

RAAS Blockers Linked to Increased Survival in Dialysis Patients

Antihypertensive medications, including renin-angiotensin-aldosterone system (RAAS) inhibitors, have a small but significant survival benefit for hemodialysis patients, according to a study in *Kidney International*.

The researchers analyzed data from the International Dialysis Outcomes and Practice Patterns Study (DOPPS) phases 2 to 5 (2002–2015). The study included data on 11,421 patients with incident hemodialysis, over 120 days or less; and 11,421 with prevalent hemodialysis, over 120 days. The exposure of interest was baseline treatment with RAAS inhibitors: angiotensin-converting enzyme inhibitor, angiotensin-receptor blocker (ARB), aldosterone receptor antagonist, or direct renin inhibitor. The effects of treatment with RAAS inhibitors or other antihypertensive agents on all-cause mortality were estimated by Cox regression analysis.

Overall, 39% of patients were taking a RAAS inhibitor at baseline. More than 95% of these prescriptions were for ACE inhibitors or ARBs. Prescription of RAAS inhibitors varied widely by region, duration of hemodialysis, and diabetes status, but not by history of congestive heart failure or coronary artery disease.

Prescription of a RAAS inhibitor was associated with a significant reduction in all-cause mortality: adjusted hazard ratio 0.89 in incident hemodialysis patients and 0.94 in the prevalent hemodialysis group.

Beta-blockers and calcium channel blockers were also associated with lower mortality. Among patients with a RAAS inhibitor prescription, the survival benefit appeared greater with ARBs versus ACE inhibitors.

Hemodialysis patients are less likely to receive RAAS inhibitor therapy, reflecting mixed data from clinical trials and concerns about hyperkalemia. This analysis of DOPPS data shows significantly lower all-cause mortality in hemodialysis patients receiving a RAAS inhibitor: by 11% in incident and 6% in prevalent hemodialysis patients.

The study shows no interaction between diabetes, coronary artery disease, or congestive heart failure and the survival benefit of RAAS inhibitors. Randomized trials are needed to clarify RAAS inhibitor prescribing criteria in patients receiving hemodialysis, the authors noted [Karaboyas A, et al. DOPPS data suggest a possible survival benefit of renin-angiotensin-aldosterone system inhibitors and other antihypertensive medications for hemodialysis patients. *Kidney Int* 2018; 94:589–598] ■

Physical Function and Walking Linked to Survival in CKD

For patients with chronic kidney disease, self-reported measures of physical functioning and physical activity are independently associated with survival, reports a study in *Clinical Kidney Journal*.

Such self-reported measures of functioning and physical activity may be reasonable surrogates for objective assessments, the study authors noted.

The cohort study included 450 adult patients with CKD not requiring renal replacement therapy (RRT), enrolled in a study of physical therapy in CKD. Fifty-seven percent of the patients were men. The median age was 62 years, and the median eGFR was 29 mL/min/1.73 m².

At enrollment, patients completed questionnaires regarding physical function (the Duke Activity Status Index, or DASI) and

habitual activity (the General Practice Physical Activity Questionnaire). Mortality was assessed at a median follow-up of 43 months; renal replacement (RRT) was evaluated as a competing event.

During follow-up, 74 patients died and 101 initiated RRT. For patients above a DASI cutoff score of 19.2, the adjusted sub-distribution hazard ratio (SHR) for death was 0.51. Each 1-unit increase in DASI score was associated with a 3% reduction in mortality.

Increased walking was also associated with increased survival. Compared to no walking, adjusted SHRs for mortality were 0.48 for participants who walked less than 1 hour per week, 0.25 for those who walked 1 to 3 hours, and 0.48 for those who walked 3 or more hours per week. For those who re-

ported a walking speed of 3 mph or faster, the adjusted SHR was 0.37, compared to less than 3 mph.

Decreased physical function is a risk factor for mortality in patients with CKD. Higher self-reported physical function, weekly walking time, and walking speed are independently associated with increased survival among CKD patients not initially requiring RRT. Used together with clinical information, the DASI and patient-reported walking behavior may provide useful prognostic information for identifying patients at risk of adverse events, the authors said.

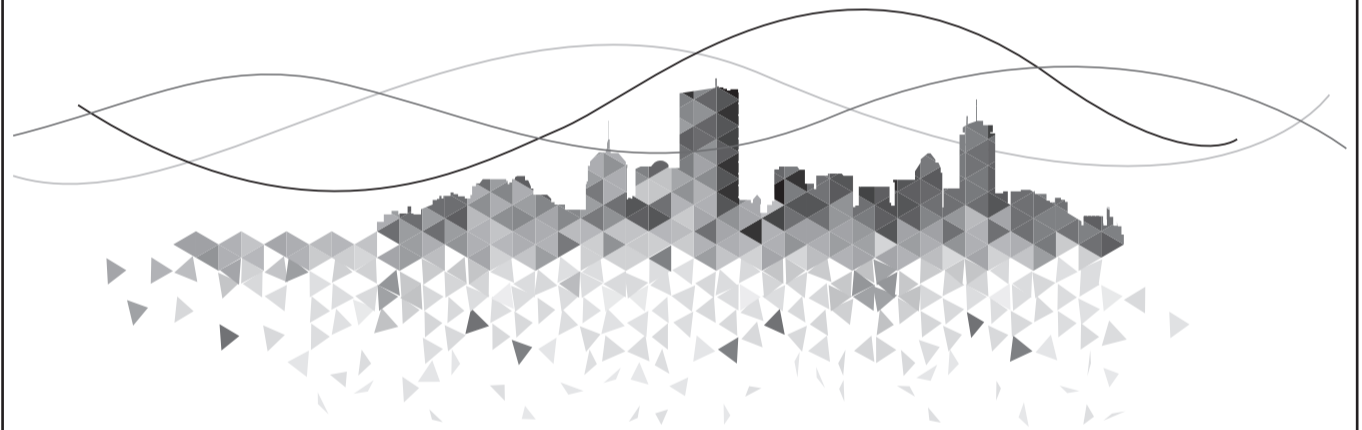
Clarke AL, et al. Association of self-reported physical function with survival in patients with chronic kidney disease. *Clin Kidney J* 2018; DOI: 10.1093/ckj/sfy080. ■



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