

Citation

Liau DW, Kooner PK, Posner KL, Cheney FW, Domino KB: Injuries and Liability Related to Peripheral Catheters: A Closed Claims Analysis. *Anesthesiology* 105: A945, 2006.

Abstract

Introduction

The ASA Closed Claims Project has helped identify important anesthetic complications and mechanisms of injury.^{1,2,3} This study evaluated the Closed Claims database for complications related to peripheral catheters. These claims were compared to other anesthesia malpractice claims to identify patterns in safety and liability.

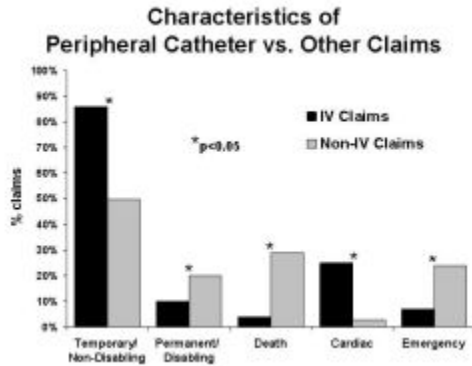
Methods

Complications due to peripheral catheters, which included intravenous (IV) and arterial catheters (A-lines), were analyzed from the ASA Closed Claims Project database.¹ IV claims were compared to the other (non-peripheral catheter) claims in the database using Fisher Exact test with $p < 0.05$ for statistical significance. Payment amounts were adjusted to 1999-dollar amounts using the consumer price index.

Results

There were 140 claims for injuries related to peripheral catheters (2% of 6,894 claims), with 127 IV (91%) and 13 A-line (9%) claims. A-line claims involved radial ($n=7$), femoral ($n=5$), and brachial ($n=1$) arteries. The most common IV complications were skin slough or necrosis (28%), swelling/inflammation/infection (17%), nerve damage (17%) and compartment syndrome with fasciotomy scar (16%, Figure). Compartment syndromes also contributed to 27% of the 22 IV-related nerve damage claims. Air embolism accounted for 8% of IV claims and burns due to heat compresses used to treat IV infiltrations accounted for 3%. The most commonly reported drugs implicated in skin necrosis claims ($n=35$) were thiopental (31%), vasopressors (11%), and CaCl (9%). IV claims were more likely to involve temporary non-disabling injury than other claims, with a lower proportion of permanent disabling injuries and deaths ($p < 0.05$, Figure). IV claims had a higher proportion of cardiac surgery and a lower proportion of emergency procedures than other claims ($p < 0.05$, Figure). Half (54%) of all peripheral catheter claims resulted in payment, with median compensation of \$38,400.

Figure



Discussion

Although limits inherent to the Closed Claims Project exist,^{1,2} this analysis of peripheral catheter claims has identified important mechanisms of injury and types of complications. Arm tucking and the inability to monitor IV catheters during cardiac surgery may explain why this was the most common surgical group among IV claims. Thiopental was the most commonly reported drug in skin slough claims; reduction in its use may result in fewer IV-related claims. There were few claims secondary to A-lines. Burn injuries from heat compresses used to treat IV infiltrations should be easily preventable.

References

1. JAMA 1989; 261:1599
2. Anesthesiology 1999; 91:552
3. Anesthesiology 2004; 100:1411.

A copy of the full text can be obtained from the American Society of Anesthesiologists, 520 N. Northwest Highway, Park Ridge, Illinois 60068-2573. Reprinted with permission of [Lippincott Williams & Wilkins](#).