COPIC Case Studies—Lessons in Liability: Perioperative Medication Errors

This article is part of an ongoing series that examines de-identified closed claims and seeks to derive lessons that improve patient safety.

Case Study

Jane Smith was admitted for an elective laparoscopic cholecystectomy at an outpatient facility. She received midazolam in preoperative holding, and was brought to the operating room and received propofol and a general inhalational anesthetic. She also received a muscle relaxant and fentanyl. The case appeared to proceed without incident, but in the recovery room, the patient recounted that she felt pain, had difficulty breathing, and was able to recall specific conversations during the procedure. Upon review, it appeared that the syringes for the medications were mislabeled, leading to the medication error and intraoperative recall. A lawsuit was subsequently filed for PTSD and emotional distress.

Discussion

Retrospective studies have established for some time that medication errors do occur in the perioperative environment as much as in other areas of health care. A recent prospective study from Massachusetts General, however, revealed that the extent of those errors has been underestimated. This observational study published in Anesthesiology found that errors occur in 5 percent of all medication administrations in the operating room and in one-half of all procedures. One-third of these resulted in an adverse drug event with harm to the patient, and 80 percent were preventable.

Key Areas of Risk

The causes of these errors were similar to those found elsewhere in the acute care environment—wrong doses, failure to monitor, wrong timing of administration, and infusion pump errors. Some, however, are unique to the procedure room environment, such as incorrect labeling of syringes (as in the case study), the presence of multiple providers who administer the medications (thus increasing the possibility of communication or process failures), and time pressures which may not allow for independent double-checking of medications. This is complicated further by the different types of providers administering medications in the acute care environment, which includes anesthesiologists, Certified Registered Nurse Anesthetists (CRNAs), anesthesia assistants, surgeons and their assistants, and nursing personnel. Each additional practitioner adds incrementally to the risk of error during administration.

Possible Solutions

Several potential solutions to address these deficiencies are proposed, both technological and process-oriented. Examples of technological solutions include:

- Barcoding for syringe labeling and documentation
- Decision support systems for drug selection and dosing
- System alerts
Obviously, each of these recommended approaches carries with it the burden of additional cost and a learning curve during implementation, along with its own embedded risks. Improved processes, however, can be implemented more quickly, and often require only better adherence to known safety measures already in place elsewhere.

Callouts and readbacks when medications are transferred between providers are appropriate, as are ensuring the absence of look-alike vials and labels. Placing infusions in the most proximal port can reduce the possibility of an unintended bolus when another medication is given through that intravenous line.

As illustrated in the case study, consistent labeling of syringes to be used is critical, and protocols should be clear as to who is labeling and who is checking those labels. It is imperative that medication reconciliation be performed prior to taking the patient into the surgical suite, and this is best done in the setting of a preoperative huddle so that each practitioner has an opportunity for input and being informed of allergies, potentially interacting drugs, and plans for intraoperative medications.

All participants on the surgical team should be empowered to raise questions when there are concerns about a potential error, to conduct double checks of medications to be administered, and to recognize when a patient may be experiencing a medication reaction. Hopefully, awareness of the frequency of which these medication errors occur will give operating room managers the incentive to initiate the recommended measures to reduce patient exposure to harm.

1 Anesthesiology 2016; 124:25-34