

Insomnia in the elderly – characteristics of plausible reasons

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ABSTRACT

Introduction

Insomnia is one of the most common sleep disorders affecting a very large percentage of the general population. This can be visualized by reporting insomnia by up to 50% of patients attending a family doctor. In the elderly population the prevalence of sleep disorders most often in the form of insomnia is even higher. Physical and mental health problems and behavioral determinants may affect insomnia. Moreover, sleep pattern in healthy older individuals substantially changes with age.

Objective

The aim of this study is to present various factors influencing insomnia in the elderly and depict clinical picture of this medical problem.

Results

Article depicted common medical reasons of insomnia.

Conclusions

Sleep problems in elderly have a very diverse background. Aging of individuals results in changed sleep architecture and total sleep duration. According to this facts, some older patients may have not realistic expectations regarding sleep length, not real sleep problems. Physical

illnesses are plausible reasons of even severe insomnia, including chronic musculoskeletal pain, cardiovascular diseases like heart failure or ischaemic heart disease, rhinitis and nasal congestion, chronic obstructive pulmonary disease or gastroesophageal reflux disease. Nocturia is also reported as frequent reason of awakenings in elderly. Menopausal hot flashes also make sleep intermittent. One of the common reasons of insomnia as well as daily symptoms is obstructive sleep apnea, often undiagnosed, as it remains interpreted as only snoring. Mental health problems as depression, anxiety and dementia have a considerable impact on sleep quality.

Keywords: Insomnia, Elderly

INTRODUCTION

Insomnia is one of the most common sleep disorders affecting a very large percentage of the general population. This can be visualized by reporting insomnia by up to 50% of patients attending a family doctor [1]. In the elderly population the prevalence of sleep disorders most often in the form of insomnia is even higher. Many factors contribute to the insomnia development among aged people. These include physical and mental health problems and behavioral determinants. Moreover, sleep pattern in healthy older individuals substantially changes with age.

OBJECTIVE

The aim of this study is to present various factors influencing insomnia in the elderly and depict clinical picture of this medical problem.

RESULTS

Physiological changes of sleep pattern related to age

Sleep architecture changes substantially in elderly [2]. Although, this is not a substantiation of the occurrence of sleep problems as an element of healthy aging. Data obtained from meta-analysis of studies involving over three thousand individuals have shown that with increase of age, duration of REM and slow-wave sleep decreases while time spent in lighter sleep stages increases [3]. Slow-wave sleep phase is commonly known as delta sleep and is considered to

be the most restorative part. Thus, reduction in this phase length results in deterioration of sleep efficiency.

In elderly, falling asleep is more difficult and total sleep time is diminished [2]. Van Cauter et al. showed that among men sleep duration decreased an average of 27 minute per every decade from midlife to eight decade [4].

Aging of individual was evaluated as a factor elevating sleep fragmentation, in elderly the sleep stage shifts were more frequent as well as short-time awakenings and arousals [2]. As a result, elderly sleep becomes even less effective as the proportion of bed stay period to real sleep increases.

Older age is also associated with physiological changes of circadian rhythm functioning. It makes seniors to more often go to bed earlier and subsequently wake up earlier [2]. Moreover, naps during day and difficulties in staying awake are common aspect of elderly sleep pattern changes.

Physical illness

Pain

Pain is well known cause of insomnia. In most cases musculoskeletal pain contributes to insomnia. It was proven that moderate to severe pain increased the risk of insomnia onset at 3 years, after adjusting to socio-demographic variables and co-morbidities. Pains within locomotor system leading to reduction in social contacts and physical limitation influence on risk of insomnia in more powerful way [5].

Cardiovascular diseases

Heart failure is associated with poor sleep. 50% patients with stable heart failure reported insomnia symptoms. The main problems included difficulties in falling asleep or maintaining sleep as well as to early getting up [6]. Patients with heart failure may report shortness of breath or orthopnoe during the night as a main reasons of sleep problems. Ischaemic heart disease is also often met cause of severe insomnia. The plausible impact of this disease on sleep involves occurrence of angina or dyspnea during night rest.

