Emerging Risks in Anesthesiology: Opioids, Obesity and Obstructive Sleep Apnea

A CME Monograph

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Over 25 million Americans undergo the risks of medical anesthesia per year with a generally low incidence of adverse events.

Anesthesiology as a specialty served as a pioneer in the patient safety movement, and created a success story in risk reduction and quality improvement. In 1986, the American Society of Anesthesiologists (ASA) published a large study of the causes of anesthesia deaths and formulated recommended practice standards (Standards for basic intraoperative monitoring. ASA Newsletter, 1986). A dramatic decrease in anesthesia-related deaths and malpractice claims followed the promulgation of these standards. The ASA along with corporate sponsors funded the Anesthesia Patient Safety Foundation, the first independent nonprofit multidisciplinary organization created to reduce medical error.

Round-up of Historic Anesthesiology Claims Data

In spite of this success story, we live in litigious times, and the Operating Suite is an especially claims-prone environment. Anesthesiologists currently rank 7th out of 28 medical specialties in the number of claims. This graph is based on a cumulative 25 years of claims data collected by the Physician Insurance Association of America (PIAA) in the Data Sharing Project, the world’s largest database of medical professional liability claims.

![Number of Claims for the Top 7 Specialties, 1985-2010](image)
What does this mean for the individual anesthesiologist? The typical anesthesiologist in the US has a 42% probability of having a claim during his or her career, a 15% probability of being sued 2 or more times, and a 2.3% probability of having received a claim in the past year.

The data in this graph is from the AMA’S Physician Practice Information Survey of 2007-2008.

And finally, the AMA survey reports that for every 100 anesthesiologists, there are 67 malpractice claims.

As traumatic and costly as it is to be sued at all, it’s important for the anesthesiologist to keep in mind that only a third of anesthesiology claims end with any indemnity payment (i.e., compensation for damages/harm to the patient).

What do anesthesiologists get sued for? According to the PIAA Data Sharing Project 1985-2010, anesthesiology claims involving medical misadventure are attributed to (in order of prevalence):

<table>
<thead>
<tr>
<th># of Claims</th>
<th>Allegation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,216</td>
<td>No medical misadventure alleged*</td>
</tr>
<tr>
<td>1,332</td>
<td>Improper performance</td>
</tr>
<tr>
<td>1,030</td>
<td>Intubation problems</td>
</tr>
<tr>
<td>888</td>
<td>Problems with patient monitoring in surgery</td>
</tr>
<tr>
<td>665</td>
<td>Error in agent use or selection</td>
</tr>
<tr>
<td>664</td>
<td>Tooth injury</td>
</tr>
<tr>
<td>403</td>
<td>Patient positioning problems</td>
</tr>
<tr>
<td>306</td>
<td>Problems with patient monitoring in recovery</td>
</tr>
<tr>
<td>275</td>
<td>Problems with administration of blood or fluids</td>
</tr>
<tr>
<td>8,064</td>
<td>Total</td>
</tr>
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</table>

*No medical misadventure is reported when there is an absence of an allegation of any inappropriate medical conduct on the part of the anesthesiologist
The most frequent patient conditions involved in anesthesiology claims are: 1) back disorder including lumbago and sciatica, and 2) pregnancy.

Forty seven percent of the claims involved general anesthesia, with epidural and caudal anesthesia in a distant second place at 6%.

Compared to claims for all specialties, 26% of anesthesiology claims involve the death of a patient.

3 Emerging Risk Issues: Opioids, Obesity, and Obstructive Sleep Apnea

1. Opioids

New risk areas have emerged from recent claims data. The first is opioid abuse. In the space of 10 years, 1997-2007, prescriptions of opioids more than quadrupled. Since 1991, deaths from opioid overdoses have tripled. Opioid overdose now exceeds heroin and cocaine combined, and motor vehicle accidents as a cause of death (CDC Grand Rounds January 13, 2012).

Some prescription opioid abusers are among your patients, often unknown to the surgical team. It is a good idea for the anesthesiologist to ask the patient specifically and non-judgmentally about opioid use, psychoactive drugs, and street drugs. This will not reveal all drug abusers, but it will find some. At minimum, the anesthesiologist cannot later be faulted for failing to ask.

As anesthesiologists expand into the practice of chronic pain management, so too have claims in that area increased. Anesthesiology claims for chronic pain management rose from 2% to 8% between 1977 and 2004—and rose again 17% by 2008.

Fitzgibbon et al. (Anesthesiology 2010) reported on a study of the ASAs Closed Claims Database. That database includes 8,954 closed claims against anesthesiologists from 36 medical professional liability insurers, representing about half the nation’s anesthesiologists. Board certified anesthesiologists reviewed a sub-set of those claims related to medication management in non-cancer chronic pain treatment. Over half of these claims concerned the death of the patient.

