

Practice Parameters for the Evaluation of Chronic Insomnia

An American Academy of Sleep Medicine Report

Standards of Practice Committee of the American Academy of Sleep Medicine

Andrew Chesson, Jr.,¹ Kristyna Hartse,² W. McDowell Anderson,³ David Davila,⁴ Stephen Johnson,⁵ Michael Littner,⁶ Merrill Wise,⁷ Jose Rafecas⁸

¹Neurology Department, Louisiana State University Medical Center, Shreveport, LA, ²Sleep Consultants, Fort Worth, TX, ³College of Medicine, University of South Florida, Tampa, FL, ⁴Baptist Medical Center, Little Rock, AR, ⁵St. Patrick Hospital Sleep Center, Missoula, MT, ⁶Department of Medicine, VA Medical Center, Sepulveda, CA, ⁷Departments of Pediatrics and Neurology, Baylor College of Medicine, Houston, TX, ⁸Sleep Disorders Center of Ohio, Green, Ohio

Summary: Chronic insomnia is the most common sleep complaint which health care practitioners must confront. Most insomnia patients are not, however, seen by sleep physicians but rather by a variety of primary care physicians. There is little agreement concerning methods for effective assessment and subsequent differential diagnosis of this pervasive problem. The most common basis for diagnosis and subsequent treatment has been the practitioner's clinical impression from an unstructured interview. No systematic, evidence-based guidelines for diagnosis exist for chronic insomnia. This practice parameter paper presents recommendations for the evaluation of chronic insomnia based on the evidence in the accompanying review paper. We recommend use of these parameters by the sleep community, but even more importantly, hope the large number of primary care physicians providing this care can benefit from their use.

Conclusions reached in these practice parameters include the following recommendations for the evaluation of chronic insomnia. Since the complaint of insomnia is so widespread and since patients may overlook the impact of poor sleep quality on daily functioning, the health care practitioner should screen for a history of sleep difficulty. This evaluation should include a sleep history focused on common sleep disorders to identify primary and secondary insomnias. Polysomnography, and the Multiple Sleep Latency Test (MSLT) should not be routinely used to screen or diagnose patients with insomnia complaints. However, the complaint of insomnia does not preclude the appropriate use of these tests for diagnosis of specific sleep disorders such as obstructive sleep apnea, periodic limb movement disorder, and narcolepsy that may be present in patients with insomnia. There is insufficient evidence to suggest whether portable sleep studies, actigraphy, or other alternative assessment measures including static charge beds are effective in the evaluation of insomnia complaints. Instruments such as sleep logs, self-administered questionnaires, symptom checklist, or psychological screening tests may be of benefit to discriminate insomnia patients from normals, but these instruments have not been shown to differentiate subtypes of insomnia complaints.

Key words: Practice parameters; Sleep disorders; Insomnia; Sleep disturbance

BACKGROUND

INSOMNIA IS A COMPLAINT OF POOR QUALITY SLEEP that is often associated with daytime sequelae including fatigue, irritability, decreased memory and concentration, and pervasive malaise which affects many aspects of daytime functioning. The frequency of insomnia complaints is high, and there is an abundance of epidemiological data that suggest it is the most common sleep complaint in the industrialized world.¹⁻⁵ However, despite the high frequency of this problem and the negative economic

as well as social impact,⁶⁻⁹ it continues to be underdiagnosed and poorly understood by both patients and physicians alike.¹⁰⁻¹³

It is widely recognized that there are a number of conditions which are associated with insomnia including specific sleep disorders, medical and psychiatric illness, and psychological stressors such as anxiety.¹⁴⁻¹⁶ The first step toward effective treatment of insomnia is an initial assessment with establishment of a differential diagnostic list. Determining the etiology of insomnia is complicated not only by the absence of clear assessment guidelines, but also by the multidimensional characteristics of this problem which necessitates a broad awareness of multiple potential etiologies. Moreover, there are virtually no data available which have systematically evaluated the impact of medical

Accepted for publication December 1999

Correspondence: Standards of Practice Committee, American Academy of Sleep Medicine, 6301 Bandel Road, Suite 101, Rochester MN 55901, Phone: 507.287.6006, Fax: 507.287.6008, Email: aasm@aasmnet.org

and psychological assessment in terms of diagnostic validity and treatment outcomes. Although strategies may have been developed which a clinician believes are effective tools for assessment, these strategies are often anecdotally based, without an evidence-based rationale.¹⁷ Thus, it is not surprising that chronic insomnia is often ineffectively treated.