Rhinitis

Rhinitis, mainly of allergic origin is one of the most influential causes of impaired nasal function. Reduction in ventilation may lead to severe sleep problems in all age groups [7]. Poor control of allergic rhinitis contributes to sleep time reduction [8].

Chronic Obstructive Pulmonary Disease

Chronic Obstructive Pulmonary Disease (COPD) is associated with hypoxemia and sleep hypoventilation. These factors negatively affect sleep. Hypercapnia consequent from poor ventilation and carbon dioxide retention can manifest as morning headaches. Smoldering inflammation also plays a key role in the pathogenesis of sleep disorders in COPD patients. The prevalence of insomnia symptoms is significantly increased in COPD [9].

Obstructive Sleep Apnea

Obstructive sleep apnea (OSA) is a common syndrome unquestionably affecting quality of life and general health state. OSA is reported to be associated with many severe complications like hypertension [10], myocardial infarction, heart failure and stroke [11]. Patients suffering from OSA are even seven times more likely to have motor vehicle accidents [12]. However, the main problems described by the vast majority of OSA patients are night manifestations. Snoring, waking up with a choking sensation or apnoeas witnessed by a spouse are common [13]. Sleep decay is described as difficulty initiating or maintaining sleep, frequent awakenings and finally are non-restorative sleep [14]. Nocturia and increased sweating during night rest are typical.

Although apart from nighttime problems, patients experience drowsiness, morning headache, impaired memory and concentration, loss of libido, depression and emotional disorders. Patient with sleep problems and presented, quite characteristic OSA manifestation should be not treated with hypnotic medications but referred to a specialist diagnostic tests. The best test for OSA is overnight polysomnography.

Some patients are more prone to OSA development. These include obese individuals (neck circumference > 43 cm in men and > 40 cm in women) and people drinking alcohol, especially at bedtime and taking drugs like benzodiazepines or opioids. Hypothyroidism also plays a pivotal role in OSA pathogenesis. Laryngological conditions as hypertrophy of palatine tonsils and deviation of the nasal septum are easily correctable OSA causes.

Gastroesophageal reflux disease

Gastroesophageal reflux disease (GERD) manifests chiefly as heartburn. The adverse impact of GERD on sleep is well known. In some studies, even almost 80% of GERD patients reported having nighttime heartburn and three fourth of them experienced associated sleep disturbances [15]. Daytime sleepiness is also common among patients with reflux of gastric content and heartburn.

Nocturia

Nocturia is defined as a full bladder sensation leading to the need to get up to urinate during night rest [16]. It is chiefly induced by an urine overproduction or an inability of the bladder to

store urine. In elderly men reduced bladder capacity may be due to benign prostatic obstruction. One of the prevalent reasons is also overactive bladder. Large surveys reported nocturia as the most frequent reason for night awakenings. The proportion of individuals affected with this problem was almost two times higher in aged 65 or more than in younger people [17]. Nocturia was found to be related with difficulty falling asleep [18] and reduction of total sleep length and sleep maintenance insomnia (problems with falling sleep back) [19].

Menopause

Women in menopausal period of life often complain of sleep disorders. The fundamental complaint are frequent nocturnal and early morning awakenings. Falling asleep and its maintaining is also disturbed. Post menopausal women are reported to have poor sleep efficiency and diminished amount of deep sleep in comparison to pre menopausal women [20]. Conceivable factors influencing sleep are wavering reproductive hormone levels and related circadian rhythm changes along with vasomotor symptoms (hot flashes). Moreover, women after menopause have been found to complain of poor sleep efficiency, even in case of normal polysomnography results [21]. Reported poor sleep quality is often associated with daytime irritability.

