

Citation

Sandnes DL, Stephens LS, Posner KL, Domino KB: Liability Associated with Medication Errors in Anesthesia: Closed Claims Analysis. *Anesthesiology* 109: A770, 2008.

Abstract

Background

Medication errors are relatively common during anesthesia care, with an incidence estimated at 7.5 per 1000 anesthetics (one per 133 anesthetics), with most resulting in no injury or transient physiological effects.¹ However, major morbidity (4.7%) and death (0.3%) were observed in a review of reports for drug errors from the Australian Incident Monitoring Study.² In order to assess liability associated with medication errors during anesthesia, we reviewed claims in the American Society of Anesthesiologists Closed Claims Project.

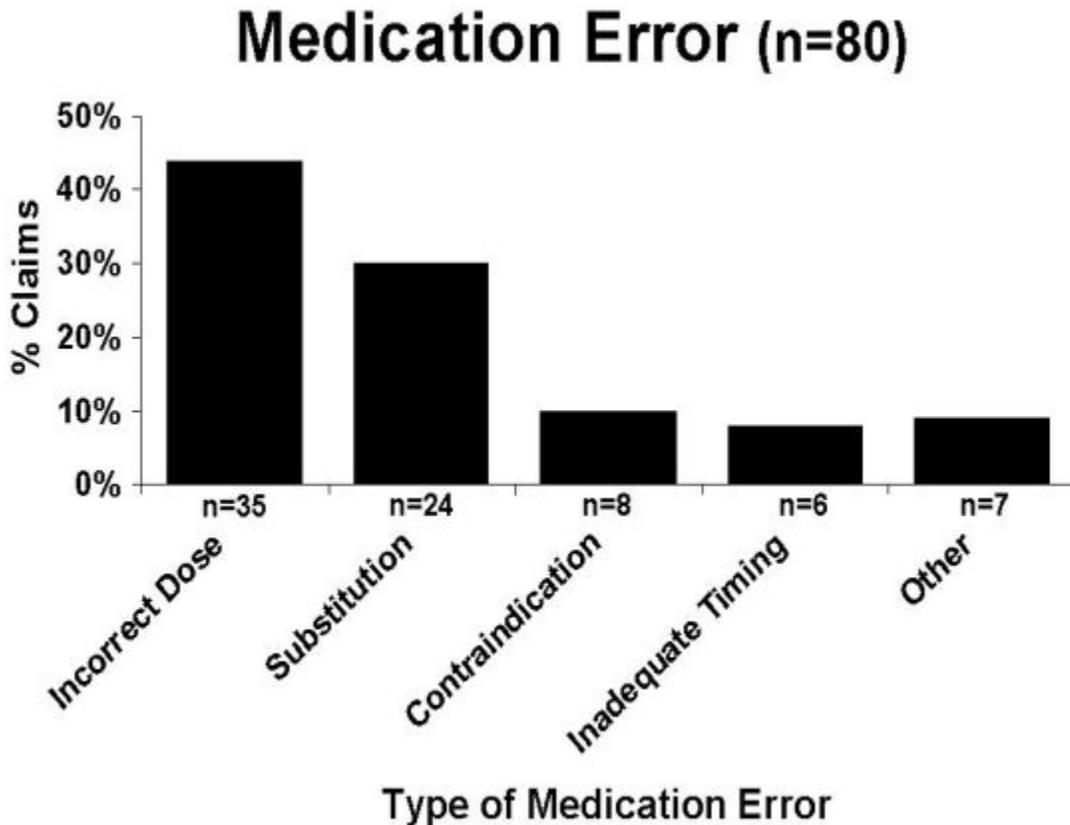
Methods

After IRB approval, we compared 80 claims with medication errors to 2629 other claims that occurred between 1990 and 2001 from a database of 6894 claims. Claims for acute or chronic pain were excluded. Claims for adverse drug reactions, inadequate analgesia or awareness that did not involve a wrong drug or dose were not considered medication errors. Accidental intravascular injection of local anesthetic during performance of a regional block was also not considered a medication error. Medication errors were categorized as related to incorrect dose, substitution, contraindication, inadequate timing, incorrect route, omission, and insertion by two reviewers ($\kappa=0.89$). Medication error claims were compared to other claims using Fisher's Exact test and the Kolmogorov-Smirnov test. Payments were adjusted to 1999 dollar amounts using the consumer price index.

Results

Medication errors accounted for 3% of claims occurring in 1990-2001. Medication-error claims had an increased proportion of pediatric ages (14% vs. 6% for other claims, $p=0.006$), but no differences in ASA status, gender, and emergency procedures. Forty-four percent of medication error claims involved incorrect dosing, 30% involved substituting one drug for an intended drug, 10% administration of a contraindicated drug, and 8% timing errors (Fig. 1).

Fig. 1



Other includes incorrect route (n=3), omission (n=2), insertion (n=1), and impossible to judge (n=1)

Substitution errors involved syringe swaps (80%) and infusion swaps (20%). Muscle relaxants (46%) or vasopressors (21%) were the most common accidentally administered medications. Claims related to medication errors had a higher proportion of permanent brain damage (16%) compared to other claims (8%, $p=0.02$). Reviewers more frequently judged medication errors to be preventable (62% vs. 34%, $p<0.001$) and care was less than appropriate (84% vs. 27% for other claims, $p<0.001$). Payments were more often made for medication errors (69% vs. 49% of other claims, $p=0.001$), however, payment amounts were similar (median=\$230,000 vs. \$140,000 for other claims, $p=0.06$).

Discussion

Claims related to medication errors had a higher proportion of pediatric patients compared to other claims. Medication errors commonly involved incorrect doses and medication substitution by syringe swaps. Claims related to medication errors had more permanent brain damage compared to other claims and were more often judged to be preventable, representing substandard care.

References

1. Webster CS et al.: Anaesthesia Intensive Care 2001; 29:494-500
2. Abeysekera A et al.: Anaesthesia 2005; 60:220-7.

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](#).