The purpose of this practice parameter paper is to present recommendations, based upon the accompanying review paper,¹⁸ for the clinical assessment of patients complaining of insomnia. The intent here is not to present treatment options directly, but rather to present the evidence for the clinical assessment of insomnia which, however, may affect diagnosis and treatment decisions. Polysomnographic evaluation of insomnia has been addressed in a previous practice parameter paper which is available for guidance.¹⁹ Nonpharmacological treatment of insomnia has also been addressed in a recent practice parameters paper.²⁰

METHODS

Based on the referenced review¹⁸ and accompanying text, the Standards of Practice Committee of the American Academy of Sleep Medicine, in conjunction with specialists and other interested parties, developed recommendations included in this paper. In most cases the conclusions are based on evidence from controlled studies that were published in peer reviewed journals. Because of an overlap with other topics, references are also made to prior

AASM practice parameters. When scientific data are insufficient or inconclusive, this is identified and consensus opinion may be used to support the available evidence. Recommendation grades and evidence levels are identified for each practice parameter.

The Board of Directors of the American Academy of Sleep Medicine approved these recommendations. All members of the American Academy of Sleep Medicine Standards of Practice Committee and Board of Directors completed detailed conflict-of-interest statements and were found to have no conflicts of interest with regard to this subject.

These practice parameters define principles of practice that should meet the needs of most patients in most situations. These guidelines should not, however, be considered inclusive of all proper methods of care or exclusive of other methods of care reasonably directed to obtaining the same results. The ultimate judgement regarding propriety of any specific care must be made by the physician in light of the individual circumstances presented by the patient and the available diagnostic and treatment options and resources.

The American Academy of Sleep Medicine expects these guidelines to have an impact on professional behavior, patient outcomes, and, possibly, health care costs. These practice parameters reflect the state of knowledge at publication and will be reviewed, updated, and revised as new information becomes available. This position paper is referenced by square-bracketed numbers to the relevant

TABLE 1—AASM Classification of Evidence

| Recommendation Grades | Evidence Levels | Study Design |
|-----------------------|-----------------|---|
| A | I | Randomized well-designed trials with low-alpha & low-beta errors* |
| B | II | Randomized trials with high-beta errors* |
| C | III | Nonrandomized controlled or concurrent cohort studies |
| C | IV | Nonrandomized historical cohort studies |
| C | V | Case series |

ADAPTED FROM SACKETT²¹

*Alpha error refers to the probability (generally set at 95% or greater) that a significant result (e.g., $p < 0.05$) is the correct conclusion of the study or studies. Beta error refers to the probability (generally set at 80% or 90% or greater) that a nonsignificant result (e.g., $p > 0.05$) is the correct conclusion of the study or studies. The estimation of beta error is generally the result of a power analysis. The power analysis includes a sample size analysis which projects the size of the study population necessary to ensure that significant differences will be observed if actually present.

