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GUIDELINES

Clinical practice guideline on the diagnosis and management of insomnia in family practice

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Abstract
***Background*:** Insomnia is noted to occur in 10–40% of patients seen in primary care practice. It has a number of daytime consequences and affects quality of life. Furthermore, it may herald an underlying psychiatric or other medical comorbidity. As such, any primary care physician should be equipped with a simple problem-based approach for this problem.
***Methods*:** A technical research committee of the Department of Family and Community Medicine-Family Medicine Research Group of the Philippine General Hospital developed recommendations after performing a thorough review of the medical literature using a Medline search. Articles retrieved were appraised and validated and used as evidence for the various recommendations made.
***Recommendations*:** This is the first of a two part article. In this article, the guideline covers recommendations on the definition and differential diagnosis. In the second article, diagnostic examinations and therapeutic options for patients with insomnia will be covered.
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Key words: algorithmic approach, diagnosis, guidelines, insomnia, sleep disorders, treatment.

Background and objectives of the guideline

Poor sleep accompanied by daytime consequences was found in one-third of patients in the primary care setting based on the study by Mendelson *et al*. in 1999.[1] Prevalence rates of self-reported sleep difficulty ranged from 10 to 40%, with increased sleep disturbance among the elderly, those with chronic medical illness and those with anxiety or depressive disorders.[2] Moreover, reports of insomnia are more prevalent among women and people who are divorced, widowed or separated. Lower socioeconomic status also correlates with insomnia.[3]

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Knowing the burden of illness produced by insomnia and the disturbance in quality of life that it could produce, this guideline offers the primary care physician some simple approaches to the diagnosis and management of this problem.

Guideline development

A technical research committee developed the initial draft guideline recommendations by a thorough review of the published literature on insomnia. An electronic search was undertaken using Medline, OVID and Internet resources. Search terms used were insomnia combined with definition, differential diagnosis, prevalence, diagnostic examinations, management and their related medical subject headings terms. The search was limited to articles that studied humans published from 1966 to the present. Full-text retrieval was done via the Internet and the various medical libraries in metro Manila. An ancestral search of the bibliographies of the retrieved full-text articles was also made.

Table 1 Grades of recommendations

Grade	Description
A	Good evidence to support the recommendation that the option be specifically considered. The recommendation was made based on at least one properly done randomized controlled trial.
B	Fair evidence to support the recommendation that the option be specifically considered. The recommendation was based on at least one non-randomized clinical trial, cohort study, case–control study or dramatic results of uncontrolled experiments.
C	Poor evidence regarding inclusion or exclusion of the option, but the recommendation was made on other grounds (expert's opinion, consensus panel or committee reports).
D	Fair evidence to support the recommendation that the option be specifically excluded from consideration. The recommendation was based on at least one non-randomized clinical trial, cohort study, case–control study or dramatic results of uncontrolled experiments.
E	Good evidence to support the recommendation that the option be specifically excluded from consideration. The recommendation was made based on at least one properly randomized controlled trial carried out.

All full-text articles were appraised for validity using the questions from the appropriate guide formulated by the Evidence-Based Medicine Working Group. Evidences from the articles were graded based on the system used by the Canadian Task Force for Preventive Health Care of the Canadian Medical Association (Table 1).

The initial draft was presented for peer review to 200 general practitioners. Discussions were generated for each recommendation and disagreements were settled by group votes. These comments were considered in the formulation of the final draft.

The final draft presented here will be reviewed after being tested for its applicability in general practice. Updates to this guideline will be made every 2 years.

Summary of recommendations

The summary of recommendations included in this article are listed in Table 2.

Guideline recommendations and summary of evidence

Definition of insomnia

Recommendation

Insomnia is clinically defined as an experience of inadequate or poor quality sleep, despite an adequate opportunity to sleep. This is characterized by one or more of the following:

- difficulty in initiating sleep
- difficulty in maintaining sleep
- waking too early in the morning and
- unrefreshing or unrestorative sleep (grade C).

