



Learning From Others:

A Case Report From the Anesthesia Incident Reporting System

Detailed review of unusual cases is a cornerstone of anesthesiology education. Each month, the AQI-AIRS Steering Committee will abstract a case and provide a detailed discussion based on a submission to the national Anesthesia Incident Reporting System. Feedback regarding this item can be sent by email to r.dutton@asahq.org. Report incidents to www.aqiairs.org.

Case 2012-6: Mannitol in Full

"The best general is the one who never fights."

— Sun Tzu, *The Art of War*, 1521

Case Presentation

During an otherwise uneventful nephrectomy under general anesthesia in an 83-year-old man, ASA Physical Status III, the surgeon requested the administration of 12.5g of intravenous mannitol. The resident, who had not used this medication before, paged his attending at once while finding the appropriate vial. He consulted the package insert and discovered a recommendation that mannitol be given with a filter to remove precipitates and reduce the risk of infusion-associated phlebitis. The anesthesia resident called the technician to bring a filter. Irritated with the delay, the surgeon became verbally aggressive, demanding that the drug be given immediately. Tension was relieved when the anesthesia attending and the filter arrived and the mannitol was infused. The case concluded uneventfully.

Commentary: Medical Issues

An informal survey of experienced anesthesiologists from around the country suggested that many were unaware of the filter recommendation for mannitol and that most do not give it that way. Precipitation of mannitol is a well-known phenomenon and is typically managed by warming the solution a few degrees, co-administration with diluting fluid, and infusion into a large, rapidly-flowing intravenous line. While it is hard to fault the resident for adhering to the recommendations in the package insert, it is equally hard to fault the surgeon for concern over any delay in a complex operation in a high-risk patient. One might reasonably wonder whether the anesthesia team should have anticipated this request and been prepared for it in advance. Setting that question aside, however, the true thrust of this incident report was on the topic of confrontation.

Commentary: Teamwork Issues

Multidisciplinary collaboration is the sine qua non of safe and effective patient care, especially in the operating room. Highly independent, but interdependent, professionals must work together to manage critical events, often under significant time pressure. This collaboration, usually a well-orchestrated dance, sometimes dissolves into disarray as moves are missed and toes get stepped on. This is especially likely if more than one party is trying to lead. At times, the disarray becomes frank conflict, which can involve disruptive and intimidating behavior, as exhibited by the surgeon in this case.

Research has reported that conflict arises during the management of 50-75 percent of hospitalized patients;^{1,2} the likelihood of conflict may be even greater in the operating room, where two ostensibly equal physicians or physician teams (surgeons and anesthesiologists) share in the care of a single patient. These cross-disciplinary conflicts can involve differing opinions of what is necessary or best for the patient, such as how to position an obese patient to optimize both ventilation and surgical exposure. More problematic are the conflicts that arise when one physician (the surgeon) needs to have another physician (the anesthesiologist) carry out his or her wishes. This is known as a cross-modality conflict. In other areas of the health care system, each physician is at the top of a hierarchical decision-making tree and has the ultimate authority. In the operating room, decision-making often must be shared, a concept that may not sit well with all parties. When the decision-making is shared between two clinicians of unequal power (known as a cross-hierarchical conflict; as between a physician and a nurse), resolution becomes even more problematic.

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The best approach to conflict is to preemptively avoid it. This begins with recognizing the concerns of the surgeon and attempting to mitigate them in advance. In training programs, one common concern is a lack of confidence in the skills or knowledge of an inexperienced anesthesia provider. This anxiety can be relieved by active efforts on the part of the anesthesia team to put the surgeon at ease: "We'll be caring for your patient today, Dr. Smith. Is there anything special we're likely to need?" The wisdom of the attending can help the resident: "Will you want mannitol today, Dr. Smith?" The preoperative time-out is one opportunity to do this, and warning about the potential need for mannitol would have allowed for swift and confident administration later in the case. Of course, such advanced planning is not always possible. Part of our duty as teachers is to prepare our trainees for surprises, outright emergencies and stressful human interactions.

Management of conflict is critical to effective teamwork, and thereby to patient safety.³ Avoidance, yielding, collaboration, compromise and competition are common methods humans use to achieve conflict resolution.³ In cases where the issue is relatively mundane, such as the one detailed above, anesthesia residents often use avoidance or yielding in order to avoid confrontation or intimidation. In the long run, however, collaboration and compromise will provide a better outcome and healthier O.R. relations. In conflict resolution, as in all of medicine, the discussion must focus on what is right for the patient, rather than which individual is right. Unfortunately, even though the American College of Graduate Medical Education cites effective communication – including resolution of conflict – as one of the six core competencies required for resident education, effective techniques are not taught in a uniform way, and many trainees are forced to learn by trial and error rather than guided insight.

Techniques to achieve collaboration that have been studied in anesthesia residents include advocacy and inquiry: the resident observes "the package insert says that unfiltered mannitol can cause thrombophlebitis ..." followed by "How urgently do you need it?" A statement like this makes the risk clear, but acknowledges the surgeon's concerns as well. Practicing these techniques in a non-threatening environment (the simulation center) can improve residents' willingness to speak up for the patient and can contribute to improved communications in the O.R.⁴ Enhancing social skills through role-playing is one goal of multi-disciplinary simulation exercises and one reason that this model is favored as an adjunct to single-specialty training.

The need to educate residents in this area is underscored by a survey conducted by the Institute for Safe Medication Practices which found that "40% of clinicians have kept quiet

or remained passive during patient care events rather than challenge a known intimidator."⁵ As many as 50 percent of residents report experiencing intimidation and harassment during their residency.⁶ The problem of abusive behavior by medical staff has been gaining increasing attention, including a Joint Commission directive in 2009 that required hospitals to intervene with disruptive medical staff.⁷ Hospitals are required to establish a code-of-conduct policy and develop educational programs that address such behaviors.

Conclusion

We'll let the resident in question have the last word regarding training for this kind of issue and the preparation that might have avoided it: "I don't know whether administering mannitol without a filter, as I almost did due to intimidation by the surgeon, would have caused harm to this patient." The anesthesia resident further noted that events such as this one could be avoided by 1) better communication between the surgical and anesthesia teams to anticipate such issues and 2) packaging filters with mannitol on the medication cart.

References:

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