TABLE 2—AASM Levels of Recommendations

| Term | Definition |
|-----------|---|
| Standard | This is a generally accepted patient-care strategy which reflects a high degree of clinical certainty. The term standard generally implies the use of Level I Evidence, which directly addresses the clinical issue, or overwhelming Level II Evidence. |
| Guideline | This is a patient-care strategy which reflects a moderate degree of clinical certainty. The term guideline implies the use of Level II Evidence or a consensus of Level III Evidence |
| Option | This is a patient-care strategy which reflects uncertain clinical use. The term option implies either inconclusive or conflicting evidence or conflicting expert opinion. |

ADAPTED FROM EDDY²²

sections and tables in the accompanying background paper.¹⁸ Other citations are noted in parentheses and refer to the reference list at the end of this paper. The Standards of Practice Committee's assessments of the levels of evidence for each of the evidentiary articles, which are used to support the strength of the recommendations in this paper, are recorded in the evidence tables in the background paper [Tables 1, 4, 5, 6, 7, 8, 10, and 11].

RECOMMENDATIONS

The classification for evidence was adapted from the suggestions of Sackett (Table 1). Recommendations are given as standards, guidelines and options, as defined in Table 2. Unless otherwise specified, the recommendations in this paper are supported by Level II to Level V evidence.

1. The healthcare practitioner should screen patients for symptoms of insomnia during health examinations. [1.0, 3.2, 3.4, 7.2, Table 2] (Standard)

Assessment of sleep quality is often overlooked during routine health evaluations, and patients themselves may be reluctant to raise the issue of poor sleep quality. Furthermore, both the practitioner and the patient may minimize the impact of poor sleep upon work performance, the risk of serious accidents, and psychological well being. By including an assessment of sleep problems as part of general health screening, the treatment and prevention of medical and psychiatric causes for poor sleep can be integrated into an overall plan of patient care.²³

There are certain populations, including the elderly and women, which may be at heightened risk for the development of insomnia complaints.^{2,24,25} The healthcare professional must systematically implement evaluation procedures aimed at diagnosing specific medical, neurologic and psychologic disorders in these populations. Pregnancy, depression, medication use, and an increase in the incidence of sleep apnea and periodic limb movements with aging are all additional risk factors in the development of insomnia complaints.^{14,26-28}

2. An in-depth sleep history is essential in identifying the cause of insomnia. Additionally, a physical examination is an important element in the evaluation of insomnia patients with medical symptoms. [4.1, 4.2, 4.5, 4.8, 5.0, 5.1, Table 3, Table 11, Glossary] (Standard)

As the medical history is vital for most patient complaints of illness, the sleep history is fundamental to initial assessment of the insomnia complaint and in specific cases may be the primary diagnostic tool. The practitioner must have a working knowledge of the signs and symptoms of the spectrum of sleep disorders since these may contribute to the insomnia complaint. For example, awakenings with breathlessness in sleep apnea syndrome may present as nocturnal panic attacks, or conversely early morning awak-

enings often associated with depression may be the result of sleep apnea occurring during REM sleep in the early morning hours. The glossary of the accompanying review paper references several disorders producing insomnia secondary to medical and neurological diseases for which a physical examination and medical evaluation have diagnostic importance.¹⁸ Knowledge about sleep symptoms will impact decisions for further assessment and treatment. The following elements should be included in the sleep history or considered with reference to examination findings in order to help differentiate between a primary and a secondary diagnosis of insomnia.

Symptoms of heightened arousal. Hyperarousal and hyperreactivity to stressors are common characteristics of insomniac patients. Recent studies have, in fact, demonstrated an increased metabolic rate in insomniacs, suggesting a strong physiological component to the complaint of difficulty with sleep.²⁹

Symptoms or a history of depression, anxiety, obsessive compulsive disorder, or other major psychological symptomatology. These psychological disorders are usually readily diagnosed by their distinctive symptom profiles. There is a high prevalence of psychiatric disorders in patients presenting with insomnia.¹⁴

Symptoms of restless legs syndrome (RLS) and periodic limb movement disorder (PLMD). Both of these conditions are prevalent in patients with insomnia complaints and may be the presenting complaint for further underlying medical or neurologic problems (such as iron deficiency, Parkinsonism, peripheral neuropathy).^{30,31}

Sleep/wake schedule disorders. These disorders are identified by patient history and by several weeks of sleep logs kept by the patient at home.³²