Summary of evidence

The National Heart Lung and Blood Institute (NHLBI) Working Group on Insomnia has previously published a similar definition of this disorder.[4]

The Diagnositc and Statistical Manual IV (DSM IV) criteria of sleep disorders define insomnia as the inability to initiate or maintain sleep. It is the most common sleep complaint, which can be transient or persistent.[5]

Rakel, in a clinical review defines insomnia as the perception of insufficient or non-restorative sleep, despite an adequate opportunity to sleep.[6] A review by Kupfer and Reynolds, showed that insomnia may also include sleep, which is unrefreshing or non-restorative.[3]

However, according to Attarian, insomnia is not only defined by total sleep time, but by the inability to obtain sleep of sufficient length or quality for the patient to feel refreshed the following morning. For instance, a person who only sleeps for 4 hours does not have insomnia if he or she feels refreshed in the morning. In contrast, a person who sleeps for 10 hours, may have insomnia if on waking they still feel unrefreshed.[7]

Furthermore, Attarian considers insomnia a constitutional symptom, like pain, fever or weight loss, requiring identification of an underlying cause before diagnosis is established.[7]

Classification of insomnia

Recommendation

Among adult patients presenting with insomnia, a thorough clinical history focusing on the duration of the symptom is important in determining whether the patient is suffering from acute insomnia (<4 weeks) or chronic insomnia (>4 weeks) (grade C).

Table 2 Summary of recommendations included in this article

Definition of insomnia

Insomnia is clinically defined as an experience of inadequate or poor quality sleep despite an adequate opportunity to sleep. This is characterized by one or more of the following:

- difficulty in initiating sleep;
- difficulty in maintaining sleep;
- waking too early in the morning;
- unrefreshing or unrestorative sleep (grade C).*

Classification of insomnia

Among adult patients presenting with insomnia, a thorough clinical history focusing on the duration of the symptom is important to determine whether the patient is suffering from:

- Acute insomnia (<4 weeks) or;
- Chronic insomnia (>4 weeks) (grade C).*

Differential diagnosis of acute insomnia

A detailed history needs to focus on establishing any underlying possible cause (grade C).*

Differential diagnosis of chronic insomnia
Step 1: A detailed history focusing on the underlying possible cause/s should be determined (grade C).

Step 2: A detailed history about the use of non-prescription drugs and other substances must be elicited as these can form a secondary cause of insomnia (grade C).*

Step 3: A detailed history regarding the use of prescription medications must be elicited to rule out a secondary cause of insomnia (grade C).*

Step 4: A detailed history and physical examination must be carried out to elicit the presence of medical disorders that cause somatic pain and physical discomfort as a secondary cause of insomnia (grade C).*

Step 5: A detailed psychiatric history helps in establishing a secondary cause of insomnia. Common psychiatric conditions, which may present with insomnia, include major depression, mania, anxiety disorder and schizophrenia (grade C).*

Step 6: In patients not suffering with any of the above problems the following specific sleep disorders may be considered:

- sleep-disordered breathing;
- restless legs syndrome;
- circadian rhythm sleep disorders (grade C).*

Step 7: Among patients with chronic insomnia, primary insomnia is a diagnosis of exclusion reached after all possible etiologies of chronic insomnia have been ruled out (grade C).*

* This stipulates the level of evidence.

Summary of evidence

The duration of symptom is important both in determining the differential diagnosis and in evaluating secondary problems.[6]

Insomnia when classified according to duration may fall into two categories: (i) acute, transient, or intermittent, which may last for less than 4 weeks; and (ii) chronic or persistent, which may last for more than 4 weeks.[8]

Classification of insomnia based on duration is significant as the diagnostic and pharmacotherapeutic considerations depend on whether symptoms are short-term or chronic.[3]

Differential diagnosis of acute insomnia

Recommendation

Among patients with acute insomnia, a detailed history needs to focus on establishing any underlying possible cause (grade C).

