Careful Echocardiographic Analysis of Right Ventricular Function as a Long-Term Prognostic Variable in Systolic Heart Failure

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Over the past decade, the importance of right ventricular (RV) function on the long-term survival of a patient suffering from systolic heart failure has been increasingly recognized. Much of this knowledge has been gained from the advancements in mechanical circulatory support and our realization that a functional RV is tantamount to long-term survival following isolated left ventricular assist device (LVAD) implantation. Numerous studies have illustrated diminished survival post-LVAD placement in the presence of poor RV function. Moreover, risk stratification has routinely placed patients with poor RV function among the highest risk for failure and death post-LVAD, which has prompted most heart failure surgeons and cardiologists alike to accept early RVAD intervention with concerns of RV failure. As opposed to the neonatal population that can often be converted from a biventricular to a single-ventricle circulation with passive, gradient dependent flow through the pulmonary circulation, it is clear that in adult patients a functioning, active RV is requisite for stable hemodynamic function, due in large part to the development of pulmonary vascular resistance with age.

On a broader sense, investigators are continuing to search for predictors of poor outcome in the presence of systolic heart failure. Namely, those risk factors that can be modified. The majority of clinical heart failure research has focused on enhancing our understanding of right heart dysfunction, quantification of right heart physiology, and the dynamic failure. Our knowledge of the right heart remains immature and needs to be further expanded. Future studies focused on enhancing our understanding of right heart dysfunction, quantification of right heart physiology, and the prognostic implications of RV failure are required.

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