Snoring and other symptoms of sleep apnea. Although patients who have symptoms of sleep apnea may report excessive daytime sleepiness, interrupted nighttime sleep is frequently perceived as the etiology of the excessive sleepiness during the day and may be a primary complaint.³³

Symptoms or a history of drug or alcohol abuse. Drug and alcohol use can have long lasting effects upon sleep quality, and a detailed history of current and past usage is essential.³⁴

Current medication use. A complete history of prescription and over-the-counter medication use should be obtained to determine if medications may be contributing to the patient's current insomnia complaints.³⁵

3. 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. [4.2, 6.1] (Standard)

The practitioner may be unable to determine a specific cause for insomnia if signs and symptoms of another sleep disorder are present. Patients complaining of difficulty with sleep and who have other symptoms of specific sleep disorders such as sleep apnea, periodic limb movements, narcolepsy or violent behaviors during sleep are likely to require polysomnographic assessment.³³

4. 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. [4.3, 4.4.1, 4.6, Tables 7, 8, 9] (Guideline)

This recommendation is based upon level II-V evidence, although applicability to individual patients may be variable among these different tools. These instruments can provide clinically useful information in the initial assessment of the complaint, particularly as it relates to the patient's perception of the problem. Clinical practice indicates that these measures can be used to guide and enhance the sleep and medical histories taken by the clinician. A limited number of these instruments, including the Epworth Sleepiness Scale³⁶ and the Sleep Disorders Questionnaire³⁷ differentiate insomnia patients from normal populations and other patients with sleep disorders. However, there is little data to indicate that questionnaires are able to discriminate between different causes for insomnia, although these instruments may be able to differentiate insomniacs from normal patients. An additional potential function of these tools is to assess the effectiveness of treatment intervention.

5. The multiple sleep latency test (MSLT) is not routinely indicated for the evaluation of insomnia. [4.4.1, 4.4.2] (Guideline)

These recommendations are based upon level II-IV evidence, as well as prior guidelines. Although nighttime symptoms are of significance, often the major complaints of insomnia patients are daytime tiredness, lethargy and fatigue. These and other symptoms may raise the question of the diagnosis of narcolepsy. Most often, a history of the combined day- and nighttime symptoms is sufficient to judge whether insomnia is the primary problem, and a treatment response may help clarify the differential diagnosis. An MSLT may be indicated, however, if there is a need to objectively assess the presence and degree of daytime sleepiness in accordance with previous practice parameter papers.^{33,38}

6. There is insufficient evidence to make recommendations about the diagnostic role, effectiveness or reliability of portable sleep studies, actigraphy, & static charge sensitive beds in the assessment of insomnia. [6.2]

This recommendation is based upon the limited amounts of satisfactory evidence addressing these techniques with specific regard to insomnia. There is a high prevalence of insomnia complaints in the general population, and it is almost certainly the case that a very large number of patients require evaluation beyond an initial clinical assessment. Therefore, the development of alternative means of assessment is desirable. However, the effectiveness of these currently identified alternative assessment devices has not been systematically evaluated and further assessment of these and other evaluation techniques are needed.³⁹

SUGGESTIONS FOR FURTHER RESEARCH

Virtually no systematic data are available which correlate evaluation procedures for insomnia with outcomes of therapy. Well designed studies which focus on the best methods of eliciting a comprehensive sleep history, the contribution of psychological screening to the diagnosis, and the development of testing procedures as alternatives to formal polysomnography are needed. Insomnia is a pervasive problem with potentially far reaching social and economic consequences, and the absence of these data may not allow the clinician to implement the most judicious and cost effective choices in the assessment of the insomnia complaint. Although effective management of insomnia is ultimately the desired goal, treatment is dependent upon effective evaluation. Indeed, there is evidence to suggest that the early detection of insomnia may present an opportunity for intervention to circumvent later development of depression.⁴⁰ Similar potential for early intervention to prevent or limit the development of other medical and psychiatric disease processes may also exist. The emphasis on outcomes of insomnia evaluation procedures will add significantly to better treatment of the insomnia patient and thus may reduce health care costs in several areas.

