

## The ASA Closed Claims Project: Analysis of Chronic Pain Cervical Procedure Malpractice Claims

James P. Rathmell, M.D., Edward Michna, M.D., Dermot R. Fitzgibbon, M.D., Linda S. Stephens, Ph.D., Karen B. Domino, M.D., M.P.H.

**Introduction:** Previous investigation of trends in anesthesia chronic pain liability showed an increase in claims related to cervical procedures between 1984-94 and 1995-2004 (5% to 14%,  $p < 0.01$ ).<sup>1</sup> Because of this increase, we investigated injuries and liability associated with cervical procedures.

**Methods:** After IRB approval, we began collecting more detailed data on claims related to chronic pain treatment in 2005. We compared cervical procedures to other chronic pain claims collected from 2005 through 2008 from a database of 8,962 claims. Findings were compared using Kolmogorov-Smirnov test, Fisher's exact test, and chi square analysis.

**Results :** There were 64 cervical procedures (22%) among 294 chronic pain claims. Cervical procedures included epidural (64%), stellate ganglion (11%), and trigger point (8%). Compared to all other chronic pain claims, cervical procedure claims occurred significantly more often among women and in healthier individuals ( $p < 0.05$ , Fig.). The most common diagnoses for those undergoing cervical procedures included cervical spinal pain (77%) and upper extremity pain (16%). In 80% of the cervical procedures, the damaging event was related to the procedure. Direct needle trauma to the cord (30%), intravascular injection (9%), dural puncture (6%), high/total spinal block (5%), and pneumothorax (3%) were the most common damaging events resulting from the 64 cervical procedures. Cases with needle trauma were more likely to be associated with general anesthesia or sedation than cervical procedures without needle trauma (74% vs. 31%,  $p < 0.01$ ). Radiographic guidance was used in 41% of cervical procedures, not used in 20%, and was not mentioned in the others. Most injuries were permanent (Fig.). Spinal cord injuries occurred in 59% of cervical cases vs. 11% of other chronic pain claims ( $p < 0.001$ , Fig.). [figure1] Direct trauma to the spinal cord was responsible for the injury in 50% of spinal cord injuries; spinal cord infarction following cervical transforaminal injection was identified in 2 (5%). Of the 38 spinal cord injuries, 87% were permanent, disabling injuries and resulted in quadriplegia (24%), paraplegia (16%), and hemiplegia (8%). No differences in standard of care or payments were found between cervical procedures (\$389,000) and other chronic pain claims (\$243,000).

**Conclusions:** Spinal cord injury was more common after cervical procedures than other pain treatments. Spinal cord injury occurred in just over half of cervical procedure claims and resulted in permanent, disabling injuries in most cases. The proportion of patients who sustained direct trauma to the spinal cord increased in those who received general anesthesia or sedation compared to those who did not receive GA or sedation. Further study is essential to devise means to prevent the devastating neurologic injuries that can occur during pain procedures at the cervical level and to clarify the role that general anesthesia and/or sedation have in the occurrence and severity of injury.

1. Liao DW: *Anesthesiology* 2007; 107:A1892.

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Figure 1

# Analysis of Malpractice Claims for Chronic Pain Cervical Procedures

