Approach to a patient with insomnia

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Introduction

Insomnia is the most common sleep disorder affecting millions of people as either a primary or comorbid condition. Reducing the burden of insomnia requires a sufficient understanding of the ways in which insomnia presents and assessment strategies that guide treatment paradigms [1]. The core of the diagnosis of insomnia is a subjective complaint of inadequate sleep quality rather than polysomnographic evidence of poor sleep. The nature of the complaint can manifest as difficulties in initiating or maintaining sleep, waking up too early in the morning, or, consistently waking up feeling unrefreshed. These sleep difficulties must persist despite adequate opportunity and circumstances for sleep, and they must produce reported daytime impairment, such as fatigue, mood disturbance, and decreased cognitive functioning. These latter criteria distinguish clinically relevant insomnia from insomnia symptoms with reported absence of daytime impairment or volitional sleep restriction without daytime dysfunction.

Presentation and history

Insomnia is often believed to arise from a state of hyperarousal. In the physiologic hyperarousal model, an elevated level of alertness throughout the day and night makes it difficult to sleep. In support of this theory, insomniacs have been found to have an increased whole body metabolic rate when compared with normal

sleepers[2,3]. On functional neuroimaging, insomniacs show increased cerebral glucose metabolism during sleep and wake states [4].

For the diagnosis of insomnia the American Academy of Sleep Medicine has outlined few criteria. The criteria are given below in Table 1.

Table 1: General criteria for insomnia

1. A complaint of difficulty initiating sleep, difficulty maintaining sleep, or waking up too early or sleep that is chronically nonrestorative or poor in quality. In children, the sleep difficulty often is reported by the caretaker and may consist of observed bedtime resistance or inability to sleep independently.
2. The sleep difficulty occurs despite adequate opportunity and circumstances for sleep.
3. At least one of the following forms of daytime impairment related to nighttime sleep difficulty is reported by the patient:
  - A. Fatigue or malaise
  - B. Attention, concentration, or memory impairment
  - C. Social or vocational dysfunction or poor school performance
  - D. Mood disturbance or irritability
  - E. Daytime sleepiness
  - F. Motivation, energy, or initiative reduction
  - G. Proneness for errors or accidents at work or while driving
  - H. Tension, headaches, or gastrointestinal symptoms in response to sleep loss
  - I. Concerns or worries about sleep

Adapted from American Academy of Sleep Medicine. The International Classification of Sleep Disorders. 2nd edition. Rochester (MN): American Sleep Disorders Association; 2005.

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Preliminary assessment

At a minimum, the following domains should be assessed with potential measures included as references:

Sleep quality [5, 6]

Insomnia severity [7],

Sleep-related cognitions, sleep habits [8],

Daytime sleepiness [9],

Fatigue,

Mood disturbances (in particular depression and anxiety)

The sleep history

The sleep history should begin by having the patient state the chief complaint. Specific patient statements may vary widely, but the nature of the complaint falls within a circumscribed number of dimensions: inability to fall asleep, inability to stay asleep, waking too early in the morning (or a combination of these complaints), poor-quality sleep, too little sleep, work or lifestyle interferes with sleep, or inability to sleep without medications. An important line of inquiry involves identifying an obvious precipitant for the initiation of the sleep problem. For many, the onset of the insomnia problem is linked intimately with a specific event; for others the precipitant is less identifiable.

Current/past treatments and treatment response: The history must include any over-the-counter remedies, non-medication strategies adopted so far, and alcohol in addition to any sleep-related prescription medications. Current and past treatments should be assessed for type, dosage, frequency of use, time of administration, typical response, and the conditions surrounding deviations from this pattern. A thorough evaluation of all treatment efforts should enable the clinician to suggest modifications to previously attempted treatments while providing a plausible rationale to the patient for the initial poor response.

Current sleep pattern and daytime consequences: This should include bedtime; rise time; time to fall asleep (sleep latency); number and duration of awakenings during the night; final wake-up time; frequency and duration of daytime naps; estimated total sleep time; perceived sleep quality, and morning restfulness. It should also be noted whether there is any difference in weekends or when the patient is at work.

Sleep-incompatible thoughts and behaviors and sleep hygiene: A careful assessment of compensatory strategies used to increase nighttime sleep (eg, variable bedtimes

and rise times, spending excessive amounts of time in bed awake) or to deal with the daytime consequences of poor sleep (eg, napping, increased caffeine intake), as well as a thorough evaluation of all sleep hygiene behaviors, will uncover maladaptive behaviors. These patients would respond to sleep behavior therapy when practiced properly.

Evaluation of comorbid conditions: These have been enumerated in Table 2. Comorbid insomnia is now the preferred term over secondary insomnia.