In 69% of these anesthesiology claims, the patients did not cooperate with their care. Noncooperation consisted of a long list of red flag behaviors, the most common of which was covertly obtaining additional opioid medications from other physicians. In 59% of the claims, there was evidence of...
Inappropriate medication management by the anesthesiologist, most commonly inadequate communication with other providers to coordinate care, and inadequate monitoring of the patient's compliance. Eighty two percent of these claims involved either patient noncooperation, physician medication mismanagement or both. Examples of these types of red flag behaviors and alleged medication mismanagement are shown in this table.

<table>
<thead>
<tr>
<th>Types of Noncooperation by patient</th>
<th>Alleged Medication Mismanagement by MD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covertly obtaining additional opioid medications from multiple providers</td>
<td>Inadequate communication with other providers to coordinate care plan</td>
</tr>
<tr>
<td>Using illicit substances, abusing alcohol</td>
<td>Inadequate monitoring of compliance</td>
</tr>
<tr>
<td>Escalating doses without permission</td>
<td>Prescribing inappropriately high doses of opiates</td>
</tr>
<tr>
<td>Lost medications or request early refills</td>
<td>Failure to recognize signs of noncompliance</td>
</tr>
<tr>
<td>Took meds prescribed for someone else</td>
<td>Failure to adequately document the care</td>
</tr>
<tr>
<td>Failed screening test</td>
<td>Failure to adequately monitor the patient through tests or pill counts</td>
</tr>
</tbody>
</table>

Indemnity payments to plaintiffs were twice as likely when the physicians’ medication management was judged to be at fault.

While the ASA has published practice guidelines for chronic pain, mainly interventional pain management, these do not specifically address how to avoid the mistakes seen in this study.

What is needed for this purpose are guidelines specific to managing the risk in prescribing controlled substances—whether or not the patient is identified as pain management, and whether or not the practitioner specializes in pain management. For advice on this subject, the Federation of State Medical Boards website is a good source (see FSMB, “Model Policy for the Use of Controlled Substances for the Treatment of Pain”).

The FSMB policy is congruent with longstanding risk management advice. Adverse events and claims related to prescribing controlled substances can be minimized by:

- Performing an adequate history and physical
- Documenting a diagnosis and a treatment plan
- Periodically re-assessing the patient for response to treatment and monitoring compliance with the treatment plan
- Consultation and referral as needed, including referral for substance abuse treatment when indicated
- Implementing a signed patient-physician medication agreement (includes “one prescribing physician and one pharmacy”) when appropriate
- Discussion of risks and benefit of treatment, including the risk of addiction
- Documentation of all the above

The Veterans Administration/Department of Defense publishes similar guidelines for the prescribing practitioner titled “VA/DoD Clinical Practice Guideline for the Management of Opioid Therapy for Chronic Pain”. These may be found at [www.guidelines.gov](http://www.guidelines.gov).
“Guidelines.gov” is a national clearinghouse and searchable database of professional guidelines from many different medical specialty organizations and other sources. The guidelines are rated by their relative strength of evidence. The user enters a topic such as “anesthesiology-respiratory depression”, and guidelines from many different organizations will appear. Users select the one most closely approximating their needs.

“Guidelines.gov” is operated online by the Agency for Healthcare Research and Quality (AHRQ). It is an excellent starting point when looking for practice standards and professional guidelines, including those of one’s own specialty. Physicians may also go directly to the websites of their respective medical specialty organizations, however access is often restricted to paid members. If one is not a member, the same guidelines may be accessed free of charge at “guidelines.gov”.

2. Obesity

The CDC reports on another epidemic: Over the past 20 years, there has been a dramatic increase in obesity in the United States affecting more than one-third of U.S. adults (35.7%) and approximately 17% of children and adolescents.

In 2010, obesity surpassed all other patient conditions related to claims for Family and General Practice (PIAA Data Sharing Project). While claims in anesthesiology are most often attributed to the diagnosis for which the patient is having surgery, obesity can still be seen as high on the list, at least indirectly, through its association with the #1 condition for anesthesiology claims: “disorders of the back, including lumbago and sciatica.” As the obesity epidemic advances, claims and adverse medical events related to obesity are expected to increase.

Obesity creates difficulties for the anesthesiologist in airway management for mechanical reasons: neck thickness and inflexibility, redundant palatopharyngeal tissue, and excess weight compressing the lungs. These mechanical factors combined with the effects of anesthesia and supine position greatly increase the patient’s risk in the operative and postoperative periods. There may also be equipment problems (BP cuff size, operating room table and gurney capacity), less clarity of imaging studies, and difficulty of phlebotomy and establishing intravenous lines. At this time, treatment guidelines and policies for disclosing the increased risks of anesthesiology to the obese patient are either absent or not easily found.

