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INSIDE THIS ISSUE

MINI-FOCUS ISSUE: MECHANICAL SUPPORT AND BLEEDING

CLINICAL RESEARCH

Left Atrial Decompression Pump for Severe Heart Failure With Preserved Ejection Fraction: Theoretical and Clinical Considerations

Daniel Burkhoff, Mathew S. Maurer, Susan M. Joseph, Joseph G. Rogers, Edo Y. Birati, J. Eduardo Rame, Sanjiv J. Shah

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The use of traditional mechanical circulatory support (MCS) devices in end-stage heart failure with preserved ejection fraction (HFpEF) has been difficult because of the small size of the left ventricle. However, HFpEF is also characterized by a large left atrium (LA), so an alternate strategy may be feasible. A theoretical analysis, on the basis of a previously-proposed cardiovascular model programmed to simulate 4 distinct hemodynamic phenotypes encountered in HFpEF, provides a foundation for an approach centering on pumping blood from the LA to the arterial system. An HFpEF-specific disease severity grading system and other clinical considerations intended to identify patients with an appropriate risk-benefit ratio for MCS are discussed.

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The Heartmate Risk Score Predicts Morbidity and Mortality in Unselected Left Ventricular Assist Device Recipients and Risk Stratifies INTERMACS Class 1 Patients

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Luigi Adamo, Michael Nassif, Anjan Tibrewala, Eric Novak, Justin Vader, Scott C. Silvestry, Akinobu Itoh, Gregory A. Ewald, Douglas L. Mann, Shane J. LaRue

The Heartmate Risk Score (HMRS) has been shown to correlate with 90-day mortality post left ventricular assist device (LVAD) implant in trial populations. However, its predictive ability in “real world” patients remains controversial. Analyzing a large, unselected cohort of patients from our institution, the Barnes-Jewish Hospital in St. Louis, Missouri, this study confirms the correlation between HMRS and mortality post LVAD. Moreover, it describes novel correlations between HMRS and gastrointestinal bleeding events post LVAD and HMRS and median number of days spent in the hospital in the first year post implant. Finally, it shows that the HMRS is able to risk stratify INTERMACS (Interagency Registry for Mechanically Assisted Circulatory Support) class 1 patients effectively.

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CME

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Echocardiographic Ramp Test for Continuous-Flow Left Ventricular Assist Devices: Do Loading Conditions Matter?

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Sirtaz Adatya, Christopher T. Holley, Samit S. Roy, Hiran Yarmohammadi, Amy Feng,
Peter Eckman, Monica Colvin-Adams, Ranjit John, Carolina Masri

In patients with a continuous-flow left ventricular assist device, failure to reduce the left ventricular end-diastolic diameter (LVEDD) with increasing device speeds in a ramp test is considered predictive of device obstruction. However, conditions that diminish the ability to unload the left ventricle affect LVEDD slope. Results of 78 ramp tests in 55 patients suggest that the presence of at least mild to moderate continuous aortic insufficiency or hypertension may result in an abnormal LVEDD slope in the absence of device obstruction.

■ EDITORIAL COMMENT

Left Ventricular Assist Devices Ramp Studies: Truth or Consequences?

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Randall C. Starling

Gastrointestinal Bleeding in Recipients of the HeartWare Ventricular Assist System

CME**303**

Daniel J. Goldstein, Keith D. Aaronson, Antone J. Tatroles, Scott C. Silvestry,
Valluvan Jeevanandam, Robert Gordon, David R. Hathaway, Kevin B. Najarian,
Mark S. Slaughter, for the ADVANCE Investigators

Gastrointestinal bleeding (GIB) has become a significant problem for recipients of continuous flow device left ventricular assist devices. We evaluated GIB in 382 patients receiving the HeartWare Ventricular Assist Device System (HeartWare Inc., Framingham, Massachusetts) in a clinical trial. Overall, 59 of 382 (15.4%) patients experienced 108 GIB events (0.27 events per patient year), with a mean time to first bleed of 273.1 days. The most common etiology of bleeding identified was arteriovenous malformation and the most common site was the small intestine. Most bleeding events were managed with medical and endoscopic therapies, and none required surgical intervention. GIB did not impact survival.

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