Evaluating and Treating Insomnia in Institutional Settings

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A variety of patient and environmental factors make nursing home residents particularly vulnerable to insomnia or poor sleep. Although precise estimates are not available, research suggests that up to 75% of institutionalized older adults suffer from disturbed sleep.[1-3] Identifying the contributory factors and intervening to resolve or limit their impact on sleep is the key to effective management. Frequently, these factors can be difficult to control, and as a result, standard sleep evaluation and treatment practices may need to be modified for use in long-term care settings.

Evaluation

Insomnia may be present if an individual has more than 30 minutes of unwanted awake time on six or more days during a two-week period. Evaluation involves having patients record various aspects of their sleep habits, such as bed and wake times, in a sleep diary, daily for two weeks. Polysomnographic (PSG) evaluation is not necessary to diagnose insomnia; however, it may be necessary in some cases in order to rule out other sleep disorders such as sleep apnea. While this approach is feasible for reasonably healthy nursing home patients, persons with dementia or those who are extremely ill may not be able to complete a sleep diary, voice complaints or undergo a PSG. For such individuals, evaluation will depend on staff and family member reports of snoring, cessation of breathing during sleep, nighttime breathing difficulties or periodic limb movements (i.e., leg jerks) during the night.

Contributors and Treatment

Effective treatment involves identifying and targeting the contributory factors, including patient factors such as chronic pain or depression, and environmental factors such as nighttime noise (Table 1). Pharmacological and behavioural interventions, which are standard treatments for persons with insomnia, can also be used with residents of care facilities.

Patient Factors

Increasing age is associated with greater sleep fragmentation, decreased slow-wave (deep) sleep, susceptibility to external arousal and earlier bed and wake times.[4]

Mental and physical illnesses can disrupt sleep. For example, patients with chronic obstructive pulmonary disease often experience highly fragmented sleep due to impaired breathing and the resultant buildup of carbon dioxide.[5]

Chronic pain fragments sleep, changes conventional sleep architecture and is perhaps the most common medical cause of insomnia in elderly nursing home residents.[5]

Medications used to treat mental and physical illnesses may also impact sleep. For example, selective serotonin reuptake inhibitors, such as the antidepressant fluoxetine, can have a stimulating effect. In some cases, it may be possible to switch the patient to a less stimulating antidepressant (i.e., amitriptyline).

Polypharmacy is a concern because reported sleep quality decreases as the number of medications a person receives increases.[6] Age-related changes in medication metabolism and absorption, combined with mental and physical illness, make the elderly particularly vulnerable to drug toxicity. Medication reviews, which focus on a reduction of the number of drugs taken and finding less sleep-disruptive medications, may prove helpful.

Adjustment reactions or bereavement are common in institutionalized patients. Frequently, the death of a spouse precipitates placement. In many cases, such sleep disruption is only temporary. However, bereavement, like depression, may create changes in sleep architecture, lower sleep efficiency and disrupt sleep continuity.[7] Effective and supportive psychological treatment is especially important to prevent adjustment reactions or bereavement from developing into depression.

Dementia frequently disrupts sleep, and the severity of sleep disruption has been correlated with the severity of

Table 1
Factors Contributing to Insomnia in Long-term Care

Patient Factors
Age
Mental illness (depression, anxiety)
Physical illness (pulmonary and heart disease)
Chronic pain (headache, backache)
Adjustment reactions or bereavement
Medications (beta-blockers, antidepressants)
Polypharmacy
Dementia / Sundowning
Environmental Factors
Nighttime noise and light
Low daytime illumination
Excessive time in bed

Table 2
Common Behavioural Interventions and Possible Modifications

Patient Instructions	Example Modifications
Sleep Hygiene	
Eliminate/reduce food, beverages and medications containing caffeine after noon.	Do not provide afternoon snacks containing caffeine, and do not serve desserts containing caffeine (i.e., chocolate cake) with the evening meal.
Do not smoke, drink alcoholic beverages or exercise within two hours of bedtime.	Provide morning or afternoon exercise classes, and encourage participation.
Engage in regular exercise (not within two hours of bedtime).	
Stimulus Control	
1) Do not go to bed until drowsy and sleepy.	Modifying 1–3 may be difficult.
2) Get up at the same time each morning, including weekends.	
3) If you do not fall asleep within about 15–20 minutes, leave the bed and do something in another room. Go back to bed only when you feel sleepy again.	Going to another room may not be realistic. However, for patients who are ambulatory and can safely get out of bed, moving to a chair within the room may prove helpful (if this does not disturb a roommate's sleep).
a) If not asleep within 20 minutes upon returning to bed, repeat #3.	
b) Follow #3 if you awaken during the night and do not return to sleep in 15–20 minutes.	
4) Do not nap. If this is not possible, restrict naps to a maximum of one hour at the same time every day, preferably before 1.00 p.m.	To prevent napping due to boredom, encourage daytime participation in activities.
5) Do not use the bed or bedroom for anything but sleep or sex.	When appropriate, discuss rationale for avoiding napping with patient (i.e., throws body rhythm off schedule, making nighttime sleep more difficult).

dementia.[8] *Sundowning* (increased restlessness and agitation in the afternoon) often accompanies dementia. Potential causes of sundowning include neural deterioration of the mechanisms regulating the sleep-wake cycle, disruption due to late afternoon staff changes, overstimulation in large units,[9] polypharmacy, bladder catheterization, low serum albumin, fecal impactions and infections.[10] Each of these causes, with the exception of neural deterioration, can be potentially remediated through environmental or other interventions (e.g., medication review or smaller unit sizes).

