Partial Nephrectomy in Patients with Severe CKD: Outcomes and Risk Factors

Some groups of patients with clinically localized kidney tumors and severe chronic kidney disease (CKD) are at high risk of adverse outcomes after partial nephrectomy (PN), according to a study in The Journal of Urology.

The retrospective study included 62 patients with clinically localized kidney tumors (T1-T2/N0/M0) and stage 4 CKD who underwent PN at the Cleveland Clinic between 1999 and 2015. The patients were 44 men and 18 women, median age 67 years. Comorbid diseases were common, including hypertension in 94% of patients, cardiovascular disease in 53%, and diabetes in 52%. Median estimated glomerular filtration rate (eGFR) was 23 mL/min/1.73 m². Follow-up data were used to analyze factors associated with time to progression to end stage kidney disease (ESKD).

The surgical approach was open in nearly three-fourths of patients. Sixteen percent were found to have benign tumors; 37% had grade 3/4 tumors and 11% had pT3a disease. Adverse outcomes occurred in 24% of patients: 5% died within 90 days; 14% had Clavien grade IIIB or higher complications, and 12% had positive surgical margins. Median time to ESKD was 27 months overall but differed substantially according to baseline kidney function: 58 months for patients with baseline eGFR greater than 25 mL/min/1.73 m² versus 14 months with eGFR less than 20 mL/min/1.73 m². The effect of preoperative eGFR remained significant on multivariable analysis: hazard ratio (HR) 2.59 at 20 to 25 mL/min/1.73 m² and 3.05 at less than 20 mL/min/1.73 m². Other independent risk factors were African American race, HR 2.55, and minimally invasive surgical approach, HR 2.05.

For oncologic patients with CKD, PN is preferred over radical nephrectomy, if possible. However, when severe CKD is present, the morbidity associated with PN may not be justified—particularly if it leads to rapid progression to ESKD.

The new findings show a substantial risk of adverse outcomes after PN in patients with stage 4 CKD. “Renal mass biopsy should be strongly considered to improve oncologic risk stratification and patient selection,” the researchers write. They suggest that alternative strategies may need to be considered for patients with risk factors including very low baseline eGFR, African American race, or high-complexity PN [Palacios DA, Li et al. Partial nephrectomy for patients with severe chronic kidney disease—is it worthwhile? J Urol 2020. 204:434–441. doi: 10.1097/JU.0000000000001021].

References: