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Reply: Rationale and Outcomes of sVAD

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We reviewed with great interest the thoughtful and nicely illustrated Letter to the Editor by our friend and colleague Professor Igor E. Konstantinov, MD, PhD, FRACS titled: “Supporting univentricular heart in biventricular circulation”. We are very happy to observe pediatric cardiac surgeons discussion strategies for utilizing a ventricular assist device (VAD) to support neonates, infants, and small children with functionally univentricular hearts since this concept was thought to be futile for so long. The idea of supporting a functionally univentricular patient with a VAD that allows fully saturated blood to flow to the systemic circulation is indeed appealing. We congratulate Professor Konstantinov for his novel and creative idea and for his excellent description and illustration of this idea in his Letter to the Editor. This “thought exercise” is commendable, and we eagerly await data about the potential application of this concept in either a clinical setting or an animal model.

We would like to point out that our results with single ventricle-VAD (sVAD) are substantially better than articulated in the following sentence in the Letter to the Editor by Konstantinov: “The recent review demonstrated that survival of these young children with univentricular circulation on VAD was poor, with less than 50% survival on VAD by the 3-month mark.” In fact, as we have previously published: “In our single institutional analysis of 82 neonates, infants, and children supported with pulsatile VAD, overall longitudinal Kaplan-Meier estimates for survival after VAD insertion were 73.3% (95% CI = 64.1%-83.8%) at one-year and 68.3% (95% CI = 58.4%-79.8%) at five-years. One-year survival after VAD insertion was 82.7% (95% CI = 72.4%-94.4%) in biventricular patients and 59.7% (95% CI = 44.9-79.5%) in univentricular patients, P=0.026. Five-year survival after VAD insertion was 79.7% (95% CI = 68.6%-92.6%) in biventricular patients and 50.5% (95% CI = 35.0%-73.0%) in univentricular patients, P=0.010.”

Although outcomes after VAD support in functionally univentricular patients are worse than in patients with biventricular circulation, sVAD provides a reasonable chance for survival. Ongoing research is necessary to improve the outcomes of these challenging patients, with the goal of developing strategies where outcomes after sVAD support in functionally univentricular patients are equivalent to the outcomes achieved after VAD support in patients with biventricular circulation. Again, we complement Professor Konstantinov for his thought leadership in this field, and we congratulate him for his novel proposal. Innovative ideas such as this one will help achieve this goal.
References