Summary of evidence

Acute insomnia is usually related to identifiable factors often caused by an emotional or physical discomfort. Examples include acute medical illness; changes in the sleeping environment such as noise, light and temperature; self-medication; and acute or recurring stress such as work problems, concerns about health and marital strife. Sleep that is not consistent with the daily biologic rhythm such as jet lag and work shift may also cause acute insomnia.[4,8,9]

Frequently, the causes of acute insomnia are apparent to the sufferer such as the death of a loved one, anxiety about an event or discomfort from illness or injury.[10]

Differential diagnosis of chronic insomnia

Recommendation

Among patients with chronic insomnia, a detailed history focusing on the underlying possible cause/s should be determined (grade C).

Summary of evidence

Chronic insomnia is complex requiring a wide range of disorders to be considered in the search for an underlying cause. After establishing the chronicity of the complaint, a differential assessment of chronic insomnia can be made on the basis of whether the patient has:

- difficulty in falling asleep or
- difficulty in maintaining or staying asleep (Table 3).

Recommendation

Among patients with chronic insomnia, a detailed history about the use of non-prescription drugs and other substances must be elicited as these can form a secondary cause of insomnia (grade C).

Table 3 Differential diagnosis for chronic insomnia

Difficulty falling asleep	Difficulty staying asleep
Poor sleep hygiene	Medications
Conditioned insomnia	Drug or alcohol use
Restless legs syndrome	Psychiatric disorders
Circadian rhythm disorder	Medical disorders
Advanced sleep-phase syndrome	Sleep-disordered breathing
Delayed sleep-phase syndrome	Nocturnal myoclonus

Summary of evidence

According to Nakra *et al*. alcohol is the most frequently used self-medication for sleep. However, although it initially promotes sleep; it reduces sleep latency, producing frequent nocturnal awakenings and disruption of sleep.[11] This reaction may present a diagnostic problem when patients do not admit to alcohol abuse.[5]

Alcohol withdrawal in a heavy drinker produces rapid eye movement rebound and delay in sleep onset, and sleep disturbance can continue for a prolonged period after an alcoholic has stopped drinking.[8,11]

Caffeine, found in coffee, tea, chocolate and many carbonated drinks, produce stimulating effect that may last for more than 12 hours in the elderly.

Cigarette smoking also disrupts sleep. Salzman states that smokers experience significant sleep improvement after they stop smoking.[12]

Recommendation

Among patients who present with chronic insomnia, a detailed history regarding the use of prescription medications must be elicited to rule out a secondary cause of insomnia (grade C).

Summary of evidence

A variety of prescription, non-prescription and drugs of abuse may cause insomnia. A review article by Kupfer and Reynaulds lists the most common prescription medications that interfere with sleep (Table 4).[3]

Recommendation

A detailed history and physical examination must be carried out to elicit the presence of medical disorders that cause somatic pain and physical discomfort as a secondary cause of insomnia (grade C).

Summary of evidence

Erman states that any source of somatic pain or physical discomfort may lead to disturbed sleep. A varied form of disturbances including arthritis, peptic ulcer, pruritus, nocturia or polyuria, rectal urgency, or the effects of trauma or surgery, may produce sleep problems.[13]

Cardiac disorders may result in symptoms of angina pectoris, orthopnea or paroxysmal nocturnal dyspnea. All of which may disturb sleep due to anxiety, as well as physical discomfort.[13]

Pulmonary disorders such as chronic obstructive pulmonary disease, asthma, cystic fibrosis, or hypoventilation secondary to polio, paralysis or scoliosis will often lead to drops in oxygenation, arousal and disturbed sleep.[13]

Endocrine disorders such as hyperthyroidism and hypoglycemia, gastroesophageal reflux and renal disease, likewise produce sleep disturbances.[13]

Table 4 Common prescription drugs know to cause insomnia

Antihypertensives
Clonidine
Betablockers
Propanolol
Atenolol
Pindolol
Methyl-dopa
Reserpine
Anticholinergics
Ipratropium bromide
Central nervous system stimulants
Methylphenidate
Hormones
Oral contraceptives
Thyroid preparations
Cortisone
Progesterone
Sympathomimetic amines
Bronchodilators (Terbutaline, Albuterol, Salmeterol)
Xanthine derivatives (Theophyllines)
Decongestants (Phenylpropanolamine, Pseudoephedrine)
Antineoplastics
Medroxyprogesterone
Interferon-alpha
Miscellaneous
Phenytoin, Levodopa, Quinidine

Source: Kupfer DJ, Reynolds CF III. Management of insomnia. *N. Engl. J. Med.* 1997; 336: 341-6.

