CHEST Postgraduate Education Corner

CONTEMPORARY REVIEWS IN SLEEP MEDICINE

Update on Sleep and Psychiatric Disorders*

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Current data demonstrate a high rate of comorbidity between sleep disorders and various psychiatric illnesses, especially mood and anxiety disorders. The disturbance of sleep quality and continuity that is associated with many sleep disorders predisposes to the development or exacerbation of psychological distress and mental illness. Likewise, the presence of psychiatric illness may complicate the diagnosis and treatment of sleep disorders. This focused review examines the literature concerning the interaction between major *International Classification of Sleep Disorders*, 2nd edition, diagnoses and psychiatric conditions with respect to sleep findings in various psychiatric conditions, psychiatric comorbidity in sleep disorders, and reciprocal interactions, including treatment effects. The data not only underscore the high frequency of psychopathology and psychological distress in sleep disorders, and *vice versa*, but also suggest that combined treatment of both the mental disorder and the sleep disorder should become the standard for effective therapy for all patients. ***(CHEST 2009; 135:1370–1379)***

Key words: anxiety disorder; depression; hypersomnolence; insomnia; movement disorder; nightmare disorder; obstructive sleep apnea; parasomnia; posttraumatic stress disorder; restless legs syndrome

Abbreviations: AD = antidepressant; AP = antipsychotic; BDI = Beck Depression Inventory; CGI = clinical global impression; CPAP = continuous positive airway pressure; HUNT = Nord-Trondelag Health Study; ICSD-2 = *International Classification of Sleep Disorders* 2nd edition; IRT = imagery rehearsal therapy; MDD = major depressive disorder; OSA = obstructive sleep apnea; PLM = periodic limb movement; PSQI = Pittsburgh Sleep Quality Index; PTSD = posttraumatic stress disorder; REM = rapid eye movement; RLS = restless legs syndrome; SSRI = selective serotonin reuptake inhibitor

Many of the early explorations in the field of sleep medicine focused heavily on the relationships among sleep, psychological processes, and psychiatric disorders. As the discipline has evolved and expanded into numerous other areas of inquiry and attention, the focus on psychiatric disorders in sleep medicine has comparatively declined. Yet evidence of key linkages, of both theoretical and clinical importance, continues to accrue.

This review addresses the practical clinical aspects of the complex relationships between psychiatric disorders and sleep. The discussion can be examined from two major perspectives: (1) psychiatric disorders and their treatments as factors contributing to sleep disorders, and (2) psychiatric disorders as a complication of sleep disorders. Effective management of sleep disorders requires recognition and effective treatment of mental disorders. The great majority of physicians practicing sleep medicine today do not come from a background of psychiatry and may understandably feel inexperienced, reluctant, and even avoidant when confronted by such issues in practice. However, an understanding of basic diagnostic and therapeutic principles in key areas will allow the clinician to manage or refer these patients effectively.

Mental disorders are highly prevalent in the general population and even more so among individuals with sleep disorders.[1] Many psychiatric illnesses such

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Manuscript received July 25, 2008; revision accepted November 6, 2008.

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DOI: 10.1378/chest.08-1834

as mood disorders and anxiety disorders are associated with high rates of insomnia. Likewise, for many of the patients presenting to sleep clinics with insomnia, psychiatric disorders are likely to play an important role in genesis and maintenance of the insomnia. Ohayon et al[1] reported a prevalence for insomnia complaints (1 month duration and daytime consequences) of 12.7% in the general population. The prevalence of sleep disorders, mostly insomnia due to mental disorder, was 5.6%; primary psychiatric disorder diagnoses were applied to 8.4%. Although evidence of adverse effects of chronic insomnia on both physiologic and psychological function continues to accrue, the condition remains a seriously underdiagnosed and undertreated problem.

The relationship between sleep disorders and psychiatric illness is not limited to insomnia, however. In fact, it is difficult to identify a single major diagnostic category within the *International Classification of Sleep Disorders*, 2nd edition (ICSD-2),[2] in which mental illness, its treatment, or its complications do not have relevance. This update approaches the discussion of psychiatric disorders in sleep medicine from the ICSD-2 categorical structure and focuses on the bidirectional relationship between sleep and mental disorders within each section. The literature is drawn from the past 3 years and was identified by means of Medline searches for major ICSD-2 categories (*eg*, "insomnia," "sleep apnea," and "hypersomnolence") as well as "sleep" and major psychiatric disorders (*eg*, "depression" or "PTSD"). Certain references outside the specified 3-year range are included for background purposes.

Insomnia

The studies of the last 3 years pertaining to sleep disturbance and psychiatric disorders can be categorized into the following major areas: (1) subjective and objective changes in sleep associated with various major psychiatric conditions; (2) insomnia as a risk factor for psychiatric illness; and (3) treatment of sleep disorders in patients with mental illness.

Many investigations over the past 4 decades or more have described subjective and objective alterations of sleep in patients with a variety of psychiatric illnesses. The issues raised by these studies are several-fold. Do sleep disorders contribute to the development of psychiatric disorders? Do changes in sleep provide us with information that illuminates potential pathophysiology of these disorders? Do sleep-related factors demonstrate significant correlations with other clinical symptoms or physiologic factors? Do specific changes in sleep suggest specific treatment strategies, and can alterations of sleep parameters in response to intervention predict treatment outcome?

Posttraumatic Stress Disorder

Posttraumatic stress disorder (PTSD) has been the focus of many investigations. Difficulty initiating and maintaining sleep have been recognized for centuries as common responses to trauma. Current studies are aimed at further defining the nature of these responses and their implications with respect to pathophysiology and management. Calhoun and others[3] studied the sleep of 30 PTSD patients and 22 control subjects with home actigraphy and sleep logs over 3 nights. They found significant differences between patients and control subjects, with the former demonstrating reduced sleep efficiency, increased latency to sleep onset, and more restless sleep on actigraphy measures. Not unexpectedly, sleep logs (in both groups) suggested worse sleep than the actigraphy-derived data; results of the Pittsburgh Sleep Quality Index (PSQI) showed no significant correlation with objective data. In the PTSD population, 37% had significant nightmare problems. Another investigation[4] of sleep in 10 young adult patients with PTSD compared with an equal number of matched control subjects revealed modest but significant differences on polysomnography findings (decreased sleep efficiency, increased wake time after sleep onset and arousals, and decreased stage 3/4 sleep in PTSD subjects). Of note, a significantly greater amount of rapid eye movement (REM) interruption was found in the experimental group. Nightmare severity correlated with REM interruption as well as wake time after sleep onset.

A metaanalysis[5] of sleep findings in PTSD addresses the long-standing issue of conflicting data regarding sleep-related changes in this population. Kobayashi and colleagues[5] report that a consistent pattern of increased stage 1, decreased stage 3/4, and increased REM density is seen. Studies with predominantly male populations showed greater degrees of abnormalities; those with higher rates of depression within the study group found less severe disturbances.

PTSD is frequently comorbid with other psychiatric disorders, especially substance abuse problems. It is challenging to tease apart the relative contribution of each of these factors to sleep disturbance. A study[6] comparing sleep parameters in groups with PTSD alone, PTSD comorbid with alcohol dependence, alcohol dependence alone, and a control population has attempted to clarify this issue. Using subjective reports, the investigation revealed, not surprisingly, that PTSD was associated with poorer sleep quality,