The impact of preoperative renal dysfunction on outcomes after left ventricular assist device (LVAD) implantation has received considerable review in the literature. Two notable investigations, those by Cowger and colleagues\(^1\) and Kirklin and colleagues\(^2\) were performed in large LVAD registries and provided strong evidence of the adverse influence of preoperative renal dysfunction on survival. In an analysis of the HeartMate II Pivotal Study database, Cowger and colleagues\(^1\) identified preoperative renal dysfunction as an independent multivariable predictor of 90-day mortality for patients undergoing HeartMate II (Thoratec Corp, Pleasanton, Calif) LVAD implantation (odds ratio, 2.1; 95\% confidence interval, 1.37-3.21; \(P < .001\)).\(^1\) An analysis from INTERMACS of more than 4000 patients, Kirklin and colleagues\(^2\) demonstrated a 20\% reduction in 2-year survival associated with worsening preoperative renal function.

In this edition of the Journal, Kilic and colleagues\(^3\) reported on 238 patients undergoing LVAD implantation to identify the risk of preoperative renal dysfunction on outcome. Reduced glomerular filtration rate (GFR) was present in 56\% (n = 132), with 8\% (n = 18) being dialysis-dependent. These investigators observed (1) an unadjusted and risk-adjusted survival at 1, 3, 6, and 12 months post-LVAD that was similar between the cohorts with preserved and reduced GFR; (2) comparable rates of transplantation in bridge patients (61\% normal vs 53\% with reduced GFR; \(P = .43\)); and (3) recovery of renal function to a GFR greater than 60 mL/min in 43\% (n = 17) and 57\% (n = 42) of patients with reduced GFR in the bridge and destination cohorts, respectively, by 1 year postimplant.

These data represent an important observation from an experienced center that likely will have significant impact on how we perceive candidacy for durable LVAD therapy in the context of preoperative renal dysfunction. However, a number of important confounders likely exist in the analysis and conclusion reached by the investigators. First, this was a small, single-center study that likely contained potential biases in patient selection and postoperative management that reflect practices not universally adopted that could contribute to better than expected outcomes. For example, these investigators observed a high rate of renal recovery at 1 year that is not consistent with analyses from the INTERMACS registry.\(^4\) Second, there is significant probability the study was not powered to identify important clinical differences in outcomes between groups, despite the lack of statistical significance. This is particularly notable for the destination therapy group with preoperative dialysis that experienced a 1-year survival of only 45\%.

What are we to conclude from the work by Kilic and colleagues?\(^3\) First, because most patients in the reduced GFR group had moderate levels of renal dysfunction, it is reasonable to conclude that a moderate level of preoperative renal dysfunction has modest (clinically insignificant) or no risk for death after LVAD implantation. Of note, because there were so few patients at the extreme of preoperative renal dysfunction, those with a GFR less than 30 mL/min or with preoperative dialysis, it is difficult or not justified to extrapolate conclusions for this subset of patients beyond those observed with only moderate levels of dysfunction. Thus, considerable caution should still be entertained when considering LVAD therapy in patients...
on preoperative dialysis, particularly those not eligible for heart transplantation.5

References