

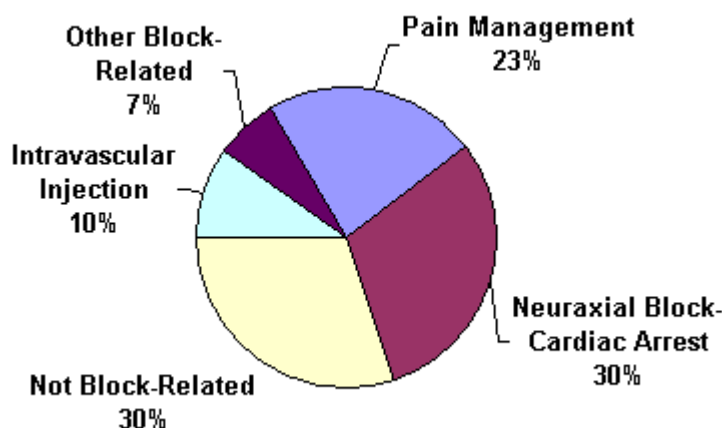
Cheney, FW: High-Severity Injuries Associated with Regional Anesthesia in the 1990s. *ASA Newsletter* 65(6): 6-8, 2001.

Full Text

It is frequently asked whether the use of regional anesthesia, as compared to general anesthesia, provides a reduced risk of anesthesia-related patient injury. The ASA Closed Claims Project database was examined to determine the types of high-severity injuries (death and permanent disabling injuries) associated with the use of regional anesthesia for which a claim of malpractice was made and when the injury occurred in the 1990s.

At the time of this analysis, the ASA Closed Claims Project database consisted of 4,723 closed malpractice claims retrieved from 35 insurance organizations that insured approximately 14,500 anesthesiologists. Of the total database, 67 percent (3,180) of the claims are associated with general anesthesia and 24 percent (1,133) are associated with the use of regional anesthesia. The factors associated with claims for death where regional anesthesia was utilized are shown in Figure 1.

Figure 1: Regional Anesthesia in the 1990s (n=30) Death - Associated Factors



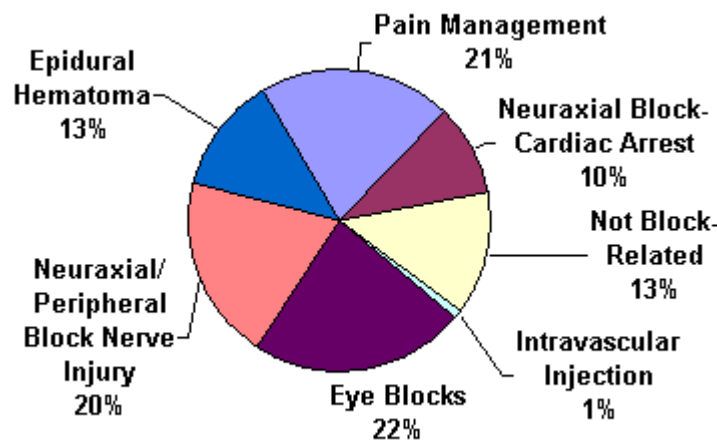
Thirty percent of patients died from factors unrelated to regional anesthesia such as pulmonary embolism, postoperative stroke, postoperative myocardial infarction and adverse drug reaction. Of the pain management claims, four were for chronic pain management and three for acute pain management, usually involving epidural or spinal narcotics. The "Other Block-Related" designation describes claims that do not fit into the other specific categories.

The leading anesthesia-related cause of death (30 percent) is cardiac arrest during spinal or epidural anesthesia [Figure 1]. Cardiac arrest did not necessarily occur in all cases, but severe bradycardia and hypotension was presumed to have caused the injuries leading to

death. This is not a new phenomenon as this also is the case for claims where the injuries occurred in the 1970s and 1980s, where cardiac arrest during neuraxial block represents 61 percent and 40 percent respectively of deaths associated with regional anesthesia. Of the nine deaths in the 1990s, six patients were in their 60s and three patients were females in their 20s undergoing obstetric procedures. The standard of care was viewed as appropriate by the closed claims reviewer in only two of these cases. Payment was made in seven of the nine claims, one of which involved appropriate care. Median payment for these deaths was \$310,000.

In the permanent-disabling category, the injuries ranged from loss of an eye to paraplegia, quadriplegia and brain damage [Figure 2]. A surprising finding from this analysis is that blocks (13 retrobulbar, three peribulbar) for eye surgery performed by the anesthesiologist were the most frequent single cause for patient injury [Figure 2]. These involved vitreous hemorrhage with loss of vision in the eye. Payment was made in 88 percent of the 16 claims, with a median amount of \$110,000; the highest payment was \$500,000.

