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Target blood pressure in CKD/ESRD

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Hypertension is the most common comorbidity accompanying chronic kidney disease (CKD). It has been reported that the prevalence of hypertension was 70-80% in patients with CKD stage 1 and > 90% in CKD stage 4 or 5. Until now, 2 randomized clinical trials have evaluated the effects of different blood pressure (BP) targets on hard renal outcomes in patients with CKD, the Modification of Diet in Renal Disease (MDRD) study and the African American Study on Kidney Disease (AASK). Diabetic patients were excluded in both studies. Findings from MDRD and AASK suggested that a low BP target can prolong renal survival in patients with nondiabetic kidney disease and proteinuria >0.25–0.3 g/day. Thus, with regards to renoprotection, a goal BP of <130/80 mmHg seemed justifiable for proteinuria >0.3 g/day, whereas a lower BP target of <125/75 mmHg could be helpful for patients with proteinuria >1 g/day. Despite the above evidence, a major question remained, i.e. whether a BP <130/80 mmHg would be able to also reduce cardiovascular events and mortality in patients with CKD. Subgroup analysis of the Systolic Blood Pressure Intervention Trial (SPRINT) in 2646 patients with CKD showed lower mortality rate (HR 0.72; 95% CI 0.53–0.99) in the intensive treatment compared with the standard treatment group. There was no difference in the renal outcome in this study, but the number of n was small, so the renal outcome was not properly evaluated. The American College of Cardiology–American Heart Association High BP Clinical Practice Guidelines proposed BP thresholds of 130/80 mmHg for the diagnosis of hypertension in almost all individuals as well as a BP target of <130/80 mmHg for all hypertensive patients, including those with CKD. In contrast, the recent European Society of Cardiology–European Society of Hypertension guidelines suggested a conservative SBP target range of 130–139 mmHg in CKD patients, which was higher than almost all other patient subgroups, without providing any clear rationale for this. The guidelines of the Korean Society of Hypertension suggest a target BP of <140/90 mmHg in the absence of proteinuria and <130/80 mmHg in the presence of proteinuria for CKD patients. A prospective large-scale well-controlled clinical trials are needed to establish target BP based on the cardiovascular outcome in CKD patients.