

Radical Kidney Cancer Surgery a CKD Risk Factor

CKD risk factors are common among patients with kidney tumors, and these may account for why they are at risk for developing CKD following a radical nephrectomy.

REVIEWED BY WILLIAM C. HUANG, MD

For 40 years, the standard for treating a single small tumor in the kidney has been to remove the entire kidney. A retrospective study, which appeared in *The Lancet Oncology*, suggests that this practice needs to be reevaluated.

Researchers from Memorial Sloan-Kettering Cancer Center (MSKCC) and colleagues said that with advances in imaging, approximately 70% of kidney cancer patients have their tumor detected at a very small size (<4 cm), allowing surgeons to perform less radical surgery with superior results.

The study revealed that patients with two otherwise healthy kidneys who underwent partial nephrectomy to remove a small cancer developed chronic kidney disease (CKD) at a rate one-third lower than patients who underwent radical nephrectomy. The 3-year probability of staying free of CKD was 80% for the partial nephrectomy patients compared with 35% for patients who underwent a radical nephrectomy. Radical nephrectomy was shown to be a significant risk factor for developing CKD.

"The results of our study demonstrate that, prior to surgery, the baseline kidney function of patients with small kidney tumors was significantly lower than previously recognized," said author William C. Huang, MD, in a news release. "Patients who undergo a radical nephrectomy, the most common treatment for small kidney tumors, are at significantly greater risk for the development of CKD after surgery compared with those who undergo a partial nephrectomy.

The retrospective study of 662 patients at MSKCC showed that $\leq 26\%$ of the patients had preexisting CKD before undergoing surgery to remove a small tumor from the kidney. In addition, those patients who had the entire kidney removed were more than twice as likely to develop CKD.

Although partial nephrectomies account for 30% to 65% of all kidney surgeries performed in tertiary care cen-

ters like MSKCC in the United States, the latest analysis from Nationwide Inpatient Sample reported in the *Journal of Urology* indicates that 92.5% of all kidney cancer surgeries in the United States from 1998 to 2000 were radical nephrectomies.

Statistics from the Department of Health in England for the same period reflected a similar trend. In 2002, 96% of kidney cancer surgeries performed in England were nephrectomies and 4% were partial nephrectomies.

"Evidence has accumulated from our center and elsewhere that partial nephrectomy provides effective local tumor control and equivalent survival rates to that of radical nephrectomy for small tumors," said Paul Russo, MD, senior author of the study. "However, while approximately 70% of kidney tumor operations at MSKCC are partial nephrectomies, national databases from the United States and abroad suggest that greater than 80% of patients may be unnecessarily undergoing the more radical surgery to remove the entire kidney, even for small renal tumors. One explanation may be that partial nephrectomy is a more complex surgical procedure."

Risk factors for CKD (ie, diabetes, hypertension, and smoking), are commonly found in patients with kidney tumors, and these may account for why the majority of these patients are at risk for developing CKD following a radical nephrectomy.

"Our study clearly demonstrates, for the first time, the serious effects on kidney function and the high risk of CKD when an entire kidney is removed for a small cancer. CKD leads to an increased risk of cardiovascular events, hospitalizations and even death," said Peter T. Scardino, MD, chairman of the department of surgery at MSKCC and a coauthor of the study. "By removing only the cancerous part, we are much more likely to preserve a patient's normal kidney function and avoid the long-term consequences of CKD." ■

Huang WC, Russo P, Scardino PT, et al. Radical nephrectomy: To radical for small renal masses? *Lancet*. 2006;368:823-824.