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Review Article

Care and Sleep Medicine: Critical and Supine Sleep during Polysomnography

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Abstract

In the Intensive Care Unit (ICU), sleep is regarded as subjectively poor, extremely fragmented, and occasionally as "atypical." Even though it is believed that getting enough sleep helps patients recover, little is known about how sleep affects physiologic function in critically ill patients or those with clinically important outcomes in the intensive care unit. The lack of objective, practical, scalable, and scalable methods to measure sleep and the multifactorial etiologies of its disruption make ICU-based sleep disturbance research challenging. In spite of these difficulties, there is a growing body of research into sleep-promoting strategies. This research has revealed a variety of factors that contribute to ICU-related sleep loss, which encourages multifaceted intervention efforts. through a focused examination of ICU sleep measurement; consequences of not getting enough sleep in the ICU; This paper examines research on sleep in the Intensive Care Unit (ICU) and highlights the need for additional investigation into this complex and dynamic field, as well as ICU-based sleep promotion efforts that include environmental, no-pharmacological, and pharmacological interventions.

Keywords: ICU, Clinical, Pharmacological, Patients, Etiologies

INTRODUCTION

The subjective quality of sleep in the Intensive Care Unit (ICU) is poor, it is highly fragmented, and it is occasionally referred to as "atypical." Sleep deprivation has been linked to neurocognitive dysfunction, including delirium, hyperalgesia, and impaired immune function. Poor sleep is likely to have a negative impact on the outcomes of critically ill patients because of the effects of sleep deprivation. As a result, sleep promotion is growing in popularity as a way to improve outcomes in the ICU (Bornmann L et al., 2008).

The complex mechanisms in the basal brain regulate the stages of sleep and wakefulness, which are strongly interconnected. The immune system, anabolic and regenerative processes, neurophysiological organization, memory consolidation, and cognitive function are all negatively impacted by sleep disturbances. In addition, sleep disturbances may increase the risk of delirium, prolonged ICU stay, and mortality in the Intensive Care Unit (ICU). As a result, it's possible that getting enough sleep can help critically ill patients recover and do well. Noise, light, diagnostic and therapeutic procedures, mechanical ventilation, medication, and the critical illness itself are just some of the disturbances that critically ill patients in an ICU's busy environment are exposed to. Sleep and the circadian rhythm may be disrupted by any or all of these factors. It is unknown which of these causes critically ill patients to disrupt their sleep the most. Complete or partial obstruction of the upper airway during sleep is the hallmark of Obstructive Sleep Apnea (OSA), which can cause respiratory arousals, sleep fragmentation, and/or oxygen depletion. OSA, which affects 10 to 17 percent of men and 3 to 9 percent of women in the United States, is the most common sleep-related breathing disorder. Obesity, age, male gender, menopause, a wide neck circumference, adenotonsillar hypertrophy, and other pharyngeal-causing craniofacial features are all risk factors. By causing the uvula, soft palate, and tongue to move laterally, the supine position makes OSA worse. In a case-control study, the Apnea-Hypopnea Index (AHI) doubled when people slept in a supine position. Positional OSA, defined as a lateral Respiratory Disturbance Index (RDI) that is less than half of the supine RDI, was found in up to 56% of 666 Israeli patients with OSA (Daipha P, 2001) (Da Silva FC et al., 2011).

DISCUSSION

The ICU is not conducive to sleep, despite technological and design advancements. Sound pollution, inappropriate lighting, patient interactions, medications, and critical illness itself have all been linked to poor sleep in the intensive care unit. ICUs have developed a variety of sleep-promoting interventions as a result of the growing awareness of poor sleep quality. Research on novel methods of measuring sleep, the effects of medications and mechanical ventilation on sleep, the short- and long-term effects of ICU-based sleep disruption, the design of sleep environments, and the implementation of sleep-promoting interventions all stem from this interest in sleep (Diamond L, 2006).

Lack of sleep has a negative impact on the innate immune system as well as the humoral immune system; however, there are no longitudinal ICU studies with clinically significant endpoints. Sleep deprivation is linked to Lower Interleukin (IL)-2 levels and decreased natural killer cell activity in healthy adults. Sleep deprivation also affects how the humorous normally responds to vaccinations. Sleep loss and promotion may play a significant role in critical illness states like sepsis, where host defense is essential to recovery. Sound in the ICU patients are 17 to 20 percent more likely to wake up if the environment is too noisy. It should come as no surprise that all ICU studies involving sound report levels exceeded recommended limits without diurnal variation. The WHO recommends that continuous background sound in patient treatment areas not exceed 30 dB (dB) and peak nocturnal sounds remain below 40 dB. Notably, ventilator alarms (51 dB), suction alarms (53 dB), and syringe pump alarms (63 dB) breach these sound limits. The timing and levels of sound, as well as its sources (electronic versus ambient), have been suggested to influence sleep in studies. Additionally, when compared to peak and average sound levels, the degree of variation in sound levels may be particularly disruptive to sleep. Sound attenuation in the intensive care unit can be achieved through behavioural interventions, such as minimizing conversations and reducing unnecessary alarms; white noise, also known as sound masking; and earplugs, which block sound. Sound reduction interventions did not evaluate sustainability, and decibel levels frequently remained above recommended limits. Behaviour-based sound reduction studies comparing staff education, education with sound monitoring, and education with environmental modifications had mixed results, with no improvement in sound levels in some studies and a reduction in others (Gill TM, 2013) (Glock CY et al., 1958).

