



THE OPERATION WAS A SUCCESS BUT THE PATIENT DIED: SLEEP APNEA AND POST-OPERATIVE HYPOXIA

By Eugene M. Moen, J.D.

Since the mid-1990's the medical literature has reflected a growing awareness of the risks of post-operative pain medications in a patient with sleep apnea (obstructive sleep apnea or obstructive airway syndrome). In patients with obstructive sleep apnea, the airway completely or partially occludes during sleep despite respiratory effort. Arousal from sleep temporarily reopens the upper airway, but falling back asleep may close it and start the process of airway closure and arousal again. The sleep apneic patient will often snore loudly and have fitful periods of awakening and arousal. This process, by itself, can produce nocturnal hypoxemia (reduction of oxygen to the brain), but the dangers are greatly increased when the patient is sedated by pain medications.

Pain medication in a post-op patient is meant to reduce pain perception, but it also results in sedation. For a normal patient the sedation may be a welcome relief from the pain and an opportunity to sleep. In a patient with sleep apnea, however, the sedation can result in hypoxia which in turn can cause brain damage or even cardiorespiratory arrest and death. Pain medications in a post-operative patient with sleep apnea can reduce the pharyngeal muscle tone, thus contributing to airway collapse and potential hypoxia and respiratory arrest. Studies have shown

that patients with sleep apnea are very sensitive to even minimal levels of sedation from pain medications.

Pain medication routes that can contribute to hypoxia can be oral, spinal, epidural, intravenous, or intramuscular. There may be special risks for patients using a PCA (patient controlled analgesic) machine, since the PCA may have been programmed for "normal" amounts of pain medications that will prove to be excessive for a sleep apnea patient.

The keys to avoiding such disastrous outcomes are (1) awareness on the part of the physicians and post-op care providers that the patient suffers from sleep apnea, (2) a careful use of post-op pain medications, and (3) careful monitoring of the patient.

For surgery patients who are admitted with a diagnosis of sleep apnea, the standards for post-op treatment are relatively clear: careful attention must be paid to the pain medications being used and there must be monitoring of the oxygen level. If the patient uses a C-PAP (continuous positive airway pressure) machine prescribed by a physician, one should also be used in the post-op period. These standards are spelled out in detail in the 2006 "Practice Guidelines for the Perioperative Management of Patients with Obstructive Sleep Apnea" published

by the American Society of Anesthesiologists. This is a key publication for any attorney handling a case involving death or brain damage in a post-op patient who may have had sleep apnea, whether previously diagnosed or not.

These standards were published in 2006, so there may be disputes about the appropriate standard of care before that time. However, as early as 1997 some hospitals were setting up special post-op care units and establishing specific protocols for patients with sleep apnea. The standards are based on experience at those hospitals plus a wealth of literature going back to the mid-1990's in which the post-op risks for sleep apneic patients are discussed and recommendations are made for careful diagnosis and post-op monitoring of such patients.

The more difficult legal case is one where the patient doesn't have a specific diagnosis of sleep apnea but where there are signs or symptoms of such a condition. It is estimated that 4-9 percent of people have some degree of undiagnosed sleep apnea. An additional 10-20 percent have some sleep-disordered breathing. As knowledge of this condition and its consequences have become more common, there has been a proliferation of sleep clinics where detailed studies are done of a patient's sleep patterns.

One of the common symptoms of sleep apnea is loud snoring on a regular basis. Another possible indication of sleep apnea is a patient's body habitus. A person with a "Pickwickian" body build (named after the Charles Dickens character who was obese and had a thick neck) has a higher risk of sleep apnea. Sleep apnea may explain a patient's difficulties in getting a good night's sleep or in experiencing excessive fatigue during the day. Any patient who is reported to snore at night and/or has that body habitus and has excessive day-time fatigue should be questioned before surgery about sleep apnea, and, in the case of elective surgeries, possibly referred to a sleep center for testing and diagnosis. The alternative is to treat such patients as if they have sleep apnea and take the same precautions that would be taken for someone with a prior diagnosis.

