

Practice Parameters for the Use of Polysomnography in the Evaluation of Insomnia

*An American Sleep Disorders Association Report
Standards of Practice Committee of the American Sleep Disorders Association*

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Summary: These clinical guidelines, which have been reviewed and approved by the Board of Directors of the American Sleep Disorders Association, provide recommendations for the practice of sleep medicine in North America for the use of polysomnography in the evaluation of insomnia. The diagnosis of sleeplessness, or insomnia, is primarily based upon a careful, detailed medical and psychiatric history. Clinicians have sought an objective means to measure this symptom and have, therefore, turned to polysomnography. The American Sleep Disorders Association has assessed the available data and produced guidelines for the use of polysomnography in evaluating the symptoms of insomnia. Polysomnography is not required for the routine evaluation of transient or chronic insomnia. Polysomnography is, however, indicated in the evaluation of suspected sleep-related breathing disorders and periodic limb movement disorder, which may occasionally contribute to a complaint of insomnia, particularly in middle-aged or elderly patients. In addition, when the cause of insomnia is uncertain or when behavioral or pharmacologic therapy is unsuccessful, polysomnography may be helpful.

Key Words: Insomnia; Sleep disorders; Sleep; Polysomnography; Monitoring, physiologic; Guidelines.

[This position paper is referenced by the square-bracketed numbers to the numbered paragraphs in the accompanying review paper.]

I. INTRODUCTION

Insomnia, which affects up to one third of the population at any given time, has many different causes, which for many patients may be multiple. The International Classification of Sleep Disorders lists 55 main disorders that are associated with the symptom of insomnia⁽¹⁾. To aid in the diagnosis of insomnia, clinicians have turned to objective physiologic measures such as the use of polysomnography. The role of polysomnography in evaluating the symptom of insomnia has, however, been controversial, and no clear guidelines have been established.

Based upon a critical review of the scientific literature, the Standards of Practice Committee of the American Sleep Disorders Association developed these practice parameters

for the use of polysomnography in the clinical evaluation of insomnia.

II. METHODS

The Standards of Practice Committee of the American Sleep Disorders Association appointed a task force to review the role of polysomnography in the evaluation of insomnia⁽²⁾. Based on the accompanying review and on consultation with other specialists and interested parties, these recommendations were subsequently developed by the Standards of Practice Committee and approved by the American Sleep Disorders Association's Board of Directors. Wherever possible, the conclusions are evidence based; however, in those circumstances where scientific data are absent, insufficient or inconclusive, recommendations are based upon consensus opinion. All members of the American Sleep Disorders Association's 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 topic.

These guidelines should not 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 judgment regarding the propriety of any specific care must be made by the clinician in light of the individual circumstances presented by the patient and the availability of diagnostic and treatment options and resources.

The American Sleep Disorders Association expects these guidelines to have an impact on professional behavior, patient outcomes and, possibly, healthcare costs. These practice parameters reflect the state of knowledge at publication and will be reviewed, updated and revised as new information becomes available.

III. BACKGROUND

The evaluation of insomnia has been based upon the clinical symptoms and features that have led the physician to initiate appropriate treatment. In the 1960s, clinicians began using electrophysiologic measures of sleep to investigate the symptom of insomnia. Certain electrophysiologic features, such as sleep latency, number of awakenings or arousals, loss of deep-sleep stages, early-morning awakening, and the presence of specific pathologies, such as sleep-related breathing disturbances and periodic limb movements in sleep, have been used to differentiate patients who presented with the symptom of insomnia from those patients without insomnia. Most studies comparing patients with insomnia to control patients have shown little difference in electrophysiologic features between the two groups. Conventional polysomnography does not include sufficient or appropriate measurement variables to adequately determine altered physiology in insomnia patients.

Polysomnography has been well accepted as a useful tool in establishing the diagnosis and severity of sleep-related breathing disorders and, similarly, in determining the severity and presence of periodic limb movements during sleep. The frequency with which these two diagnoses occur in patients who present with the symptom of insomnia has yielded varied results. Although polysomnography will reveal unexpected findings in some patients with insomnia, the number of patients in whom this revelation occurs appears to be small and largely restricted to groups, such as the elderly, in which the prevalence of sleep-related breathing and periodic limb movement disorders is relatively high.

Limited evidence supports the use of polysomnography in evaluating insomnia when the patient lacks symptoms of either sleep-related breathing disorders or periodic limb movement disorder. No definitive polysomnographic features distinguish different groups of patients with insomnia, including those with various underlying psychiatric disorders. Although patients with substance-related sleep disorders

may have specific polysomnographic features, polysomnography does not aid in the diagnosis if an accurate clinical history and urine drug screen have been performed; however, polysomnographic findings may be of value in predicting relapse in primary alcoholism. When the symptom of insomnia is associated with parasomnias or violent behavior during sleep, polysomnographic clarification of the underlying disorder may be useful.

IV. SUMMARY AND RECOMMENDATIONS

A. General: evaluation of insomnia

1. Insomnia, an important public-health problem that affects up to one third of the population, requires an accurate diagnosis and effective treatment [3.1].

2. Insomnia is a symptom of an underlying disorder or condition that may have medical, psychiatric and behavioral origins [3.1].

3. Insomnia is primarily diagnosed by clinical evaluation through a careful, detailed medical and psychiatric history [3.1].

B. Clinical indications for the use of polysomnography

1. Polysomnography is indicated in the evaluation of suspected sleep-related breathing disorders and periodic limb movement disorder, conditions that are most likely to cause insomnia in middle-aged or elderly patients [4.1.1, 4.1.1, 4.5, 5.5].

2. Polysomnography is indicated when the initial diagnosis is uncertain or when the treatment, either behavioral or pharmacologic, is unsuccessful [4.1.2].

3. Polysomnography is indicated for the diagnosis of precipitous arousals or violent behavior in sleep when the clinical diagnosis is uncertain [4.4, 5.4].

4. Polysomnography may be indicated for the diagnosis of persistent circadian rhythm disorders, such as delayed-sleep-phase syndrome, when the clinical diagnosis is unclear [4.6].

5. Polysomnography is not indicated for the routine evaluation of transient or chronic insomnia.

C. Limitations of polysomnography

1. Polysomnography cannot reliably differentiate among the various causes of insomnia, although it can identify cases in which sleep-related breathing disorders or periodic limb movement disorder are significant contributing factors [4.1].

2. Polysomnography is of minimal assistance in diagnosing or managing insomnia due to psychiatric disorders [4.2].

3. Use of polysomnography to demonstrate certain specific features indicative of insomnia due to drug-related effects is not cost-effective [4.3].

4. Polysomnography is not clinically useful in differentiating the insomnia associated with dementia from other forms of insomnia, including insomnia associated with depression [4.4].

5. Polysomnography is not useful in establishing the diagnosis of insomnia associated with fibrositis or chronic fatigue syndrome because the alpha-delta sleep pattern described in fibrositis syndrome is a nonspecific finding [4.4].

D. Technical considerations

1. A single night of polysomnographic study is usually sufficient to identify a sleep-related breathing disorder or periodic limb movement disorder.

2. Two nights of polysomnographic recording may be indicated

a. when sleep latency, sleep efficiency, arousal frequency and sleep-stage distribution need to be well established,

b. when a parasomnia under evaluation does not occur on the first night of study, or

c. when the patient's total sleep time on the first night of study is inadequate for satisfactory evaluation of a sleep-related breathing disorder or periodic limb movements.

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