

REVIEW ARTICLE

Insomnia in Internal Medicine

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Sleep is a distinctive and essential component of human behavior. The Rechtschaffen and Kales (1) system for scoring sleep stages distinguishes a waking state, non-rapid-eye movement (NREM) sleep and rapid-eye movement (REM) sleep. During NREM sleep four stages are conventionally distinguished.

Insomnia is defined as the inability to get the amount or quality of sleep necessary for optimal functioning and well being. A recent survey conducted in the United States by the National Sleep Foundation in conjunction with the Gallup Organization showed that sleep-related complaints are common in the general population (2). In this respect, 36% of the subjects reported occurrence of insomnia during the course of the year. One in four of those experiencing insomnia stated that the complaint was chronic. The incidence of chronic insomnia was higher in older adults who usually indicated that family related stress and health associated problems first precipitated their sleeping problem.

Shochat et al. (3) determined the prevalence and characteristics of insomnia in patients from three primary care offices. The prevalence of insomnia in the primary care patients was 69%, with 50% reporting occasional insomnia and 19% reporting chronic insomnia. Foley et al. (4) assessed the frequency of sleep complaints in over 9000 subjects aged 65 years and older. Thirty four % of the subjects had symptoms of insomnia.

Interestingly, insomnia was associated with an increased number of physical disabilities, respiratory symptoms, OTC medication use, depressive symptoms and poorer self-perceived health.

Thus, sleep disturbances in the elderly are likely caused by chronic disease rather than the aging process *per se*.

Primary insomnia is a complaint of difficulty initiating or maintaining sleep or of nonrestorative sleep that lasts for at least 1 month and causes clinically significant distress or impairment in social, occupational, or other important areas of functioning. There is no evidence of medical or neuro-psychiatric disorders that could account for the sleep disturbance. About 15% of all insomniacs are diagnosed with primary insomnia.

Secondary insomnia is the most frequent form of insomnia, and is related to another mental disorder, another sleep disorder, a general medical condition, the effects of a drug of abuse or a medication (5). Several medical conditions are well known to disturb sleep. They include among other cardiovascular diseases, intrinsic respiratory disorders, gastrointestinal disorders, endocrine diseases, neoplastic diseases, HIV infection, and rheumatic disorders. Angina pectoris, myocardial infarction, congestive heart failure and hypertension are capable of disturbing sleep.

In patients with chronic coronary heart disease symptoms, sleep may be altered by angina, factors related to a myocardial infarction, antiarrhythmic and antihypertensive medication or the occurrence of anxiety and depression. Episodes of nocturnal angina are particularly likely to occur during REM sleep, and in some instances may be a manifestation of obstructive sleep apnea.

In chronic obstructive pulmonary disease (COPD) altered cardiorespiratory physiology during sleep is on the basis of the insomnia complaint. Obesity and menopause are aggravating factors in the development of the sleep disturbance. Patients with nocturnal asthma awaken with dyspnea, wheezing and cough.

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Attacks tend to develop mainly during stage 2 NREM sleep. The prevalence of sleep-related asthma amounts from 61 to 74% and does not depend on the severity of the asthmatic symptoms.

Sleep-related gastroesophageal reflux is characterized by regurgitation of stomach contents into the esophagus during sleep. The burning discomfort or pain in the chest during gastroesophageal reflux induces a fragmentation of sleep that can lead to a complaint of insomnia. In peptic ulcer disease the pain can occur at night, most often within 1 to 4 hours after sleep onset, producing arousals and awakenings that disturb sleep.

Several studies conducted during the last 10 years tend to indicate that between 30 to 50% of cancer patients complain of difficulties initiating and/or maintaining sleep. It should be stressed that environmental factors related to hospitalization, oncologic treatments (surgery, radiotherapy, chemotherapy) and side effects associated with antiemetic medications and corticosteroids tend to aggravate the sleep disturbance.

In patients with advanced HIV infection sleep is severely disrupted. Stage 2 sleep, slow wave sleep (stages 3 and 4 NREM sleep), REM sleep and sleep efficiency are markedly reduced. Opportunistic infections, HIV encephalitis and malignancies have been proposed as possible etiologies.

Disturbed sleep and daytime fatigue are frequent findings in patients with rheumatoid arthritis. Clinical studies indicate a strong association between pain and the disruption of sleep referred by these patients. Fibromyalgia is associated in more than 75% of patients with sleep disturbance and related daytime fatigue and morning stiffness. The non-restorative sleep depends mainly on both spontaneous pain in the muscles, the tendons and their insertions, and pain on pressure of most typical tender points. Psychiatric disorders including generalized anxiety disorder and depression further add to the disruption of sleep.

Several medications, drugs of abuse and toxins induce a prominent disturbance in sleep that is sufficiently severe to warrant independent clinical attention. Depending on the substance involved, the predominant sleep disturbance may be an insomnia or a hypersomnia. In some circumstances a mixed type may also be noted.

It should be taken into consideration that sleep disturbances related to medications or drugs of abuse may vary according to the dose and duration of drug use, as well as the mode of administration and withdrawal. Among other, methylxantines (caffeine, theophylline), antidepressants (fluoxetine, reboxetine), antihypertensive agents (propranolol, pindolol), and corticosteroids (dexamethasone) can exert a disrupting effect on sleep characterized by increased wakefulness and stage 1 NREM sleep, reduced time spent in REM sleep and/or vivid dreams.

Thus, a number of medical conditions can interfere with sleep. In this respect, respiratory conditions (asthma, COPD), and pain-associated diseases (rheumatoid arthritis, fibromyalgia, nocturnal angina, nocturnal gastroesophageal reflux, peptic ulcer disease, cancer), markedly impair sleep initiation and/or maintenance. Although in all these instances insomnia is not the predominant complaint, it undoubtedly adds to the suffering of the patient and should be adequately treated (6).

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