The responsibility for determining whether there are sleep apnea risks for a prospective surgery patient is not clear. The surgeon obviously should take a good history, but many specialist surgeons (e.g., orthopedists or gynecologists) may not focus on issues that seem unrelated to the surgical problem. Some hospitals have pre-op assessments performed by nurses, who may elicit information that raises a concern for sleep apnea.

In most hospitals, it is the anesthesiologist whose pre-op assessment should delve into those risk factors, but in some surgical settings that assessment may take place shortly before the surgery and not involve extensive questioning. An anesthesiologist who was instrumental

in pushing toward the publication of guidelines by ASA, Dr. Jonathan Benumoff, has said that the anesthesiologist is the last gatekeeper who can avoid post-op injury or death in sleep apnea patients.

The biggest risk involves surgery with the most post-op pain, since that is likely to lead to more pain medication and thus more sedation and hypoxia risks for a sleep apneic patient. A trap for the unwary physician may be a planned surgery that has less post-op pain (such as a laparoscopic procedure) that then is converted to an open procedure requiring more pain medication, or a planned simple procedure that turns into a more complex and lengthy procedure because of complications. In those cases, there may have been little pre-op concern about pain meds leading to hypoxia, and nurses or other providers may not have been alerted to the need for more post-op monitoring of the patient.

The monitoring required for a patient with sleep apnea may include placement in a special monitored unit, use of a continuous-pulse oximeter to measure oxygen content of the blood, or simply more frequent nursing checks on the patient. Some hospitals have a protocol for placing all post-op patients with sleep apnea in the intensive care unit or in a special step-down unit or room that has continuous pulse oximetry with an alarm that sounds near a nursing station so reductions in blood oxygen will trigger an immediate response. Other hospitals have portable pulse oximeter units that can be used at the patient's bedside in a regular

unit. However, relying on portable pulse oximeters has been criticized because the alarm may not be heard by nurses or the finger unit can slip off. The past common practice of only using the pulse oximeter periodically (such as once an hour) is particularly dangerous, since hypoxia can develop rapidly and thus not be detected.

Any patient with sleep apnea or suspicion of such a condition who may need special post-op precautions should have the medical chart red-flagged. Many different physicians may prescribe pain medication, especially during the night shift (residents, anesthesiology pain physicians, hospitalists, or a covering physician for the surgeon). Each of them has to be aware of the risk of over-sedation through pain medication so that pain medication orders reflect that knowledge. The responsibility for alerting prescribing physicians about sleep apnea, particularly physicians who do not see the patient, will fall on the nursing staff.

Medical negligence attorneys should be suspicious about possible sleep apnea when a potential client describes an apparently successful surgery but the patient "died in his sleep" after surgery or ended up with brain damage. If you are presented with a case involving possible post-op hypoxia, a thorough assessment of the hospital records is needed, including those that may not be in the "regular" chart.

To determine what medications were actually given, one cannot rely only on the nursing notes or medication charting. One must obtain the hospital pharmacy records,



the narcotic “wasting” records at the end of each nursing shift, and the computer printouts for the pain dispensing equipment in use at the particular hospital. If there is a possibility of a PCA dispensing excessive medications, one must obtain the maintenance records for that particular machine and be aware of the potential for “mis-programming” the PCA machine when it is set.

Determining responsibility for ordering or giving excessive pain medications, or for failing to appropriately monitor the patient, may be difficult to pin down without taking depositions. This becomes a problem when there is a need for certificates of merit for each of the providers who may be at fault. If a hospital does not have a specific protocol or published procedure for dealing with post-op sleep apnea, that may be an initial basis for asserting fault (including a certificate of merit by a hospital administrator expert) and later discovery may allow an apportionment among the players who contributed to the disastrous outcome.

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