LOS ANGELES, March 10 -- For kidney cancer patients, surgeons have been slow to adopt innovative procedures with apparent advantages, researchers here found.

**Action Points**

- Explain to interested patients that this study found that surgeons' preference plays a large role in choice of kidney cancer surgery, and that urologists are slow to adopt newer, less invasive alternatives for these tumors.

The newer techniques of nephron-sparing surgery or laparoscopic radical nephrectomy have advantages over the traditional method of open radical nephrectomy, but surgeons are slow to adopt the practices, David Miller, M.D., M.P.H., of the University of California Los Angeles, and colleagues reported online in *Cancer*. The study results are slated to appear in the April 15 print issue.

Partial nephrectomy preserves some renal function and reduces "over-treatment of patients with benign or clinically indolent tumors," the investigators wrote. Using laparoscopy leads to an easier convalescence. Both techniques have equal cancer control compared with open radical nephrectomy.

However, out of 5,483 patients studied, only 11.1% received a partial nephrectomy (0.8% laparoscopic and 10.4% open) and 9.4% underwent laparoscopic radical nephrectomy. More than three-quarters (79.5%) had open removal of the kidney.

When the researchers looked at the factors governing surgery choice, they found significant variation. For partial nephrectomy, 18.1% of that variation was attributed to the surgeon's preference after adjusting for patient demographics, co-morbidity, tumor size, and surgeon volume. For laparoscopy, it was 37.4%.

"Our findings are consequential clinically insofar as the benefits of partial nephrectomy and laparoscopy support the application of one or both of these techniques for a majority (rather than a minority) of patients with organ-confined renal tumors," Dr. Miller and colleagues said.

"Consequently," they concluded, "the timely dismantling of residual barriers to surgeons' adoption of partial nephrectomy and laparoscopy is an important step toward improving the quality of care provided to patients with kidney cancer."

The analysis was made using data from the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program and the Centers for Medicare and Medicaid Services. All patients were 66 or older and were diagnosed with kidney cancer from 1997 through 2002.
Over this time period, the proportion of patients receiving partial nephrectomy increased significantly from 7.1% to 14.6% \( (P<0.01) \). The rise was more substantial in the subset of patients with tumors 4 cm or less (8.9% to 23.5%, \( P<0.01 \)).

Also in patients with smaller tumors, use of laparoscopic radical nephrectomy increased (1.2% to 20.3%, \( P<0.01 \)). For those with tumors larger than 4 cm, it rose from 0.8% to 16.2% \( (P<0.01) \).

For partial nephrectomy, unmeasured surgeon factors contributed to 17.5% of the variance in surgical choice. Only tumor size contributed a larger proportion at 19.6%.

For laparoscopic radical nephrectomy, unmeasured surgeon factors made up 37.5% of the variance, which was not exceeded by any other factors.

"The ensuing inference," the researchers said, "is that a minority of elderly patients with kidney cancer undergoes nephron-sparing or minimally invasive surgery; moreover, surgeon-level determinants appear to influence the likelihood of undergoing a partial nephrectomy or a laparoscopic approach for radical nephrectomy as much as or greater than a patient's tumor size, demographic characteristics, or general medical health."

The researchers acknowledged several limitations: the data used were from the first years following acceptance of the new techniques and may not reflect current trends; the results may not be generalizable to a population outside of older Medicare recipients; the researchers could not measure all surgical decision-making factors; different surgeon volume thresholds may change the variance attributed to that factor; the optimal use of both partial and laparoscopic radical nephrectomy requires a better understanding of patient preferences; and the study may have been subject to selection bias.

In an accompanying editorial, Lee Richstone, M.D., and Louis Kavoussi, M.D., of the North Shore-Long Island Jewish Health System in New Hyde Park, N.Y., asked, "Why have other laparoscopic procedures, such as cholecystectomy and fundoplication, taken hold? … What has made the management of renal tumors different?"

It is not that urologists are less likely to adopt new technologies, they said, as evidenced by the rise in robotic prostatectomy.

Instead, they suggest that it may have to do with the relatively low number of patients with renal cell carcinoma compared with those with prostate cancer. "Unlike general surgeons, urologists do not have a high-volume, low-complexity laparoscopic or robotic operation to hone their skills, such as cholecystectomy," they said. "Understandably, urologists may be less inclined to learn new and challenging techniques if they do not see a significant volume of patients that require the procedure to justify the significant expenditure of resources."

Another possibility lies in marketing. "Robotic surgery also is driven by a significant industry and marketing effort that is invested in promoting the technology," Drs. Richstone and Kavoussi said. "No parallel exists for [nephron-sparing surgery] or laparoscopy."

They concluded that the over-representation of the surgeon’s practice style in choosing a surgical option "represents a significant quality-of-care issue, and the barriers to diffusion must be identified and overcome."

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