Neurologic conditions that can cause insomnia include propriospinal myoclonus, Parkinson's and other neurodegenerative diseases.[7]

The DSM IV categorizes insomnia as being secondary to a general medical condition when any of the following are met:

- A prominent disturbance in sleep is sufficiently severe to warrant independent clinical attention.
- History, physical examination and laboratory findings suggest that this is a direct consequence of a direct disease process.
- It is not accounted for by another mental disorder.
- The disturbance does not occur exclusively during a course of delirium.
- The disturbance does not meet the criteria for breathing-related disorders or narcolepsy.[5]

Recommendation

Among patients who present with chronic insomnia, a detailed psychiatric history helps in establishing a secondary cause of insomnia. Common psychiatric conditions, which may present with insomnia, include major depression, mania, anxiety disorder and schizophrenia (grade C).

Summary of evidence

The DSM IV defines a sleep disorder related to another mental disorder as a complaint of sleep disturbance secondary to a diagnosable mental disorder, but severe enough to merit clinical attention on its own. The DSM IV criteria judge insomnia as related to another axis I and axis II disorder such as major depressive disorder, generalized anxiety disorder and adjustment disorder.[5]

Mood and anxiety disorders are the most common diagnoses associated with insomnia.[4]

Initial, middle or terminal insomnia may be found in depressed patients. Early morning waking is the usual complaint of older depressed patients.[11] Moreover, depression is usually associated with fragmented sleep and decreased total sleep time.[14] In a cross-sectional survey by Mendelson *et al*. it was found that 48.6% of insomniacs suffered from short-term depression.[1]

In patients with an anxiety disorder, difficulty in initiating or maintaining sleep is the usual problem. In patients with insomnia if anxiety permeates most aspects of functioning, generalized anxiety disorder is the usual diagnosis.[12]

Meanwhile, acute schizophrenia is associated with delayed sleep onset, decreased total sleeping time and increased time awake after sleep onset.[13]

Patients with other psychiatric illnesses, such as acute psychosis, mania and somatoform disorders also often complain of insomnia.[11]

Recommendation

Among patients who present with chronic insomnia not related to the abovementioned causes, any of the following specific sleep disorders may be considered: (i) sleep-disordered breathing; (ii) restless legs syndrome; and (iii) circadian rhythm sleep disorders (grade C).

Summary of evidence

This category of sleep disorders includes obstructive or central sleep apnea and obstructive central alveolar hypoventilation syndrome.[5] Sleep apnea is a condition that most commonly occurs among obese men over the age of 40 and may be associated with hypothyroidism.[15]

Common symptoms include loud snoring, choking or gasping episodes during sleep and excessive daytime sleepiness.[9] Patients with sleep apnea stop breathing for a period of 10 seconds to 1 minute or longer. These pauses may occur more than 100 times a night. Although these breathing pauses seldom wake the sleeper, they prevent restful sleep.[11]

According to one study of a large group of patients with apnea, insomnia was the initial complaint in 16%. A respiratory disturbance index of at least 30 per hour was found in 2.3% of patients versus 1.3% of controls.[7]

Restless leg syndrome, characterized by 'creeping' or 'tingling' sensations of the legs during rest, is a common cause of insomnia in the elderly. These unpleasant sensations in the legs are worse in the evening, more pronounced at rest and diminish with activity.[11,16]

Disturbance in the normal circadian sleep-wake rhythm may cause chronic insomnia. Early bedtime or excessive sleepiness characterizes advanced sleep phase syndrome in the evening and undesired early morning waking. However, delayed phase syndrome is characterized by late bedtime or sleep-onset insomnia and late awakening.[7,8]

Recommendation

Among patients with chronic insomnia, primary insomnia is a diagnosis of exclusion reached after all possible etiologies of chronic insomnia have been ruled out (grade C).

