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Commentary: Evidence-based management of infections on patients requiring left ventricular assist device support—a pipe dream?

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CENTRAL MESSAGE

Without a consistent set of definitions and nomenclature for adverse events, reliable comparisons of outcomes from either retrospective cohorts or prospective clinical trials remain exceedingly problematic.

Studies using the National Readmissions Database have shown that infections after left ventricular assist device (LVAD) implantation are responsible for about one-third of all 30-day readmissions in this patient population.[1] With each readmission event averaging more than $34,000 in hospital costs, the incentive for identifying effective treatment and prevention strategies could not be higher. In a recent article by Pienta and colleagues,[2] the authors lead a commendable effort in reviewing the rates and types of infections in patients receiving durable mechanical circulatory support (MCS) devices. Of the 132 articles that met the criteria for inclusion, the authors found remarkable variation in rates of reported infections. Furthermore, only 38% of the included articles used standardized definitions for LVAD infections. Indeed, prior systematic reviews have reported similar variance in standards and definitions across studies, going as far as to conclude that current evidence is inadequate to rationally guide prevention, treatment, and chronic suppression of infections.[3]

This review underscores the challenges with identifying best practices for managing adverse events in patients on durable MCS. Effective treatment strategies are difficult to define when studies fail to report adverse events in accordance with established consensus statements. Although slightly different from those championed by the International Society for Heart and Lung Transplantation since 2011, both the International Society for Heart and Lung Transplantation and the recent MCS Academic Research Consortium guidelines emphasize the need to differentiate between true MCS-related infections (eg, driveline infections and device-related endocarditis) from those that may have occurred incidentally in this patient population.[4,5] Without a consistent set of definitions and nomenclature for adverse events, reliable comparisons of outcomes from either retrospective cohorts or prospective clinical trials remain exceedingly problematic. Most recorded infections were associated with the LVAD driveline—an expected finding that we hope will be relegated to history by advances in transcutaneous power delivery. In many ways, the findings of this article only reiterate the importance of efforts such as the MCS Academic Research Consortium—a consortium of heart failure clinicians, surgeons, engineers, and infectious disease experts tasked with addressing some of these issues. So far, the recommendations call for recording the organism type, species, and Gram stain characteristics in LVAD patients with infections, in addition to recording the duration and type of intravenous antibiotic used. Other nuances include delineating

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pulmonary infections that are not LVAD related when the procedure is carried out via a thoracotomy. Our hope is that, when standardized, such definitions and reporting standards will help define the influence of infection subtypes on long-term outcomes.

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