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Feinstein Institute study looks at impact of a popular pre-heart transplant therapy on the kidney

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Scientists, nephrologists and cardiac surgeons from The Feinstein Institute for Medical Research and Northwell Health's Department of Internal Medicine, Cardiology and Cardio-Thoracic Surgery examined the impact of a popular pre-heart transplant therapy on the kidney in a study published today by *The Clinical Journal of the American Society of Nephrology*. Better understanding how this therapy, called left ventricular assist device (LVAD), effects kidney function can improve outcomes and develop new treatment protocols as the device is growing in acceptance as a long-term treatment option.

LVAD's have been in use for more than 55 years as a temporary or "bridge" therapy for patients with congestive heart failure waiting for a heart transplant to maintain normal heart function. The device pumps blood from the left side of the heart to the right and then through the body. As the technology improves and the need for heart transplants is higher than available donor hearts, the LVAD has become a more permanent solution, requiring examination of long-term use. With kidney dysfunction being a known potential risk associated with LVADs, Feinstein Institute researchers felt it important to examine this relationship.

"More and more patients are surviving end-stage heart failure thanks to durable, implantable heart pumps, known as LVADs," said Gerin Rachel Stevens, MD, an author of the study and director of cardiomyopathy at

Northwell Health, medical director of cardiomyopathy and cardiac transplantation at North Shore University Hospital and a Feinstein Institute scientist. "For those patients ineligible for heart transplantation, 'destination' or long-term LVADs improve both survival and quality of life, but it is important to understand how these devices impact the kidney. By understanding the risk factors for kidney injury, we can better evaluate LVAD candidates and put measures in place both before and after the device is implanted to help maintain the patient's health."

What researchers identified were a host steps, which when used in concert, could result in LVAD patients who enjoy improved outcomes. Some of the interventions posed in the study include having a nephrologist on the medical team pre-implantation, enhanced training for dialysis nurses in the function of LAVD's and identifying patients with chronic kidney disease prior to transplant.

"Knowledge of cardiac devices and their interaction with the kidney is going to be of paramount importance for practicing nephrologists around the world," said Daniel W. Ross, MD, lead author and assistant professor at the Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, attending nephrologist for Northwell Health and Feinstein Institute scientist. "We hope this article serves as a reference for all renal physicians involved in the care of a cardiac patient with heart failure and spark ideas for future research."

Provided by Northwell Health's Feinstein Institute for Medical Research

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