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HEADACHE AND SLEEP DISORDERS: REVIEW AND CLINICAL IMPLICATIONS

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ABSTRACT

Sleep-related headaches increase the possibility of a sleep problem. OSA has been linked to awakening headache types such as migraine, tension-type, cluster, and unclassifiable headaches, and it has gotten a lot of attention because of the possibility for headache relief as well as the serious cardiovascular and other health consequences. Despite the fact that it has not yet been studied in headache patients, there is now awareness of a spectrum of sleep-disordered breathing that may help explain the known link between chronic headache and snoring in the absence of conventional OSA risk factors. Primary headache therapy is compatible with pharmacologic and behavioral sleep management methods for insomnia and circadian rhythm disorders. With methods like a headache/sleep diary, progressive relaxation training, and sleep hygiene, behavioral therapies for headache may easily be extended to evaluate and treat insomnia.

KEYWORDS: *Circadian Rhythm, Cognitive Behavior Therapy, Headache, Migraine, Sleep.*

1. INTRODUCTION

Both headache and sleep problems are linked with substantial mental comorbidity, and both are disproportionately common among headache patients. Sleep problems are disproportionately seen in certain headache diagnostic groups and other headache patterns, regardless of diagnosis, as detailed below(1–4). Sleep problems linked to headaches are unusual in that they include respiratory, movement, and circadian rhythm abnormalities, as well as insomnia. Variations in sleep length and schedule are frequently recognized headache causes in the absence of a sleep problem. These links between sleep and headache are varied in form, but one thing they all have in common is a dysregulation of sleep processes that seems to influence headache threshold. Both headache and sleep problems are associated with similar mental illnesses. As described elsewhere in this book and the Headache journal supplement dedicated to Psychiatric Headaches(5–8).

The link between headache, sleep, and mental illnesses is most likely due to common pathogenic mechanisms. Taking into account the whole headache-sleep affective symptom constellation may lead to new ways to influence headache threshold and improve therapy. Identification and treatment of primary sleep problems, management of insomnia with or without concomitant emotional illness, and improving the schedule, length, and quality of sleep are all part of the

sleep regulation process in headache management(9–12). Through relevant epidemiological and clinical prevalence studies, clinical implications for headache evaluation, sleep screening strategies, identification of primary sleep disorders, and behavioral sleep regulation strategies for the primary headache patient, this paper reviews the nature and magnitude of comorbidity between headache and sleep disorders.

1.1 Comorbidity of Headache and Sleep Disorders:

Too far, no epidemiological research has looked at the relationship between headache and the whole range of sleep problems in the general population. Several relevant research, on the other hand, have looked at one or more elements of the headache-sleep comorbidity spectrum. Morning headaches were not linked to caffeine use, as those who did not drink coffee had more headaches in the morning than those who consumed at least 1 cup per day, refuting the notion that morning headaches were caused by caffeine withdrawal in this large sample. Aspects of sleep have been explored in large cross-sectional epidemiological studies of headache. headache severity, sleep problems and affective disorders were all linked; headache frequency was linked to mild, moderate, and severe insufficient sleep, along with depressed mood(13–16).

1.2 Clinical Studies:

The nature and clinical significance of headache-sleep comorbidity among headache patients and sleep-disordered patients has been established via research involving these two groups. Patient Populations with Headaches. Sleep disturbances and complaints are common among headache sufferers. This information comes from descriptive research as well as studies that use objective polysomnography to measure sleep. The biggest clinical research to date looked at the incidence of sleep problems among migraineurs seeking treatment for their headaches. Sleep disruption and oversleeping were identified as headache precipitants by 50 percent and 37 percent of patients, respectively, in this migraine group, whereas 85 percent reported sleeping as a way to alleviate headache. Many patients said they had trouble falling asleep and staying asleep on occasion. 71 percent of migraineurs said they had morning headaches. Though insomnia was not systematically evaluated, 38 percent of migraineurs had persistently reduced sleep patterns that were comparable to those of insomnia(17–20).