Table 2: Insomnia differential diagnosis and common comorbidities

Medical conditions	Psychiatric conditions
Cardiovascular: congestive heart failure, arrhythmia, coronary artery disease	Depression
Pulmonary: chronic obstructive pulmonary disease, asthma	Anxiety
Neurologic: stroke, Parkinson's disease, neuropathy, traumatic brain injury	Panic disorder
Gastrointestinal: gastroesophageal reflux	Posttraumatic stress
Renal: chronic renal failure	Medications
Endocrine: diabetes, hyperthyroidism	Decongestants
Rheumatologic: rheumatoid arthritis, osteoarthritis, fibromyalgia, headaches	Antidepressants
Sleep disorders	Corticosteroids
Restless legs syndrome	Stimulants
Periodic limb movement disorder	Statins
Sleep apnea	Others
Circadian rhythm disorder	Substances
Parasomnias	Caffeine
Nocturnal panic attacks	Alcohol
Nightmares	Nicotine
Rapid eye movement behavior disorder	Cocaine

Family and psychosocial history: Recent surveys suggest that patients who have insomnia have a higher incidence of first-degree relatives with sleep disturbances than controls, with the mother being the relative most commonly affected [10, 11]. Specific inquiry should be made regarding a family history of insomnia as well as psychiatric disorders to provide insight into potential predisposing factors for the insomnia disorder. Assessing the patient's psychosocial history, including occupational or school performance, perceived quantity and quality of interpersonal support, and presence of psychosocial stresses also can elicit perpetuating factors that can be treatment targets [1].

An algorithm for the approach to a patient with insomnia is shown in Figure 1.

Figure 1 : Algorithm for evaluating insomnia according to the International Classification of Sleep Disorders, second edition.

IS-difficulty initiating sleep; DMS-difficulty maintaining sleep; OSA-obstructive sleep apnea; PLMD-periodic limb movement disorder; PQS-poor quality sleep.

Case 1: A 30 year old housewife presents with insomnia. She states that the problem exists since early childhood and recalls her mother telling her that she had always slept less than her siblings. On probing into her sleep history she says that she goes to bed at 11.30 PM. She is able to fall asleep easily but wakes up many times in the night for unknown reasons and is able to resume sleep only after 1-2 hours. She wakes up tired in the morning and remains fatigued throughout the day. She is unable to sleep even when she tries, during daytime. There is no associated stress, depression, anxiety, restless legs syndrome or sleep disordered breathing. Note her hypnogram in Figure 2.

Figure 2 : Shows a sleep onset insomnia with increased WASO and frequent sleep disruptions resulting in a fragmented and unrefreshing sleep.

Case 2: 53 year old businessman presents with the presenting complaint of difficulty falling asleep and disturbed sleep, he also awakens unrefreshed, and has increased somnolence in the afternoon. He has been a snorer for a long time and can recall that for the past 2 years he starts snoring in any position whenever he falls asleep. Earlier he snored only in deep sleep and supine position. He has been an obese person (100 kg) and has gained 20 kg in the past 2 years. He has no difficulty in falling asleep at night but wakes up 4-6 times 'to catch breath'. He does not feel refreshed in the day and has headaches 2-3 times per week requiring analgesics. These headaches are not associated with nausea, vomiting, photophobia or phonophobia. He also has excessive daytime sleepiness especially in the evening hours. His comorbid conditions include hypertension, GERD. He smokes occasionally and has quit alcohol for the past 3 years. On examination, his BP is 150/90 mm Hg, PR 80/min, RR 16/min, normal nasal septum. The lateral pharyngeal wall tissue is redundant with edematous uvula. He has a large tongue with teeth marks present on oral mucosa. Neck circumference is 18 cm. There is no thyroid enlargement. Peripheral pulses including carotids are normal. Chest is clear and there is no palpable organomegaly. Epworth Sleepiness Scale (ESS) is 20. He has insomnia secondary to OSA. If such a patient is given sedatives for his insomnia his snoring and OSA will worsen. Hence a careful history is a must. Figure 3 a and b show his PSG findings.

Figure 3 a: Patient in REM sleep has frequent arousals, snoring, & obstructive apneas resulting in unrefreshing sleep & a false perception of insomnia.

Figure 3 b: This is corrected by a REM rebound after onset of CPAP titration.

Investigations

Polysomnographic testing: Polysomnography is not indicated for the routine evaluation of chronic insomnia. However, symptoms of insomnia do not exclude polysomnographic evaluation in assessing the complaint. There should be a valid indication and a clear rationale, based upon specific elements of the history, to support use of polysomnographic evaluation [12].

