the cloud of heart failure support in children. An active surveillance of cardiac function may allow greater recognition of recovery.

is the current clinical reality in the pediatric field,⁵ early (and subtle) signs of rare events (ie, recovery) may be missed. Active routine surveillance would keep the clinician’s mind open to these rare events. Given the substantially shorter waitlist time in children with VAD support compared with their adult counterparts, the risk of missing opportunities is significantly greater in the pediatric population.⁶ To paraphrase D.H. Lawrence, the eyes don’t see what the mind doesn’t seek.⁷ The patients in the present cohort were lucky enough not to have received an organ offer before being inactivated on the transplantation wait-list due to the recognition of cardiac recovery.

To induce cardiac recovery, not as luck but as an intended therapeutic target, implementation of an observation period (with waitlist inactivation and active surveillance) following VAD implantation is essential. The current lack of an observation period could explain the counterintuitively low incidence of cardiac recovery seen in children.⁶ The negative impact of the standard “rushing to transplantation” approach on posttransplantation outcomes is becoming increasingly evident.⁸ While acknowledging the risk of VAD complications, a “watchful waiting” strategy may lead to a higher incidence of recovery by avoiding premature transplantation resulting from the failed realization of recovery potential, while acknowledging the risk of VAD complications. With the ongoing reduction of VAD-related risks, waiting, as

the preferred approach, may be more attractive to pediatric centers that currently “rush to transplant.”

“Chance favors the prepared mind” (Louis Pasteur, 1854). Keeping an open mind may be the key to achieving increased pediatric myocardial recovery, from an unexpected surprise that is rarely recognized to an intended goal to attain. Philip and colleagues should be congratulated for their effort to shed light on this important topic.

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