1.3 Sleep disturbances have been related to cluster headaches:

An 8.4-fold increase in the incidence of OSA was seen in a study of cluster headache patients who underwent polysomnography compared to age and gender-matched controls, and this risk rose over 24-fold among patients with a BMI(21). As a result, the data shows that cluster patients have a higher rate of sleep disordered breathing, and that treating the apnea may help with this kind of headache. Dysregulation of sleep cycles may cause headaches, or "trigger" them. Changes in sleep patterns are regularly included among the most often reported precipitants of headache in individuals with migraine and tension-type headache(22).

1.4 Patient Populations with Sleep Disorders:

Only one published research that looked at the prevalence of headache in sleep disturbed individuals who had a wide spectrum of sleep disorders was found in this review. Morning headaches were investigated in sleep clinic patients who had polysomnography and healthy controls. Polysomnographic recordings from the evenings before a morning headache were

compared to nights without a headache the following day. The number of headaches reported by patients with sleep problems was considerably higher than that of healthy controls.

1.5 *Implications in Clinical Practice:*

While no empirically proven methods exist to guide clinical practice, there are at least a few scientifically validated tenets today.

According to the review:

1. A persistent daily headache, particularly a "morning headache," is a distinct, though vague, indication of sleep problems;
2. In the context of a headache, identifying and treating a main sleep problem may help to alleviate or eliminate the headache (headache secondary to primary sleep disorder);
3. There is a significant prevalence of sleep disruption in headache sufferers, which may cause or worsen headache; and
4. Sleep management may help with such main headaches. These results support the screening and treatment of headache patients with sleep disturbances.

1.6 Screening for Sleep Disorders in Headache Patients:

Several publications have highlighted the need of a comprehensive clinical interview evaluating the headache pattern and history in connection to the sleep/wake cycle for headache practitioners. When a headache persists on a daily basis or is present often throughout sleep or upon waking, it is very important to check for a sleep abnormality. A thorough sleep history may reveal important details that are frequently overlooked in a conventional headache history(23). The timing of sleep and wake, habits, pre-sleep routine, sleep environment, a description of the sleep period itself, daily alertness vs tiredness, and any specific efforts to encourage sleep or wake are all important factors to include. When feasible, collect useful information not just from the patient, but also from the bed partner or other observer. Patients who mainly complain of sleeplessness should be questioned about behavioral issues in particular(24).

The following are some of the factors that influence sleep:

1. an unsuitable sleeping environment in the bedroom
2. an erratic sleeping pattern
3. side effects of the medication

a. Sleep Diary:

The sleep diary, which may be kept on written but on an electronic device, is one of the most widely used systematic self-report methods for sleep evaluation. Subjective assessments of sleep regularity, length, and quality may be acquired over time using once-daily monitoring. Other particular factors that may be linked to sleep, such as headache, may also be monitored. The diary provides data on sleep/wake cycle regularity, sleep onset and maintenance problems, total sleep duration vs. time in bed (i.e. sleep efficiency), napping, and other topics(25).

b. Obstructive Sleep Apnea (OSA) is a kind of sleep apnea:

OSA syndrome is the most significant sleep-related breathing disorder to evaluate because of its prevalence, proven link to headache, and possibility for headache improvement with therapy. Intervention is needed to help with headache control and to prevent the substantial morbidity and death that sleep apnea causes. OSA clinical signs and risk factors an overweight headache patient who wakes up with a headache should be questioned about snoring and other sleep apnea symptoms.

c. Upper Airway Resistance Syndrome and Snoring:

While the majority of sleep-disordered breathing research has concentrated on OSA/hypopnea to far, a wider range of irregular breathing is increasingly recognized as clinically significant. OSA, snoring, and upper airway resistance syndrome are all part of the sleep-disordered breathing continuum. In addition to apneas and hypopneas, respiratory effort-related arousal must be considered. These are sleep arousals caused by increased upper airway resistance that do not satisfy the criteria for apnea or hypopnea.

d. Sleep-Disordered Breathing Treatment:

OSA must be identified and treated not only for optimum head pain management, but also for bettering general medical condition, such as blood pressure control. In most cases, a referral for a polysomnographic test is required to confirm the diagnosis and begin therapy. Reevaluation of the headache syndrome after OSA treatment is beneficial, as it may open up additional headache management choices now that the possible trigger from the sleep disturbance is no longer present. As previously stated, headaches caused by sleep-disordered breathing may be tension-type, migraine, cluster, or other nonspecific headaches.