Additional investigations: Instruments which are helpful in the evaluation and differential diagnosis of insomnia include self-administered questionnaires, at-home sleep logs, symptom checklists, psychological screening tests, and bedpartner interviews. The multiple sleep latency test (MSLT) is not routinely indicated for the evaluation of insomnia. These recommendations are based upon level II-IV evidence, as well as prior guidelines. There is insufficient evidence to make recommendations about the diagnostic role, effectiveness or reliability of portable sleep studies, actigraphy, and static charge sensitive beds in the assessment of insomnia.

This recommendation is based upon the limited amounts of evidence addressing these techniques with specific regard to insomnia [12].

Diagnosis

The application of this algorithm is demonstrated by case illustrations.

In case 1, according to the information provided, the diagnostic algorithm suggests the most probable diagnosis of idiopathic insomnia. However in case 2, the primary culprit looks like obstructive sleep apnea leading to poor nocturnal sleep and excessive daytime sleepiness, which is further consolidated by his PSG findings.

Discussion of treatment plan

In case 1, the management strategy may be divided into pharmacological and non pharmacological. The non pharmacological modalities are as follows:

The practice parameters published in 2006 demonstrated that psychological and behavioral interventions are effective in the treatment of both chronic primary insomnia (Standard) and secondary insomnia (Guideline). Stimulus control therapy, relaxation training, and cognitive behavior therapy are individually effective therapies in the treatment of chronic insomnia

(Standard) and sleep restriction therapy, multicomponent therapy (without cognitive therapy), biofeedback are individually effective therapies in the treatment of chronic insomnia (Guideline). There was insufficient evidence to recommend sleep hygiene education, and cognitive therapy as single therapies or when added to other specific approaches. Psychological and behavioral interventions are effective in the treatment of insomnia in older adults and in the treatment of insomnia among chronic hypnotic users (Standard) [13].

Regarding pharmacological treatment, both approved treatment options and non prescription treatment from herbs, vitamins to alcohol are in vogue. These are mostly self prescribed by patients. There has been a significant shift in the pattern of prescribed medications to treat chronic insomnia associated with a substantial increase in the off-label use of antidepressants. Benzodiazepine receptor agonists are recommended only for short-term use (with the exception of the recently marketed drug eszopiclone) for a disorder that is chronic and possibly nonremitting. Although the old tricyclic antidepressants, eg, amitriptyline, are associated with significant adverse effects, trazodone appears to be safe with minimal side effects in the dose range commonly used for sleep (50-150 mg) [14]. A combination of pharmacological and non pharmacological modality should be considered.

In case 2, primary cause of insomnia should be treated. However, it should be started with immediate institution of CPAP, weight reduction, lifestyle and diet modification should follow along with evaluation and correction of other risk factors.

A summary of the various treatment modalities is shown in Table 3.

Conclusion

Insomnia is thought to result from a state of hyperarousal. As a result of this elevated state of alertness, sleep may prove difficult. Formulating a clinical definition of insomnia has proved a challenge. Nevertheless, some enduring characteristics of insomnia include difficulty with sleep initiation or maintenance, early morning awakening, and nonrestorative sleep in the setting of daytime impairment or distress in the setting of adequate sleep opportunity. With these characteristics in mind the prevalence of insomnia is thought to be approximately 10% [15].

Table 3

Psychological and Behavioral Treatments for Insomnia	
Therapy	Description
Stimulus control therapy	A set of instructions designed to reassociate the bed/ bedroom with sleep and to re-establish a consistent sleep-wake schedule: (1) Go to bed only when sleepy; (2) get out of bed when unable to sleep; (3) use the bed/bedroom for sleep only (no reading, watching TV, etc); (4) arise at the same time every morning; (5) no napping
Sleep restriction therapy	A method designed to curtail time in bed to the actual amount of sleep time.
Relaxation training	Clinical procedures aimed at reducing somatic tension (e.g., progressive muscle relaxation, autogenic training) or intrusive thoughts at bedtime (e.g., imagery training, meditation) interfering with sleep.
Cognitive therapy	Psychological methods aimed at challenging and changing misconceptions about sleep and faulty beliefs about insomnia and its perceived daytime consequences. Other cognitive procedures may include paradoxical intention or methods aimed at reducing or preventing excessive monitoring of and worrying about insomnia and its correlates /consequences.
Sleep hygiene education	General guidelines about health practices (e.g., diet, exercise, substance use) and environmental factors (e.g., light, noise, temperature) that may promote or interfere with sleep. This may also include some basic information about normal sleep and changes in sleep patterns with aging.
Cognitive behavior therapy	A combination of any of the above behavioral (e.g., stimulus control, sleep restriction, relaxation) and cognitive procedures.

The evaluation of insomnia emphasizes the interview, during which information about the specific complaint, comorbid sleep; medical or psychiatric conditions, family histories, medication, & substance use may be gathered.

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