Summary of evidence

When no other cause for excessive insomnia is identified, any remaining difficulty with sleep may be classified as primary insomnia.[3,4]

The term primary indicates that the insomnia is independent of any known physical or mental condition.[5]

The DSM IV provides a list of diagnostic criteria for primary insomnia. These include any of the following:

- The predominant complaint is difficulty initiating or maintaining sleep, or non-restorative sleep, for at least 1 month.
- The sleep disturbance (or associated daytime fatigue) causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- The sleep disturbance does not occur exclusively during the course of narcolepsy, breathing-related sleep disorder, a circadian rhythm sleep disorder or a parasomnia.
- The disturbance does not occur exclusively during the course of another mental disorder (e.g., major depressive disorder, generalized anxiety disorder, a delirium).
- The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.[5]

Factors such as chronic stress, hyperarousal, poor sleep habits and behavior conditioning may contribute to primary insomnia.[4]

Conditioned insomnia is defined as the negative conditioning to sleep and the sleep environment. This occurs when the patient is triggered by anxiety when he goes to bed causing inability to go to sleep. The patient becomes more anxious as bedtime approaches and will often try too hard to fall asleep, increasing the level of arousal and anxiety.[8,13]

Conclusion

This article has summarized a number of issues involved in the differential diagnosis of Acute and Chronic Insomnia. The second article will look at the evidence for making the diagnosis and treating the problem.

References

1 Mendelson W, Hatoum HT, Kong SX, Wong JM, Kania CM. Insomnia and its impact. *Psychiatric Times* 1999; **16**. http://www.psychiatrictimes.com
2 Simon GE, VonKorff M. Prevalence, burden, and treatment of insomnia in primary care. *Am. J. Psychiatry* 1997; **154**: 1417–23.
3 Kupfer DJ, Reynolds CF III. Management of insomnia. *N. Engl. J. Med.* 1997; **336**: 341–6.
4 National Heart Lung Brain Institute Working Group on Insomnia. Insomnia: Assessment and management in primary care. Bethesda: American Academy of Family Physicians, 1999.
5 Kaplan H, Saddok B. *Synopsis of Psychiatry (Behavioral Sciences/Clinical Psychiatry)*, 8th edn. Philadelphia: Lippincott Williams and Wilkin, 1998.
6 Rakel RE. Insomnia: Concerns of the family physician. *J. Fam. Prac.* 1993; **36**: 551–8.
7 Attarian HP. Helping patients who say they cannot sleep – practical ways to evaluate and treat insomnia. *Postgrad. Med.* 2000; **107**: 127–42.
8 Rajput V, Bromley SM. Chronic insomnia: A practical review. *Am. Fam. Physician* 1999; **60**: 1431–8.
9 Roehrs T, Zorick F, Roth T. Transient and short-term insomnia. In: Kryger MH, Roth T, Dement WC (eds). *Principles and Practice of Sleep Medicine*, 2nd edn. Philadelphia: WB Saunders, 1994; 486–93.
10 Roehrs T, Zorick F, Roth T. Insomnia. In: *Harvard Medical School. Harvard Medical School Family Health Guide*. New York: Simon and Schuster, 1999.
11 Nakra BRS, Grossberg GT, Peck B. Insomnia in the elderly. *Am. Fam. Physician* 1991; **43**: 477–83.
12 Salzman C. *Clinical Geriatric Psychopharmacology*. New York: McGraw-Hill, 1984.
13 Erman MK. Insomnia. *Psychiatr. Clin. North Am.* 1987; **10**: 525–39.

14 Famay RJ, Walker JM. Office management of common sleep disorders. *Med. Clin. North Am.* 1995; **79**: 391–414.
15 Morewitz JH. Evaluation of excessive daytime sleepiness in the elderly. *J. Am. Geriatr. Soc.* 1988; **36**: 324–30.
16 Clark M. Restless legs syndrome. *J. Am. Board Fam. Prac.* 2001; **14**: 368–74.