

Study identifies risk factors for complications after spine surgery

September 21 2011

In the last 20 years, due to diagnostic and surgical advances, more and more patients have become appropriate candidates for spine surgery, and the number of these procedures performed has risen significantly. While medical experts acknowledge the potential benefits of spine surgery, they also understand that complications can reduce the success in the short and long term.

"[Complications](#) following spine surgery may have a substantial impact on the quality of life of [patients](#) as well as the outcome of the primary surgical procedure," said orthopaedic surgeon Andrew J. Schoenfeld, MD, one of the authors of a new study recently published in the [Journal of Bone and Joint Surgery](#) (JBJS). This study identified several risk factors for a variety of complications and death shortly after spine surgery among men and women across the U.S.

Relatively few studies have explored the impact of factors such as comorbid medical conditions (simultaneously and usually independently existing health problems, including diabetes and [cardiovascular conditions](#)), age, [body mass index](#) (BMI), and gender on the risk of complications following spine surgery. Most research to date has focused exclusively on [wound infection](#), and few studies have explored other possible complications and death.

"At the present time, the results of this study may represent some of the best available evidence regarding risk factors for complications and mortality following spine surgery," said Dr. Schoenfeld.

Study Details:

The study authors evaluated the American College of Surgeons National [Surgical Quality](#) Improvement Program (NSQIP) database for the years 2005 to 2008. This database documents preoperative information and [postoperative complications](#) and death among patients receiving surgery at participating [medical facilities](#) across the United States.

"One of the principle advantages of the NSQIP dataset is that it encompasses patients in selected hospitals from across the United States and includes a variety of spine surgical procedures," said Dr. Schoenfeld.

The study authors identified patients who received one or more spine operations.

- From 2005 to 2008, 3,475 spine-surgery patients were registered in the database.
 - They ranged in age from 16 to 90, and the average age was 55.5.
- Fifty-four percent of the patients were men, and 76 percent were Caucasian.
- These patients underwent back surgery for conditions such as:
 - Disc herniation (ruptured or slipped discs, the rubbery cushions between vertebrae);
 - Spinal stenosis (narrowing of the spinal canal); and
 - Degenerative disc disease (the progressive deterioration of discs).

Researchers then collected a wide range of demographic information and complications and death that occurred within 30 days after surgery for all the patients. Major complications included deep vein thrombosis (blood clots deep in the legs), sepsis (a life-threatening condition caused by a bacterial infection), deep wound infections, and unplanned return to the operating room. Minor complications included urinary tract infections, pneumonia, and superficial wound infections.

The death rate was .03 percent, (10 out of 3475 patients), while 7.6 percent (263 out of 3475 patients) experienced complications within 30 days after surgery. The preoperative and postoperative data indicated that increasing patient age and surgical wound problems independently increased the risk of death. The data also identified the following independent risk factors for developing one or more complications within this 30-day period:

- Older patient age;
- Congestive heart failure and/or a history of heart attack;
- Preoperative neurological problems;
- A history of spinal wound infection;
- Use of corticosteroids;
- A history of sepsis;
- A classification of 3 or higher according to the American Society of Anesthesiologists physical status classification system (a system that evaluates a patient's health status prior to surgery); and
- Prolonged surgery times.

People who already have had spine surgery and those considering it should keep the results of this national study in perspective, said Dr. Schoenfeld.

"Our study only documents complications and mortality that occurred within 30 days after surgery. Many studies exist that illustrate the safety and efficacy of spine surgery, and the intent of this work was not to be alarmist. Our goal was to identify medical conditions and other factors that could be addressed prior to surgery in order to further enhance the safety of [spine surgery](#) and help achieve the best results for patients. We hope that our findings will allow surgeons, patients, and their families to have a more open dialogue and discussion regarding potential risks prior to surgery."

The American Academy of Orthopaedic Surgeons (AAOS) suggests that patients considering spinal surgery:

- Tell their doctor about any and all infections, no matter how distant or unrelated they might seem;
- Schedule an appointment with your primary care provider to be sure your overall health is optimized;
- Stop smoking; and
- If need be, consider postponing surgery to undertake a fitness or weight control program.

Provided by American Academy of Orthopaedic Surgeons

Citation: Study identifies risk factors for complications after spine surgery (2011, September 21) retrieved 19 April 2024 from

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