REFERENCES

1. Ancoli-Israel, S. and Roth, T. Characteristics of insomnia in the United States: Results of the 1991 National Sleep Foundation Survey. *Sleep*, 1999; 22(Supplement 2):S347-S353.
2. Gallup Organization. *Sleep in America*. Princeton NJ: Gallup Organization, 1995.
3. Lugaresi, E., Cirignotta, F., and et al. An epidemiological survey of the San Marino population. In: Guilleminault, C. and Lugaresi, E., eds. *Sleep/wake disorders: Natural history, epidemiology, and long-term evolution*. New York: Raven Press, 1983:1-12.
4. Partinen, M. Epidemiology of sleep disorders. In: Kryger, M.H., Roth, T., and Dement, W.C., eds. *Principles and Practice of Sleep Medicine*. Philadelphia: W. B. Saunders Company, 1994.
5. Weissman, N.M., Greenwald, S., Nino-Murcia, G., and Dement, W.C. The morbidity of insomnia uncomplicated by psychiatric disorders. *Gen Hosp Psychiatry*, 1997; 19:245-250.
6. Zammit, G.K., Weiner, J., Damato, N., Sillup, G.P., and McMillan, C.A. Quality of life in people with insomnia. *Sleep*, 1999;

22(Supplement 2):S379-S385.

