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[PubMed Abstract]

“The difference in outcome among patients who were treated by surgeons with varying degrees of experience is clinically relevant and likely reflects a true relationship between surgical technique and cancer control,” said the study’s lead author Andrew Vickers, PhD, Associate Attending Research Methodologist, Memorial Sloan Kettering Cancer Center (MSKCC).

Many studies have examined the relationship between surgical experience and patient outcomes. However, it is often unclear whether the findings are related to differences in surgical technique or result from differences in clinical variables or tumor characteristics. In the current study, the researchers adjusted for cancer severity, so that differences among surgeons likely reflect differences in the techniques they use rather than just differences in the patients they see.



Peter T. Scardino, MD -- Chair, Department of Surgery

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Investigators analyzed the cancer outcomes of 7,765 prostate cancer patients who were treated with radical prostatectomy - surgical removal of the prostate - by one of 72 surgeons at four major US academic medical centers over a 16-year period. Sophisticated statistical models were used to evaluate the link between the total number of prostatectomies performed by the surgeon prior to each patient’s operation and biochemical recurrence of prostate cancer (defined as a rising PSA level of more than 0.4 ng/mL).

The results showed that the risk of recurrence five years after surgery was 17.9 percent for patients treated by surgeons who had performed 10 operations and 10.7 percent for patients treated by surgeons who had performed 250 operations. This means that patients treated by inexperienced surgeons were nearly 70 percent more likely to have a recurrence of their prostate cancer than those who were treated by surgeons with greater experience. According to the analysis, one out of every 14 patients treated by an inexperienced surgeon will have a recurrence.

The results were described in terms of a learning curve, which showed a dramatic improvement in cancer control with increasing surgical experience up

to 250 prior operations; however, there was no large change in recurrence rates with additional surgical experience.

“The learning curve is steep and did not start to plateau until a surgeon had completed 250 prior operations,” said the study’s senior author, Peter Scardino, MD, Chairman, Department of Surgery, MSKCC. “Surgeons with little experience get significantly poorer results than those who have more.”

“Our results provide support for what other studies have implied - that good technique is learned and increased volume leads to improved outcomes,” said Dr. Vickers. “However, our focus on cancer outcome, the size of the difference in outcome associated with increasing surgical experience, and the large number of cases required before the learning curve starts to plateau, suggests that more serious attention should be paid to the issue of surgical quality.”

The researchers note that the surgical technique of experienced surgeons may differ from that of surgeons with less experience. They conclude that further research is needed to determine how surgical technique might differ between these groups and to identify the critical aspects of radical prostatectomy that are associated with improved cancer control.

“Although the successful practice of surgery presumes a lifetime of learning, the large number of cases required before the learning curve plateaus suggests the need to expand opportunities for training in surgical technique for surgeons in the early years after residency training,” said Dr. Scardino.

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