

EDITORIAL

Sleep and Anesthesia

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The supplement within this volume of The Open Anesthesiology Journal focuses on emerging links between sleep and anesthesia. Sleep is the natural periodic suspension of consciousness during which the powers of the body are restored. General anesthesia is a drug-induced, reversible condition comprised of five behavioral states: hypnosis (loss of consciousness), amnesia, analgesia, and immobility (no movement in response to pain stimuli), and hemodynamic stability with control of the stress response [1]. Anesthesia and sleep are visibly different [2], and many researchers are in the process of gathering interesting new information on the similarities and differences of the mechanisms leading to anesthesia and sleep (for review see Brown and coworkers [3]). Temporary loss of consciousness as well as a modulation of brainstem autonomic function represent a clinically meaningful common ground of sleep and anesthesia.

Upper airway dilator muscle tone decreases as the transition from wakefulness to sleep and anesthesia is made

[4], which can lead to hypopnea and apnea [4]. Obstructive sleep apnea (OSA) is a common disorder affecting 2-26% of the general population depending on sex, age and the definition of criteria. It has important sequelae such as hypertension, myocardial infarction, and stroke [5-8], and patients with OSA are suggested to be at increased risk to develop serious perioperative complications, particularly during the post-operative period [9-11]. The reduction of post-operative complications for patients with OSA has been a recent goal of the Joint Commission of the American Hospital Association (JCAHO). This issue of the Open Anesthesiology Journal comprises important information on how to improve safety of OSA patients during anesthesia.

Frances Chung summarizes the current concepts on how to make diagnosis of OSA in the perioperative context [12]. This is important, because it is challenging to make diagnosis of sleep disordered breathing in patients while they are asymptomatic, which is typically the case during wakefulness. Tom Ebert and coworkers [13] focus on the relation between morbid obesity and OSA - Obesity is an epidemic with major health consequences, and obesity and OSA are related: about 50% of patients with morbid obesity have OSA. Both, obesity and OSA have important

implications with regard to perioperative safety of patients presenting with these diseases. The studies of Karan and Koo are focused on possible perioperative therapeutic implications of OSA. Continuous Positive Airway Pressure (CPAP) is the golden standard for treatment of patients with OSA, but the method has limitations in the perioperative period. Karan and co-workers summarize the considerations regarding perioperative implementation of CPAP [14]. Opioids are the first line treatment of severe postoperative pain, but opioids decrease respiratory drive and their use is associated with serious postoperative respiratory complications in patients susceptible to their side effects. Koo and coworkers summarize the pathophysiology of opioid-induced side effects in the perioperative context [15]. The knowledge on how to treat patients with OSA or those at high risk of an (unidentified) OSA is evolving. Peter Gay [16] concludes this special issue by summarizing his vision of the future of our field: Which studies need to be conducted to improve perioperative safety of patients with OSA?

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