White noise has been shown to improve sleep quality, but recent studies have shown that patients in intensive care units who wear earplugs have better sleep perception, satisfaction, and delirium.86,88 However, most patients who are offered earplugs either decline them or find them uncomfortable. Noise cancelling headphones, which block sound, have recently gained popularity. Noise cancelling headphones were found to significantly reduce sound exposure in mannequins subjected to simulated cardiac ICU sounds in a recent study. One study on noise-cancelling headphones in critically ill patients yielded interpretable results due to highly atypical EEG patterns, and another focused on anxiety and sedation levels rather than effects on sleep. To determine the most effective means of reducing noise in critically ill patients, additional research is required (Grimmer J et al., 2013).

CONCLUSION

DE prescribing of medications known to disrupt sleep is the initial pharmacologic treatment for poor sleep in the intensive care unit. Particularly in elderly and critically ill patients, commonly prescribed sleep medications frequently come with undesirable side effects. The American Geriatrics Society updated the Beers criteria for inappropriate medications in older adults in 2015, which discourage the use of most sleep-promoting medications in the elderly population. Nevertheless, in the intensive care unit, sleep-promoting medications are frequently given. The most frequently prescribed sleep-related ICU medications are listed below and in. Notably, studies examining the effects of medications on sleep were typically limited to a single night's sleep evaluation, had non-ICU populations, and were generally of a small size. As a result, care should be taken when interpreting them. Our study's strengths include the inclusion of clinically significant confounders in our logistic models and the collection of objective PSG parameters for our exposure and outcome variables. However, our sleep laboratory protocol, which requires our technologist to ensure that supine sleep occurs during PSG, presents the main limitation of our study, despite the statistically significant results. Our PSG technologists were instructed to encourage patients to switch to the supine position if the patients had been sleeping entirely in the lateral position, particularly if the AHI was still within normal limits during the first half of the night. The patients were initially allowed to sleep in their preferred position. The expected distribution and variability of supine sleep duration would have been altered by this policy, which would have reduced the number of patients in our sample who did not sleep supine (Horowitz IL, 2003).

Many of the PSG recordings of these critically ill patients on mechanical ventilation showed no signs of normal sleep. PSGs can be scored using Watson's sleep scoring classification for critically ill patients. There was no correlation between the environmental intervention and the PSG's normal sleep characteristics, and we were unable to further reduce the already low noise levels in the ICU. Further study of the sleep-EEG of patents that are critically ill. Even after adjusting for age, BMI, and CHD, the absence of supine sleep during PSG significantly reduced the odds of an OSA diagnosis in clinically referred patients who were suspected of having it. To make it easier to diagnose OSA, sleep laboratory policies should consider including protocols that encourage patients to sleep in a supine position during polysomnography (Lakin JM, 2011) (Lamont M, 1987).

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CONFLICT OF INTEREST

None

REFERENCES

1. Bornmann L, Daniel H (2008). What do citation counts measure? A review of studies on citing behaviour. J Doc. 64: 45-80.
2. Daipha P (2001). The intellectual and social organization of ASA 1990-1997: Exploring the interface between the discipline of sociology and its practitioners. Am. Social. 32: 73-90.
3. Da Silva FC, Vieira MB (2011). Books and canon building in sociology: The case of mind, self, and society. J Class Social. 11: 356-377.
4. Diamond L (2006). Seymour Martin Lipset. 1959. Some social requisites of democracy: Economic development and political legitimacy. Am Polit Sci Rev. 53: 69-105.
5. Gill TM (2013). Why Mills, not Gouldner? Selective history and differential commemoration in sociology. The American Sociologist. 44: 96-115.
6. Glock CY, Sills DL (1958). Political sociology at the Bureau of Applied Social Research. PROD. 1: 22-26.
7. Grimmer J, Brandon MS (2013). Text as data: The promise and pitfalls of automatic content analysis methods for political texts. Political Analysis. 21: 267-297.
8. Horowitz IL (2003). Books, monographs, and pamphlets by Seymour Martin Lipset. The American Sociologist. 34: 131-154.
9. Lakin JM (2011). Seymour Martin Lipset. Proc Am Philos Soc.155: 336-350.
10. Lamont M (1987). How to become a dominant French philosopher: The case of Jacques Derrida. Am J Social. 93: 584-622.