

Robot-assisted surgery now favored treatment for kidney cancer

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Robot-assisted surgery has replaced another minimally invasive operation as the main procedure to treat kidney cancer while sparing part of the diseased organ, and with comparable results, according to a new research study by Henry Ford Hospital urologists.

While the study shows that robot-assisted [partial nephrectomy](#) (RAPD), available only since 2004, may also offer fewer complications than laparoscopic partial nephrectomy (LPN), the researchers cautioned that available data did not allow them to consider such factors as surgical expertise and the complexity of each cancer.

"To the best of our knowledge, this study is the first to compare complication rates after RAPN and LPN," says Quoc-Dien Trinh, M.D., a Fellow at Henry Ford Hospital's Vattikuti Urology Institute and lead author of the study.

The findings will be presented at the American Urological Association's Annual Meeting, May 19 to 23, in Atlanta.

Partial nephrectomy or PN, involves surgically removing only the diseased part of a cancerous kidney, compared to the once-standard treatment – radical nephrectomy or RN – in which the entire kidney, part of the ureter, the adrenal gland, and some surrounding tissue are removed. The less extreme PN became possible with improvements in 3D scanning technology, and not only offers obvious advantages over RN, but earlier studies found it results in an overall drop in related

cardiovascular complications and death.

In LPN, the surgeon removes the kidney tumor through a small incision rather than a wide opening – less invasive but more technically challenging. The increasingly common use of surgical robots allows surgeons to operate with more precision in minimally invasive procedures.

Using the Nationwide Inpatient Sample (NIS), the Henry Ford Hospital researchers identified 1,174 patients who underwent minimally invasive PN from October 2008 to December 2009. Of those, 72.5 percent of the patients had robot-assisted surgery, while the remaining underwent LPN. The researchers found:

- Overall complication rates both during and after surgery were essentially the same, as was the rate of blood transfusion and extended time in the hospital.
- However, "statistically significant differences" were found for individual complications. Those undergoing RAPN had fewer neurologic, urinary, and bleeding problems.
- A slightly higher percentage of LPN patients were white, but there was no difference according to gender, comorbidity (diseases or disorders in addition to [kidney cancer](#)), insurance status, or income level.
- Significantly more RAPNs were performed at non-teaching hospitals, and most of those were in the Midwest. LPNs were more common in the Northeast.

"From a practical perspective, our results indicate that on average, similar intraoperative and postoperative outcomes, including transfusion rates, prolonged length of stay, and in-hospital mortality, are expected whether the patient undergoes RAPN or LPN," Trinh says.

"But these results should be interpreted with care, because the NIS is unable to account for disease characteristics. Specifically, it's not known if more complex cases, or surgery for higher stage and grade cancers, are more often performed by robotic or laparoscopic procedures."

Kidney cancer rates in the U.S. have increased in recent years, in part because better technology and imaging techniques have allowed doctors to find more suspicious masses in the kidney. Much of the same technology has allowed surgeons to find and remove those tumors.

At the same time, as studies showed that PN was as effective as RN in controlling cancer while resulting in better survival rates, it has become the standard treatment in both the U.S. and Europe.

Provided by Henry Ford Health System

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