Introduction and Aims: Diabetes reduces life expectancy, with cardiovascular disease (CVD) being the leading cause of mortality. The role of RAAS-blocking agents to delay development of diabetic kidney disease (DKD) is well established. However, there is on-going uncertainty whether RAAS blocking agents, administered in patients with diabetes and more advanced CKD, do reduce mortality and/or delay start of renal replacement therapy.

Methods: We conducted a meta-analysis of randomized controlled trials (RCT) to January 2014 in adult, diabetic patients with non-dialysis CKD stages > 3b. Selection criteria included RCT’s of at least six months duration. Patients were allocated to single RAAS blocking agents (so either only ACEIs, ARBs or renin inhibitors but not in combination) or either to placebo, alternative antihypertensive agents or an alternative single RAAS blocking agent. The included outcomes of analysis were: all-cause mortality, cardiovascular mortality, non-fatal cardiovascular events, assessment of renal function, need for renal replacement therapy and adverse events.

Results: A total of 9 trials (n = 9797 participants with CKD stage 3b-5) were reviewed. There was no difference between the RAAS group and control group regarding all-cause mortality (RR = 0.97; 95% CI: 0.85 to 1.10), cardiovascular mortality (RR = 1.03; 95% CI: 0.75 to 1.41) and adverse events (RR = 1.05; 95% CI: 0.89 to 1.25). There was a trend for a favourable effect for non-fatal cardiovascular events (RR = 0.90; 95% CI: 0.81 to 1.00) and a lower risk of the composite outcome “Need for RRT or Doubling of serum creatinine” (RR = 0.81; 95% CE 0.70 to 0.92) in the RAAS-blocking agents vs the control group. There was, however, no difference between the groups for eGFR assessed at the end of the treatment.

Conclusions: We found evidence that in patients with diabetes mellitus and moderate to severe CKD, treatment with RAAS-blocking agents did not result in a clear survival advantage. Effect on renal outcomes did depend on the selected outcome measure. However, we did not find evidence that use of RAAS blocking agents expedited need for renal replacement therapy.