7. Walsh, J.K. and Engelhardt, C.L. The direct economic costs of insomnia in the United States for 1995. *Sleep*, 1999; 22(Supplement 2):S386-S393.
8. Leger, D., Levy, E., and Paillard, M. The direct costs of insomnia in France. *Sleep*, 1999; 22(Supplement 2):S394-S401.
9. Stoller, M.K. Economic effects of insomnia. *Clin Ther*, 1994; 16:873-997.
10. Everitt, D.E. and Avorn, J. Clinical decision-making in the evaluation and treatment of insomnia. *Amer J Med*, 1990; 89:357-362.
11. Hohagan, F., Rink, K., Kappler, C., et al. Prevalence and treatment of insomnia in general practice. A longitudinal study. *Eur Arch Psychiatry Clin Neurosci*, 1993; 242:329-336.
12. Haponik, E.F. Sleep disturbances of older persons: Physicians' attitudes. *Sleep*, 1992; 15:168-172.
13. Jacobs, E.A., Reynolds, C.F., Kupfer, D.J., Lovin, P.A., and Ehrenpreis, A.B. The role of polysomnography in the differential diagnosis of chronic insomnia. *Am J Psychiatry*, 1988; 145:346-349.
14. Benca, R.M., Obermeyer, W.H., Thisted, R.A., and Gillin, J.C. Sleep and psychiatric disorders: A meta-analysis. *Arch Gen Psychiatry*, 1992; 49:651-668.
15. Moran, M.G. and Stoudemire, A. Sleep disorders in the medically ill patient. *J Clin Psychiatry*, 1992; 53:29-36.
16. Nino-Murcia, G. Diagnosis and treatment of insomnia and risks associated with lack of treatment. *J Clin Psychiatry*, 1992; 53:43-49.
17. National Center on Sleep Disorders Research, National Heart Lung and Blood Institute, and National Institutes of Health. Insomnia: Assessment and management in primary care. *Sleep*, 1999; 22(Supplement 2):S402-S408.
18. Sateia, M., Doghramji, K., Hauri, P., and Morin, C. Evaluation of chronic insomnia. *Sleep*, 2000; 23:In Press.
19. Standards of Practice Committee of the American Sleep Disorders Association. Practice parameters for the use of polysomnography in the evaluation of insomnia. *Sleep*, 1995; 18:55-57.
20. Standards of Practice Committee of the American Academy of Sleep Medicine. Practice parameters for the nonpharmacologic treatment of chronic insomnia. *Sleep*, 1999; 22(8):1128-1133.
21. Sackett, D. Rules of evidence and clinical recommendation. *Can J Cardiol*, 1993; 9:487-489.
22. Eddy, D.M. *A Manual for Assessing Health Practices and Designing Practice Policies: The Explicit Approach*. Philadelphia: American College of Physicians, 1992.
23. Shochat, T., Umphress, J., Israel, A.G., and Ancoli-Israel, S. Insomnia in primary care patients. *Sleep*, 1999; 22(Supplement 2):S366-S372.
24. Foley, D.J., Monjan, A.A., Simonsick, E.M., Wallace, R.B., and Blazer, D.G. Incidence and remission of insomnia among elderly adults: An epidemiologic study of 6,800 persons over three years. *Sleep*, 1999; 22(Supplement 2):S366-S372.
25. Foley, D.J., Monjan, A.A., Izmirlian, G., Hays, J.C., and Blazer, D.G. Incidence and remission of insomnia among elderly adults in a biracial cohort. *Sleep*, 1999; 22(Supplement 2):S373-S378.
26. Quera-Salva, M.A., Orluc, A., Goldenberg, F., and Guilleminault, C. Insomnia and use of hypnotics: Study of a French population. *Sleep*, 1991; 14:386-391.
27. Ancoli-Israel, S., Kripke, D.F., Klauber, M.R., Mason, W.J., Fell, R., and Kaplan, O. Sleep-disordered breathing in community-dwelling elderly. *Sleep*, 1991; 14:486-495.
28. Ancoli-Israel, S., Kripke, D.F., Klauber, M.R., Mason, W.J., Fell, R., and Kaplan, O. Periodic limb movements in sleep in community-dwelling elderly. *Sleep*, 1991; 14:496-500.
29. Bonnet, M.H. and Arand, D.L. 24-Hour metabolic rate in insomniacs and matched normal sleepers. *Sleep*, 1995; 18(7):581-8.
30. Hening, W., Allen, R., Earley, C., Kushida, C., Picchietti, D., and Silber, M. The treatment of restless legs syndrome and periodic limb movement disorder. *Sleep*, 1999; 22(7):970-999.
31. Standards of Practice Committee of the American Academy of Sleep Medicine. Practice parameters for the treatment of restless legs syndrome and periodic limb movement disorder. *Sleep*, 1999; 22(7):961-968.
32. Standards of Practice Committee of the American Academy of Sleep Medicine. Practice parameters for the use of light therapy in the treatment of sleep disorders. *Sleep*, 1999; 22:641-660.
33. Chesson, A.L., Ferber, R.A., Fry, J.M., et al. The indications for polysomnography and related procedures. *Sleep*, 1997; 20:423-485.
34. Gillin, J.C. Sleep and psychoactive drugs of abuse and dependence. In: Kryger, M.H., Roth, T., and Dement, W.C., eds. *Principles and Practice of Sleep Medicine*. Philadelphia: W.B. Saunders Company, 1994:934-942.
35. Hauri, P.J. Consulting about insomnia: A method and some preliminary data. *Sleep*, 1993; 16:344-350.
36. Johns, M. A New Method for Measuring Daytime Sleepiness: The Epworth Sleepiness Scale. *Sleep*, 1991; 14(6):331-338.
37. Douglass, A., Bornstein, R., Nino-Murcia, G., et al. The Sleep Disorders Questionnaire I: Creation and Multivariate Structure of SDQ. *Sleep*, 1994; 17(2):160-167.
38. American Sleep Disorders Association. The clinical use of the multiple sleep latency test. *Sleep*, 1992; 15:268-276.
39. American Sleep Disorders Association. Practice parameters for the use of actigraphy in the clinical assessment of sleep disorders. *Sleep*, 1995; 18:285-287.
40. Ford, D.E. and Kamerow, M.D. Epidemiologic study of sleep disturbances and psychiatric disorders. An opportunity for prevention? *JAMA*, 1989; 262:1479-1484.