Better Outcomes with HHD versus Peritoneal Dialysis

In comparison with peritoneal dialysis, patients using daily home hemodialysis (HHD) have lower mortality, fewer hospitalizations, and a lower rate of technique failure, reports a study in the American Journal of Kidney Disease.

Using the US Renal Data System database, the researchers identified matched groups of 4201 patients starting HHD and PD from 2007 through 2010. In both groups, the average mean time from the onset of ESRD to the start of home dialysis therapy was about 44 months.

Throughout follow-up, mortality was significantly lower for patients using daily HHD than for those using PD: hazard ratio (HR) 0.80. Daily HHD was also associated with lower rates of hospitalization: HR 0.92; and technique failure, HR 0.63.

On a subset analysis of 1368 patients starting home dialysis within 6 months of ESRD onset, there was no overall difference in mortality between HHD and PD. The overall hospitalization rate was similar as well. HHD patients were at lower risk of hospitalization for cardiovascular disease and dialysis access infection, whereas PD patients were less likely to be hospitalized for bloodstream infection. The HHD group remained at lower risk of technique failure: HR 0.70.

As more patients in the US begin to use daily HHD, there are few direct comparisons of important clinical outcomes compared with PD. This matched cohort study found lower overall rates of mortality, hospitalization, and technique failure with HHD versus PD. More research is needed to clarify the interaction between home dialysis modality and duration of ESRD [Weinhandl ED, et al. Mortality, hospitalization, and technique failure in daily home hemodialysis and matched peritoneal dialysis patients: a matched cohort study. Am J Kidney Dis. 2015 Aug 26. DOI: http://dx.doi.org/10.1053/j.ajkd.2015.07.014].

Good Outcomes with SLED in Critically Ill Patients with AKI

Sustained low-efficiency dialysis (SLED) is an “acceptable alternative” for the treatment of critically ill patients with acute kidney injury (AKI), concludes a study in BMC Nephrology.

The retrospective study included patients with AKI treated at five intensive care units at a Canadian academic medical center between 2007 and 2012. Seventy-four patients were treated with SLED, with a target of 8-hour dialysis sessions at a blood flow rate of 200 mL/min, generally without anticoagulation. The 30-day mortality and other outcomes were compared with those of 158 AKI patients beginning continuous renal replacement therapy (CRRT) at the same intensive care units. The analyses were adjusted for demographic factors, comorbid conditions, baseline kidney function, and Sequential Organ Failure Assessment (SOFA) score.

The two approaches yielded similar 30-day mortality rates: 54 percent with SLED and 61 percent with CRRT. There was also no significant difference in the specified secondary outcomes of dependence on renal replacement therapy at 30 days or early clinical deterioration, defined as an increased SOFA score or death within 48 hours after the start of therapy.

Sustained low-efficiency dialysis is increasingly used as an alternative to CRRT for patients with AKI in hemodynamically unstable condition. Within the study limitations, the new results show similar clinical outcomes for critically ill AKI patients treated with SLED versus CRRT. Pending the outcomes of a definitive noninferiority trial, the researchers conclude, “SLED appears to be an acceptable alternative to CRRT for hemodynamically unstable patients with AKI” [Kirchlu A, et al. Outcomes of sustained low-efficiency dialysis versus continuous renal replacement therapy in critically ill adults with acute kidney injury: a cohort study. BMC Nephrol 2015; 16:127].

Finerenone Reduces Albuminuria in Diabetic Nephropathy

Finerenone, a new nonsteroidal mineralocorticoid receptor antagonist, can improve albuminuria in patients with diabetic kidney disease, reports a trial in the Journal of the American Medical Association.

The randomized controlled trial included 823 patients with type 2 diabetes; persistent albuminuria, urinary albumin–creatinine ratio (ACR) 30 mg/g or higher; and current treatment with a renin-angiotensin system (RAS) blocker. The mean age was 64.2 years, and 78 percent of patients were men. The baseline ACR was 300 mg/g or higher in 36.7 percent of patients, and 40.0 percent had an estimated GFR of 60 mL/min/1.73 m² or less.

The patients were assigned to treatment with oral finerenone, in doses ranging from 1.25 to 25 mg/d, or placebo, while continuing their RAS blocker. The changes in urinary ACR at 90 days were compared between groups. Serum potassium level and kidney function were assessed as safety outcomes.

Finerenone reduced ACR in a dose-dependent fashion. The placebo-corrected mean ratio of ACR at 90 days (compared with baseline) was 0.79 with finerenone at a dose of 7.5 mg/g, 0.76 at 10 mg/d, 0.67 at 15 mg/d, and 0.62 at 20 mg/d. At the 10 mg/d dose, there was no difference in the rate of hyperkalemia leading to treatment discontinuation in comparison with placebo. The rates of this safety outcome were 2.1 percent with finerenone at a dose of 27.5 mg/d, 3.2 percent at 15 mg/d, and 1.7 percent at 20 mg/d. There were no differences in the rate of a 30 percent or greater drop in estimated GFR or in serious adverse events.

Adding a steroid mineralocorticoid receptor antagonist to a RAS blocker reduces proteinuria in patients with chronic kidney disease, but with a high risk of adverse events. A previous trial found that finerenone decreased albuminuria in patients with CKD and heart failure, with a lower rate of hyperkalemia in comparison with spironolactone.

This placebo-controlled trial shows a reduction in urinary ACR in patients with diabetic nephropathy assigned to finerenone, added to a RAS blocker. Further trials of finerenone are needed, including comparison with other active treatments [Bakris GL, et al. Effect of finerenone on albuminuria in patients with diabetic nephropathy. JAMA 2015; 314:884–894].

Excess Mortality from Type 2 Diabetes: Rates and Risk Factors

Interactions among age, glycemic control, and kidney disease have a major influence on risk of death for patients with type 2 diabetes, according to a study in The New England Journal of Medicine.

The researchers matched 435,369 patients with type 2 diabetes, drawn from the Swedish National Diabetes Register, to 2.1 million population controls without diabetes. Excess mortality associated with type 2 diabetes was analyzed, including the role of glycemic control and renal complications.

At a mean follow-up of nearly five years in both groups, mortality was 17.7 percent in patients with type 2 diabetes versus 14.5 percent in controls. Excess mortality from type 2 diabetes was “historically low”: the adjusted hazard ratio (HR) for all-cause mortality was 1.15. Cardiovascular mortality was 7.9 versus 6.1 percent, respectively: HR 1.14.

For both all-cause and cardiovascular mortality, risk increased with younger age, worse glycemic control, and more severe kidney complications. For diabetic patients under 55 with a glycated hemoglobin level of 6.9 percent or less, the HR for death was 1.60 compared to controls. Again, older diabetics with normalalbuminuria and good glycemic control had lower all-cause mortality than controls: HR 0.76 for patients aged 75 or older and 0.87 for those aged 65 to 74.

The data suggest wide variation in excess mortality among patients with type 2 diabetes, based on age, glycemic control, and renal complications. Patients under age 55 are at substantially higher risk, even if they have good glycemic control and normalalbuminuria.

Discussing the implications for efforts to reduce excess mortality among patients with type 2 diabetes, the authors highlight the importance of reducing renal complications in all age groups. They write, “Excess mortality among younger patients with chronic kidney disease was approximately 15 times as high as that in controls” [Tancredi M, et al: Excess mortality among persons with type 2 diabetes. N Engl J Med 2015;373:1720–1732].