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COMMENTARY

Sleep lab emergencies: better to be prepared than be scared

Commentary on Blattner M, Dunham K, Thomas R, Ahn A. A protocol for mitigating safety events in a sleep laboratory. *J Clin Sleep Med*. 2021;17(7):1355–1361. doi:10.5664/jcsm.9190

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The role of a nocturnal sleep technologist has continued to evolve. Most nights, the patient care is relatively routine, but on occasion it can be high-stress and fraught with significant challenges. The evolution that has occurred relates to multiple causes: more advanced modes of treatment (eg, adaptive servo-ventilation, hypoglossal nerve stimulation), patients with more complex medical problems, and patients who are more savvy about their health. The question is, have we as a field done an adequate job addressing these challenges with our technologists?

The paper published in this issue of *Journal of Clinical Sleep Medicine* entitled, "A protocol for mitigating safety events in a sleep laboratory"[1] takes a hard look at the education and readiness of the technologist staff with respect to emergency situations that can occur during polysomnography tests. In their article, the authors acknowledge that while the technologists are trained to run the polysomnography tests and institute therapy, specific training for what to do when a crisis arises has often been perfunctory.

When reviewing the Board of Registered Sleep Technologists (BRPT) exam blueprint,[2] the American Academy of Sleep Medicine's (AASM's) A-STEP program modules,[3] and AASM accreditation standards,[4] it can be noted that all of these cover sleep lab emergencies to one extent or another. The BRPT exam requires the technologist to assess "physiologic and clinical" events. One A-STEP module is specifically about Sleep Lab Emergencies. The AASM accreditation standards require that labs have emergency procedures laid out for cardio-pulmonary, neurologic, psychiatric, and environmental emergencies and require regular risk analyses at a minimum of every 5 years to review safety events that have occurred. This is all necessary and appropriate, but given the potential adverse outcomes that may result from an emergency—is it enough?

As noted in an earlier article by Colaco et al,[5] from the Mayo Clinic sleep lab, the complexity of patients studied from 2005 through 2015 increased by 30%, with the patients being both older and having more comorbid conditions. In addition, the complexity of the sleep study also increased with more advanced titrations and use of oxygen. Certainly in our sleep laboratory, we are now caring for patients with more implantable devices: left ventricular assist devices, hypoglossal nerve stimulators, overnight peritoneal or hemodialysis, phrenic nerve pacers, tracheostomies, and vagal nerve and deep brain stimulators. The sleep technologists need to understand more complex concepts, not just about oxygen saturation, but about carbon dioxide levels as measured by transcutaneous sensors, the concept of tidal volume, inspiratory time, inspiratory to expiratory (I.E) ratio, and minute ventilation. This can be a lot to ask of a technologist who may have a high school education followed by 12 months of more specialized education.

There are several steps to managing an emergency in the sleep lab. First, the technologist must recognize that it is indeed an emergency. Because of the ongoing monitoring of the patient during the night, this is usually obvious but not always. Arrhythmias may be missed as they can be quite transient; hopefully, those that recur or are lengthy would not be missed. Any patient complaint must be addressed, and if the technologist feels that the complaint is not minor, it should at minimum be discussed with a supervisor or physician on call.

The process that was particularly enlightening in this article is the "Emergency Workshop" they developed, in which they used patient simulations for a variety of emergency situations, including chest pain, respiratory distress, and arrhythmia recognition. It was eye-opening for the authors and prompted them to undertake a number of organizational changes. Their overhaul process included Part 1, reviewing the referral process and triage with respect to where the studies were done (eg, hospital-based lab or not). This is similar to a process that was done in the Colaco paper,[5] in which they used a rating system to help identify higher-risk patients. Part 2 expanded on the original triaging such that the technologist performed further prior assessment to make sure the patient was "healthy enough" to undergo the study. Part 3 of their process modification included developing a "Take Quick Action" triage sign to aid the technologist in knowing exactly what the appropriate responses were for various incidents (eg, chest pain). They also have yearly reassessments of emergency training.

The authors note that their reported events actually increased after instituting this new protocol, perhaps the result of improved recognition but possibly due to sicker patients. The overall rate of events in their paper was 1 safety incident for every 147 studies.

There are several takeaways from this manuscript. Appropriate triaging can identify and assist with making sure technologists are prepared for each patient each night. Continually updating and revising policies as new situations occur is mandatory. Regular hands-on training of a variety of scenarios should help the technologist become more comfortable with handling emergency situations. Many of us are very familiar with simulation exercises for learning. This seems like a great opportunity to develop some of these scenarios for our sleep technologists as well. The more prepared we all are, the less intimidated and more confident the technologists will be attending the patients, and the better those of us on call will sleep!

CITATION

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