Obesity has a particular impact in obstetrics, an already high claims environment. The rate of cesarean deliveries is three times as high for obese women; and the complications are increased, including a higher rate of failed epidurals and difficulties with intubation (Davies JM 2004). Davies reports on her experience providing epidural anesthesia in an elective cesarean section for a 640 pound woman. Despite anxiety on the part of the anesthesia team and a patchy block requiring ketamine sedation near the end, the mother and baby did well.

3. Obstructive Sleep Apnea

The third emerging risk area is exacerbated by the obesity epidemic: obstructive sleep apnea (OSA). Ten years ago, there was not a significant number of professional liability claims related to sleep apnea. Now there are. They most often relate to surgical patients who went unmonitored in the
post-operative period and who were later found dead in bed—both diagnosed and undiagnosed OSA patients (Benumof JL 2010).

A significant proportion of OSA patients are undiagnosed when they present for surgery, and they present for surgery at a higher rate than the general population (Chung et al., 2011). Esclamado et al. (1989) reported that in surgical interventions for OSA (tonsillectomy, adenoidectomy, septoplasty, uvulopalatopharyngoplasty), 77% of the complications were airway-related—difficult intubation or post extubation airway obstruction. The more obese the patient was, the higher the intubation risk.

Routine use of intra-operative narcotics to reduce post-operative pain resulted in higher frequency of post-extubation airway obstruction. Pre-operative sleep oxygen desaturation <80% and apnea index of > 70 were associated with higher risk of airway complications.

In 2006, the ASA issued comprehensive guidelines on obstructive sleep apnea in the surgical setting, titled “Practice Guidelines for the Perioperative Management of Patients with Obstructive Sleep Apnea”. The guidelines recommend taking a history that includes questions on snoring, apneic episodes, morning headaches, daytime somnolence, and a physical evaluation of neck circumference, airway, tonsils and tongue volume.

The guidelines recommend that “anesthesiologists should work with surgeons to develop a protocol whereby patients in whom the possibility of OSA is suspected on clinical grounds are evaluated long enough before the day of surgery to allow preparation of a perioperative management plan”. For example, the patient with known OSA on CPAP should be instructed to bring his or her CPAP to the hospital on the day of surgery—something that is difficult or impossible to do when the anesthesiologist first learns of the OSA in the pre-op evaluation on the day of surgery.

Further ASA guidelines include:

- Consider local or regional block, rather than general anesthesia
- Use CPAP during the procedure for patients sedated during local or regional anesthesia
- Awake intubation and extubation in general anesthesia, with recovery in the lateral, semi-upright, or other non-supine positions
- Limit opioids post-operatively by utilizing regional analgesic techniques or NSAID’s
- Limit concomitant sedative drugs to preclude additive effects
- Use post-operative CPAP with limited oxygen supplementation
- Determine that room oxygenation returns to baseline before discharge
- Step-down unit monitoring may be appropriate.

Related CME Activity at www.medicalinteractive.com:
“Obstructive Sleep Apnea for All Specialties: Reducing Perioperative Risk”

**Common Denominator of the 3 O’s: Respiratory Depression**

Opioid dependency, obesity and obstructive sleep apnea all carry a common risk of respiratory depression in the perioperative period. It would not be unusual or unexpected that a patient may present with two or even three of these conditions, not all of them necessarily known to the surgical team. The prudent anesthesiologist is better prepared if he inquires about and examines for risk factors and signs of all three pre-operatively.
In 2009, the ASA released practice guidelines for prevention, detection and management of respiratory depression. These are available on the ASA website for members and also at www.guidelines.gov under the title “Practice guidelines for the prevention, detection, and management of respiratory depression associated with neuraxial opioid administration (An updated report by the American Society of Anesthesiologists Task Force on Neuraxial Opioids)”. These 2009 ASA Practice Guidelines include recommendations for a focused history and physical examination before administering neuraxial opioids. Note the following:

“History should include attention to signs, symptoms, or a history of sleep apnea, co-existing diseases or conditions (e.g., diabetes, obesity), current medications (including preoperative opioids), and adverse effects after opioid administration.”

**Summary**

Adverse events and claims go hand in hand. Whatever reduces one can be expected to reduce the other (Rand Study, 2010). Patient safety and risk management have come to be understood as essentially the same thing. As a corollary, risk management recommendations and evidence-based professional practice guidelines tend to be complementary and congruent.

Obesity, opioid dependency and obstructive sleep apnea are epidemic and high-mortality conditions. Having more than one of these conditions is a common occurrence and a multiplier factor for risk. Having one or more of these conditions unknown to the surgical team is another multiplier.

Anesthesiologists can reduce their risk of adverse events and claims by becoming familiar with the professional guidelines of their specialty organization and their institution, and with the risk management suggestions from their medical professional liability insurer, especially as new practice risks emerge.
Bibliography and References

Web links are provided as a convenience.
If the link no longer works, web-search by document title at the time of use.

2. PIAA Data Sharing Project 1985-2010. Physician Insurance Association of America (PIAA), Rockville, MD. www.piaa.us