

Editorial

Sleep Deprivation—Heroism or Hazard?

Anesthesia practice has achieved a commendable level of safety over the years. Efficient management of critical incidents can be considered the hallmark of an expert anesthetist. Critical incidents test concentration, attention span and reflexes. Management of such incidents requires not only technical expertise but also possession of non-technical skills like decision making, team working, situation awareness and task management. Non-technical skills contribute significantly towards a successful outcome. Several researchers have assessed the effects of sleep deprivation on general intellectual function, numerical cognition, execution, vigilance and memory.

The physiology of sleep is as yet poorly understood. Sleep plays an integral part in the health and well-being of an individual. Sleep is controlled by the Supra Chiasmatic Nucleus (SCN) of the hypothalamus, the endogenous clock which regulates the production of melatonin, a hormone that induces sleep. The National Sleep Foundation (USA) recommends that adults obtain between 7 and 9 hours of sleep per 24 hour period.

Fatigue is a complex concept to define but an integral component of fatigue is an individual's inability to function to his normal capacity. A sleep deprived individual is more susceptible to fatigue although the threshold may vary from person to person. Anesthesia trainees work 24 to 36 hour periods without adequate rest in some medical colleges in our country.

Several researchers have attempted to evaluate the effect of sleep deprivation on the technical and non-technical skills over the years. It is now generally accepted that there should be uniform guidelines in regard to optimal working hours for practicing anesthesiologists to ensure the safety of patients and anesthetists alike.¹ Most countries have specified the limits for training duty hours; for example 37 hours/week averaged over a one month with limitations on night duties (Denmark), a weekly average of 48 hours taken over a 17 week period (UK), 50 hours/week maximum (Switzerland), 60 hours/week maximum (Brazil), and 80 hours/week averaged over four weeks (USA)²

Although the periods vary, it is generally accepted that sleep deprivation adversely affects the technical and non-technical skills. The Accreditation Council for Graduate Medical Education in America has recommended that "duty hours of residents must be limited to 80 hours per week, averaged over a 4-week period, inclusive of all in-house call activities and all moonlighting". A pilot randomized trial concluded that, sleep deprivation was associated with impaired non-technical skills of anesthesia residents in a simulated anesthesia intraoperative crisis scenario. The simulated scenario was a situation of crisis management in the operating room.³

It is important to realize that fatigue cannot be correlated strictly to the number of duty hours or the number of cases handled. The complexity of the case and the demands it places on the anesthetist also matters. A single complex case involving management of a difficult airway and shock with implementation of resuscitative measures can lead to fatigue.

Senior anesthetists have likely put in long duty hours in their training period and so find nothing wrong if the young doctors work similarly. This warrants a change of perspective as safety in anesthesia has assumed crucial priority. This is evident from the litigation related to our speciality. It is time to appreciate the urgent need to study the effects of sleep deprivation in our trainees. It is also time to address this issue rationally with solutions involving at least shorter work shifts and an awareness among anesthetists to detect the effects of sleep deprivation in themselves and their colleagues. Some anesthetists feel a sense of heroism regarding their ability to work long hours without sleep. This sense of heroism may be sadly misplaced!

References

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