Figure 2: Regional Anesthesia in Permanent-Disabling Injury Claims in the 1990s (n=71) - Associated Factors



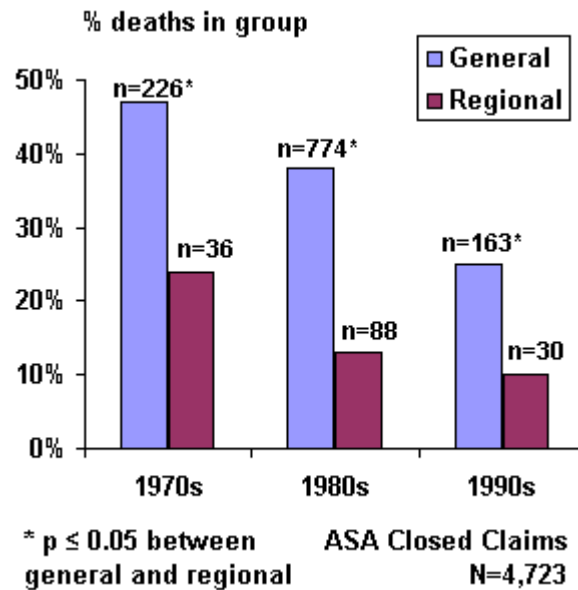
Percentages do not equal 100% due to rounding

Twenty-one percent of the permanent-disabling injuries were pain management-related [Figure 2], and 14 of these 16 claims were for chronic pain. The most common recurrent themes in the chronic pain claims were the administration of neuraxial narcotics (3 claims) and neurolytic blocks (3 claims).

The mechanism of injury in the nerve injuries associated with neuraxial/peripheral nerve blocks was usually not clear, but needle trauma was the presumed damaging event in most of these claims. Two of the 14 claims associated with neuraxial block were paraplegia due to anterior spinal artery syndrome. The epidural hematomas usually involved neuraxial block with heparinization (six claims), but in two claims there was no anticoagulation involved.

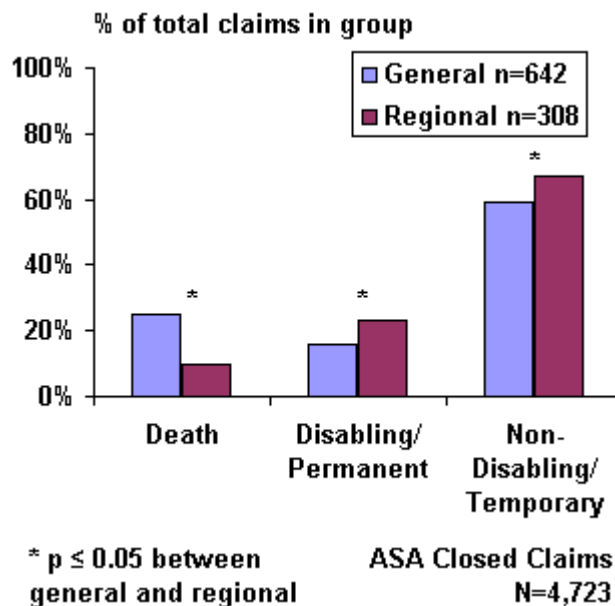
In the total database of 4,723 claims [Figure 3], death occurred in 36.5 percent of claims associated with general anesthesia and 16 percent associated with regional anesthesia. Over time, there is a decline in the proportion of claims for death in both the general and regional anesthesia groups [Figure 3].

Figure 3: Deaths Associated with General vs. Regional Anesthesia



Of claims where the injuries occurred in the 1990s, death occurred in 25 percent of those associated with general anesthesia and 10 percent of those associated with regional anesthesia. Focusing on claims where the injury occurred in the 1990s, claims associated with regional anesthesia are more likely to be of a lower severity than those associated with general anesthesia [Figure 4]. Cardiac arrest/circulatory collapse associated with neuraxial block continues to be the leading cause of regional anesthesia-related death.

Figure 4: General vs. Regional in the 1990s Severity of Injury



The comparative safety of regional versus general anesthesia cannot be determined from Closed Claims data. Lack of denominator data concerning the relative number of general and regional anesthetics administered by the insured during the time intervals precludes any conclusions about risk of anesthesia-related patient injuries with either technique. Death is more common among the claims involving general anesthesia, while permanent-disabling and nondisabling temporary injuries are present in a higher proportion of claims associated with regional anesthesia.

These data from the ASA Closed Claims Project database indicate that regional anesthesia-related complications are a liability hazard for the anesthesiologist. While high-severity, anesthesia-related injuries are more common with general anesthesia than regional anesthesia, the lack of denominator data in the Closed Claims Project does not allow any conclusions to be drawn about the safety of either technique.

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