When Is Renal Artery Revascularization Beneficial?

Flash pulmonary edema is a high-risk indication for renal artery revascularization, but declining kidney function and refractory hypertension may not be, reports a study in the American Journal of Kidney Diseases.

The researchers analyzed one hospital’s experience of 467 patients with renal artery stenosis of 50 percent or greater, treated according to clinical presentation and physician and patient preference. Flash pulmonary edema was present in 7.8 percent of patients, refractory hypertension in 24.3 percent, and rapidly declining kidney function in 9.7 percent. Treatment and outcomes were compared for patients with versus without these high-risk characteristics.

Renal artery revascularization was performed in 32 percent of patients with flash pulmonary edema, 28 percent with rapidly declining kidney function, and 28 percent with refractory hypertension. At a median 3.8 years of follow-up, 55 percent of patients had died, 33 percent had a cardiovascular (CV) event, and 18 percent had ESRD.

In patients treated medically, flash pulmonary edema was associated with an increased risk of death and CV events: hazard ratio 2.2 and 3.1, respectively. Rapidly declining kidney function and refractory hypertension were not associated with increased risk of adverse outcomes. Among patients with flash pulmonary edema, the risk of death was lower for those undergoing revascularization (HR 0.4) in comparison with medical management, but there was no difference in CV events or ESRD.

Revascularization did not reduce adverse outcomes in patients with rapidly declining kidney function or refractory hypertension. For the 31 patients who had both of these high-risk characteristics, revascularization was associated with a reduced risk of death (HR 0.15) and CV events (HR 0.23).

Recent studies have questioned the use of revascularization for patients with renovascular atherosclerosis and stable kidney disease. However, these findings may not apply to patients with high-risk presentations.


One-Time FGF23 Level Predicts Cardiovascular Risk in CKD

A single measurement of fibroblast growth factor-23 (FGF23) predicts the risk of cardiovascular events in patients with chronic kidney disease (CKD), reports Nephrology Dialysis Transplantation.

The study included 439 adults with CKD whose median estimated GFR was 36 mL/min per 1.73 m², drawn from a larger randomized trial. All had paired samples for measurement of FGF23 over 2 years. Changes in FGF23 and time-averaged FGF23 were compared with one-time values as predictors of clinical events. Both one-time and time-averaged FGF23 were positively associated with a primary composite outcome of myocardial infarction, stroke, and cardiovascular mortality. There were also significant associations for overall mortality, start of renal replacement therapy, and congestive heart failure.

One-time and time-averaged FGF23 had similar predictive value: adjusted hazard ratio 1.71 and 1.91 for the composite outcome, respectively. Change in FGF23
Data from many different countries show that the first few months after the start of dialysis are a high-risk period for mortality, reports a study in *Kidney International*. The researchers analyzed data on nearly 87,000 patients from 11 countries, submitted to the Dialysis Outcomes and Practice Patterns Study (DOPPS). All-cause mortality in the early period within 120 days after the start of dialysis was compared with the intermediate period (121 through 365 days) and late period (after 365 days). Analyses were adjusted for age, sex, race, and presence of diabetes.

The rate of death per 100 patient-years was 26.7 during the early period after the start of dialysis, decreasing to 16.9 in the intermediate period and 13.7 in the late period. All 11 countries had higher mortality in the early period than in the intermediate period. Adjusted hazard ratios (HRs) for the early period versus the intermediate period varied considerably: 3.1 in Japan; 1.6 to 1.8 in Australia/New Zealand, Belgium, and Italy; 1.3 to 1.5 in Canada, France, Germany, Sweden, and the United States; and 1.2 in the United Kingdom. For the late period versus the intermediate period, the HRs were closer to 1.

The risk of death during the early period was higher for older patients than for younger patients (HR 1.59 versus 1.08), for female patients than for male patients (HR 1.62 versus 1.46), and for patients without diabetes as the primary cause of ESRD (HR 1.62 versus 1.39). During all periods, most countries had lower mortality than did the United States.

Previous studies have reported increased mortality early after the beginning of dialysis. This study suggests a higher risk of death during the first 120 days in patients receiving dialysis in all countries participating in the DOPPS. Early mortality differs between countries; the United States is on the higher end of the range. The investigators conclude, “Efforts to improve outcomes should focus on the transition period and the first few months of dialysis” [Robinson BM, et al. World-wide, mortality risk is high soon after initiation of hemodialysis. *Kidney Int* 2014; 85:158–165].

### Good Growth after Steroid-Free Transplantation in Kids

For children undergoing kidney transplantation, steroid-free immunosuppression is safe and reduces the long-term risks of obesity and short stature, reports a study in *Pediatric Transplantation*. The researchers report on the outcomes of a strategy of complete steroid avoidance after pediatric renal transplantation. The analysis included 65 transplants in 60 patients performed in one Danish hospital from 1994 through 2009. Most patients received antithymocyte globulin for induction;