Psychiatric illness

Depression

Depression is frequently accompanied by sleep complaints and objective findings in polysomnography. Most people with depression describe quite characteristic set of symptoms: very frequent awakenings at night, perceived as insomnia and early waking up [22]. An early awakening is often accompanied by depressive thoughts and a feeling that something bad will happen. In atypical depression excessive sleepiness may be present. Polysomnographic examination in depressive patients reveals prolongation of REM sleep time and reduction of slow-wave potential in NREM sleep [23]. The total sleep time decreases [24]. Dysregulation of monoamine neurotransmitters, with central role of serotonin is a possible pathomechanism of sleep disorders in depressive disorder [25]. Depression management with selective serotonin reuptake inhibitors, mianserin, mirtazapine and trazodon has favourable effect on insomnia as well.

Dementia

Sleep disorders are common in dementia [26]. Main problems include difficulty falling asleep, frequent nighttime awakenings and decreases in slow-wave sleep [27]. Especially Alzheimer

disease is connected with wandering during wake-ups, being absolutely dangerous for elderly as reduced physical fitness and the resulting risk of falls can contribute to nighttime home accidents. Sleep fragmentation results in excessive daytime sleepiness. In many cases of dementia objective assessment of complaints may be problematic and the polysomnography is a gold standard.

Anxiety

Anxiety and ensuing insomnia are reasonably frequent in geriatric population [28]. Patients with anxiety problems reveal overlapping changes in the sleep architecture with those associated with aging. Slow-wave sleep is diminished [29]. Treatment with selective serotonin reuptake inhibitors is effective approach for both anxiety and insomnia.

Behavioral determinants

Insomnia of elderly significantly often results from bad sleep hygiene and reduced daily activities [30]. Destructive sleep habits include excessive naps during day, early going to bed and spending free time just on lying in bed or transferring such activities as watching television, reading into a bed. Having heavy meals just before night as well as undoubtedly frequent lack of physical activity and sedentary lifestyle adversely affect sleep. Meeting elderly patient complaints of sleep problems should result in taking careful interview on mentioned questions. Physician should implement cognitive therapy and talk with patient about cognitive distortions like: 'spending time in bed is excellent way of having rest', 'poor general comfort is caused by lack of sleep', 'taking hypnotics solve all my problems'.

The principles of sleep hygiene should be also discussed. Patient should refrain from alcohol use and consumption of heavy meals just before night and diminish use of coffee. During day patient should go outside or have much of sunlight in the room, if disability is an obstacle to leave home. Other beneficial behaviors include having constant sleep hours and avoiding going to bed earlier to have more rest, as it increases time spent in bed, reduces activity and promotes nighttime awakenings forming vicious circle. Everyday physical activity, known to increase length of slow-wave sleep, along with maintaining comfortable conditions in the bedroom (silence, darkness, removing clocks from eyesight) is recommended [31]. Patients are advise to avoid emotional situations and limit watching television before going to sleep. Taking hypnotics, mainly benzodiazepines or non-benzodiazepines (e.g. zaleplon, eszopiclone) should be restricted.

CONCLUSIONS

Sleep problems in elderly have a very diverse background. Aging of individuals results in changed sleep architecture and total sleep duration. According to this facts, some older patients may have not realistic expectations regarding sleep length, not real sleep problems. Physical illnesses are plausible reasons of even severe insomnia, including chronic musculoskeletal pain, cardiovascular diseases like heart failure or ischaemic heart disease, rhinitis and nasal congestion, chronic obstructive pulmonary disease or gastroesophageal reflux disease. Nocturia is also reported as frequent reason of awakenings in elderly. Menopausal hot flashes also make sleep intermittent. One of the common reasons of insomnia as well as daily symptoms is obstructive sleep apnea, often undiagnosed, as it remains interpreted as only snoring. Mental health problems as depression, anxiety and dementia have a considerable impact on sleep quality.

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