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Room Hall B2-Area E

Injury and Liability Associated With Spine Surgery

Rachel E. Kutteruf, M.D., Linda Stephens, Ph.D., Karen L. Posner, Ph.D., Karen B. Domino, M.D., Deva Wells, M.D., Lorri Lee, M.D.

University of Washington, Seattle, Washington, United States

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Background: Previous analysis of the Anesthesia Closed Claims Project Database identified spine procedures as the second most common procedure resulting in hemorrhage malpractice claims.¹ Recent investigations have identified other devastating complications associated with spine surgery, such as postoperative vision loss² and major adverse cardiac events.³ Surgical duration has also been identified as an important risk factor for high severity injuries during spine surgery.⁴ This study examined malpractice claims for spine procedures and compared them to other surgical procedures as well as factors within spine malpractice claims associated with severe injury.

Methods: After IRB approval, we identified 3097 surgical claims of which 333 were spine procedures that occurred in the year 1995 or later from the Anesthesia Closed Claims Project Database of 10,367 claims. Fisher's exact test, T-test for equality of means, and Independent Samples Mann-Whitney U Test were used to analyze differences in spine claims with $P < 0.05$ for statistical significance. Payments were CPI-adjusted to 2014 dollars.

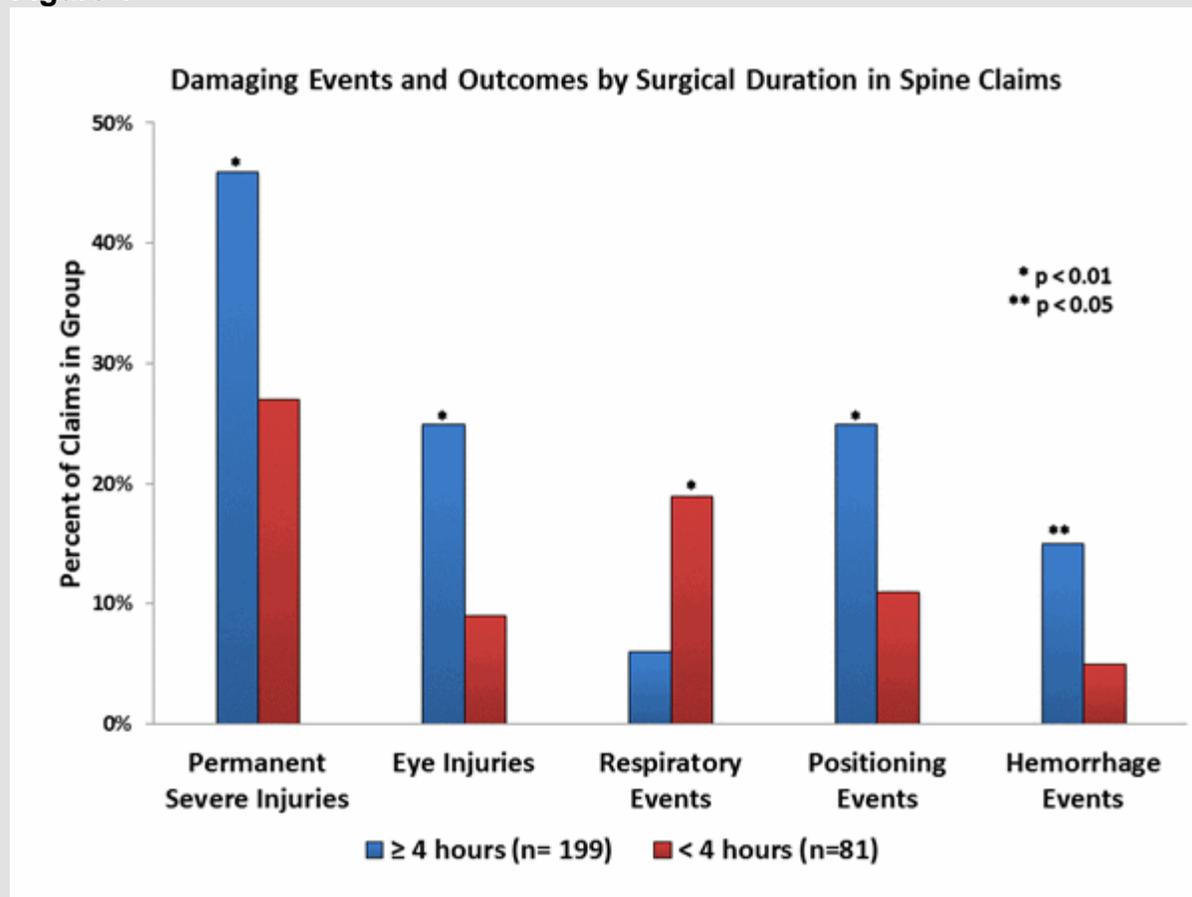
Results: Spinal cord injury (45% versus 28%, $p = 0.002$) and eye injury (18% versus 4%, $p < 0.001$) occurred in greater proportion in spine surgeries than other surgeries, while death occurred less often in spine claims (23% versus 33%, $p = 0.001$). A higher proportion of severe permanent injuries were associated with surgical duration ≥ 4 hours compared to < 4 hours (46% versus 27%, $p = 0.003$), and included eye injuries (25% versus 9%, $p = 0.001$), positioning injuries (25% versus 11%, $p = 0.007$) and massive hemorrhage (15% versus 5%, $p = 0.012$). Almost all of the eye injuries ($n = 48$, 96%) occurred in cases lasting ≥ 4 hours, including 28 injuries to the optic nerve. Respiratory events, e.g. difficult intubation, were less often associated with longer spine surgeries (6% versus 19%, $p = 0.002$). Anesthesia care was assessed as appropriate for spine procedures in greater proportion than other surgeries (65% versus 58%, $p = 0.013$), but there was no difference in whether a payment was made (56% for both groups) or in the median payment made between spine surgeries and other surgical procedures (\$407,625 and \$281,325).

Conclusions: Spine procedure claims represented greater than 10% of all surgical malpractice claims during the study period. While death occurred in lesser proportion after spine procedures, other serious injuries, such as permanent severe nerve injury and eye injury, occurred more often in spine surgeries than in other surgical procedures. Longer duration of surgery was associated with a greater proportion of severe nerve injuries in anesthesia malpractice claims for spine surgery. This information can be used to guide surgeons, patients and anesthesiologists in shared decision making and development of strategies to optimize patient care from both a surgical and anesthetic perspective.

References:

1. Dutton RP et al. *Anesthesiology* 2014; 121:450-8.
2. The Postoperative Visual Loss Study Group. *Anesthesiology* 2012; 116:15-24.
3. Carabini LM et al. *Spine* 2014; 39:1441-8.
4. Kim BD et al. *Spine* 2014; 39:510-20.

Figure 1



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