

need for liver function tests, as well as the determination of serum albumin and total protein levels, a complete blood cell count, and a coagulation profile. The anesthesia and nursing teams need to be made aware of the results of these tests to properly prepare for perioperative events.

Care providers should also know that military veterans with comorbid OSA and PTSD are at increased risk of developing emergency delirium (EDL) when they awaken from general anesthesia after any surgery. The signs of EDL include altered mental perception that causes confusion, disorientation, and flashbacks to disturbing events; agitation; and violent physical or verbal behavior. They may also become combative and attempt to remove endotracheal tubes and intravenous lines or to climb out of bed. Physical restraints may be required. Interestingly, PTSD patients with EDL are less likely to require reintubation or to experience death within 30 days of surgery. In addition, their incidence of troponin leak, cardiac arrest, and stroke are similar to those seen in persons without PTSD. PTSD patients given midazolam or dexmedetomidine and propofol as induction agents preoperatively tend to be less likely to develop EDL. Those given etomidate and ketamine (unless it is combined with a benzodiazepine) for induction are more likely to suffer EDL. Among the methods to calm and reorient the patient postoperatively are the use of a quiet environment along with hearing a spouse's voice to make the environment more familiar to the individual.

Clinical Significance

Patients with comorbid PTSD and OSA who are having jaw and airway surgery to manage the OSA have a higher likelihood of developing EDL immediately post-operatively. The anesthesia and nursing teams should be prepared to handle the symptoms these patients can exhibit. In addition, care delivery for military veterans in a non-military hospital setting can be complicated by PTSD, especially if the PTSD is combined with OSA. Clinicians and anesthesia and nursing teams involved in the care of surgical patients need to understand the challenges associated with OSA-PTSD and be prepared to manage the EDL and other complications that can develop in these patients.

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SLEEP DEPRIVATION

Effects of lack of sleep on performance



BACKGROUND

Sleep is just as important as proper hydration and nutrition when it comes to maintaining physical and mental health. This truth applies not only to patients but also to health care practitioners, most especially surgeons. Poor-quality sleep is associated with taking more sick leave and developing long-term health problems. Quality is determined by the duration of sleep, the number of times awakened during the night, and the ability to return to sleep. Good sleep health is characterized by subjective satisfaction, appropriate timing, adequate duration, high efficiency, and sustained alertness during waking hours. Sleep supports optimum health and performance. Its deprivation is common among health care workers, all of whom will experience it at some time in their careers. Performance factors associated with lack of sleep were enumerated and advice offered regarding the clinician's attitude toward and practice of good sleep habits.

PERFORMANCE AND LACK OF SLEEP

Patient Care

Varying work shifts can alter the body's clock and leave clinicians unable to perform duties as well as they should. This can create a potentially hazardous environment for patients. Among the areas affected by poor quality or quantity of sleep are cognitive function, safety measures, and mental flexibility.

Getting less than 5 hours of sleep a night reduces the ability to do previously learned tasks and to remember. Decision-making is compromised, as is the ability to concentrate. As a result, it can be difficult for inexperienced clinicians to learn while they are working.

Clinicians who face intense mental challenges require sufficient sleep to avoid taking unwise risks and making inappropriate choices. The aviation industry has accepted the need to adapt

to changes in sleep patterns, requiring rest days for pilots both before and after nighttime flights. Health care practitioners need to ensure that they are also well-rested so that their decisions result in safe actions.

The ability to make quick, calculated decisions is an essential part of delivering care in emergency, trauma, and intensive care settings. Health care professionals who cannot function to the best of their ability can make errors related to inattention and compromise patient care. Fatigue can also compromise a clinician's mental flexibility, which is the ability to adapt to changes in a procedure.

Behavioral Changes

The strain of working in demanding conditions and under emotional stress for an extended time can lead to burnout, which can further develop into suicidal behaviors. Many surgeons believe there is no way to counteract burnout, but recognize that their work is being affected, which leads to behavioral alterations. Certain personality traits, specifically, aggression, independence, and self-sufficiency, are often found in persons who have higher academic degrees. These traits can be negatively exacerbated by sleep deprivation.

Burnout results in poor performance, lowered motivation, and depersonalization. The surgeon may become overly detached from patients as well as the surgical team. Alternatively, the surgeon may develop conflicts of interest and feelings of uncertainty. If the result is a loss of confidence in their abilities, the individual may take more risks. When coupled with altered perception and empathy, patient safety can be compromised. The clinician can then make errors that are readily preventable. Health care practitioners can also develop changes in character, mental instability, anxiety, depression, and suicide as a result of sleep deprivation. This can affect morale, optimism, and emotional intelligence, all of which are key in providing leadership in a multidisciplinary team situation.

Life Outside the Hospital

Inadequate sleep can also alter the clinician's performance at home. Doctors who are deprived of sleep are more likely to have traffic accidents and often experience increased awakening during the night, insomnia, and daytime sleepiness. Having a cumulative loss of sleep can make one irritable and can lead to substance and alcohol abuse.

Although some doctors develop coping mechanisms, more develop problems such as obesity, diabetes, hypertension, and cardiovascular disease. Sleep deprivation can also affect nutrition, with sufferers either eating poor quality food or overeating. Chronic short sleep durations can increase mortality.

MEASURES TO TAKE

It's not possible to recover normal levels of cognitive function after chronic sleep deprivation with 3 days of 8-hour rest. Clinicians should try to avoid developing a sleep debt because it can take such an extended time to repay.

When possible, it's wise to take a short, 5- to 10-minute break every 2 to 3 hours. The clinician can use this time to eat or drink, but the result is a refreshed and improved practitioner. For a surgeon, taking a quick 20-second look away from the operating table every 20 to 30 minutes can reduce the stress of the procedure while not compromising the quality of the surgical care being delivered. It's also possible to mitigate the effects of a lack of sleep by increasing the duration of sleep before beginning a shift or taking a short rest whenever possible.

Limiting the working hours of resident doctors has helped to reduce burnout and emotional strain. In addition, taking time to engage in leisure activities can be beneficial to a clinician's quality of life and motivation. Ensuring that the clinician receives adequate sleep and rest can minimize negative behaviors and attitudes.

Doctors who have a busy night shift should try to sleep a short while before going home. In addition, they should avoid snacking on nonnutritious food, which can lead to obesity and other health consequences. Taking time to care for one's own health is important and should not be viewed as a waste of time.

Clinical Significance

Sleep deprivation can lead to rapid and obvious problems with performance, behavior, and the quality of life of the clinician. To do their best work, it's essential that medical and dental practitioners take the time to get sufficient rest especially after, but ideally also before, significantly disruptive and stressful periods. Because the requirements for rest differ with each individual, it's important to recognize the signs of fatigue in ourselves and in other team members and take steps to address the problem. Sleep is too important to ignore.

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