e. Insomnia:

As previously discussed, insomnia is the most common sleep complaint in clinical headache groups. Insomnia is defined as trouble getting asleep, remaining asleep, or waking up too early the following day, resulting in impairment of day-to-day functioning, including psychological discomfort. Insomnia may be a standalone symptom or a sign of another condition like depression, chronic pain, or restless legs syndrome. That is, the complaint of sleeplessness should be treated as a symptom before moving on to a differential diagnosis. When particular causes of insomnia have been ruled out or addressed, fundamental insomnia is defined as a state of hypervigilance or hyper alertness combined with a reduced capacity to sleep. There is evidence of aberrant activation in the hypothalamus pituitary system as well as in some central nervous system measurements.

1.7 *Training in Relaxation:*

As previously stated, sleeplessness is linked to increased physiological arousal. Relaxation training, which is comparable to popular behavioral headache therapies, is extensively used in the treatment of insomnia, especially when patients have significant physiologic, cognitive, or emotional arousal. Physiologic self-management techniques are used to reduce the incompatible with sleep awake state of arousal and therefore promote nighttime sleep. Guided imagery creates a tranquil mental state in which patients may consciously avoid unwanted stimulating ideas, while progressive muscle relaxation therapy addresses physical tension.

1.8 *Cognitive Therapy*:

Cognitive arousal, which includes racing thoughts, anxiety, and intrusive thoughts, is considered to obstruct sleep in addition to physiological arousal. Traditional cognitive therapy techniques, such as those used in headache stress management, are used to identify, question, and replace illogical ideas and concerns about sleep and sleep loss that cause anxiety and contribute to insomnia recurrence. Patients may be asked to self-monitor or elicit thoughts and concerns about sleep, or they may be asked to complete a standardized questionnaire to detect insomnia-causing cognitions. Cognitive therapy is appropriate for patients who have racing or obsessive thoughts around bedtime, as well as catastrophizing or ruminative anxiety about sleep. Techniques to confront dysfunctional worries and reconstruct logical statements are given, which the patient will use when the dysfunctional thinking or emotional state arises. Cognitive therapy is also often utilized in the treatment of behavioral headaches and mood disorders.

1.9 *Control of Stimulus:*

The goal of stimulus control, which is based on operant conditioning principles, is to strengthen connections between the "state of drowsiness" and the sleep environment. Patients are told to stay in bed just while they are asleep and to wake up physically.

2. DISCUSSION

Sleep-related headaches increase the possibility of a sleep problem. OSA has been linked to awakening headache types such as migraine, tension-type, cluster, and unclassifiable headaches, and it has gotten a lot of attention because of the possibility for headache relief as well as the serious cardiovascular and other health consequences. Despite the fact that it has not yet been studied in headache patients, there is now awareness of a spectrum of sleep-disordered breathing that may help explain the known link between chronic headache and snoring in the absence of conventional OSA risk factors. Primary headache therapy is compatible with pharmacologic and behavioral sleep management methods for insomnia and circadian rhythm disorders. With methods like a headache/sleep diary, progressive relaxation training, and sleep hygiene, behavioral therapies for headache may easily be extended to evaluate and treat insomnia.

3. CONCLUSIONS

Sleep deprivation has been linked to more frequent and severe headaches. OSA, primary insomnia, and circadian phase disorders are among the most common. By eliminating a physiologic trigger for headache, treatment of sleep disorders, particularly sleep breathing problems, may alleviate and in some instances cure headache. Sleep problems, particularly insomnia, may overlap or coexist with mental illnesses like depression or anxiety, which can indicate a worsening headache prognosis and need care. As a result, sleep disturbances should be screened for, evaluated for, and treated in individuals with persistent headache. Although pharmacologic therapy of primary insomnia is likely to alleviate headache, there is insufficient clinical data to provide precise recommendations. Benzodiazepine receptor agonists, anti-depressants, and membrane stabilizing medicines are among the medications utilized for sleeplessness in headache patients.

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