Environmental Factors

Nighttime noise and light changes either by nursing home staff or other residents contribute to almost half of all awakenings in nursing homes.[11] Incontinence care routines also add to nighttime noise and light. Because wetness and immobility contribute to pressure sores, guidelines for nursing homes often require that patients be checked, changed and repositioned every two hours if necessary.[12] While encouraging staff members to be quiet and to avoid turning on lights when possible may be helpful, controlling the noise created by other residents may prove more challenging. Earplugs and blindfolds may provide a solution for patients who are willing to wear them.[13]

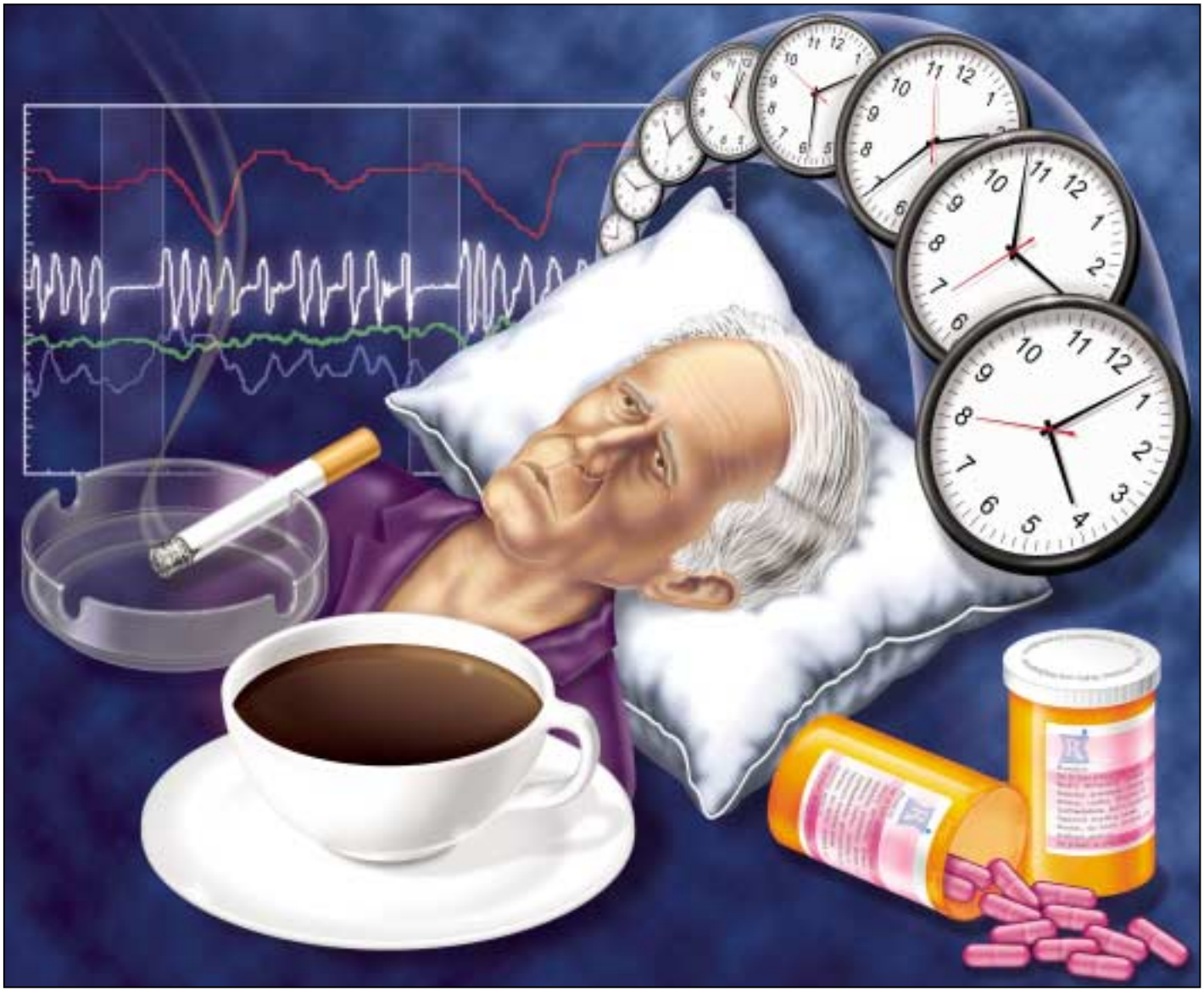
Low daytime illumination in some nursing homes interferes with sleep. Adequate daytime illumination helps regulate the sleep/wake cycle by providing cues about day and night. Age-dependent visual impairments and optic neuropathy can greatly reduce the amount of light information the brain receives, thus compounding the problem.[14] Some research links bright light exposure with improved behaviour for dementia patients; however, additional research is needed before any definite conclusions can be drawn about the usefulness of light interventions.

Excessive time in bed, daytime napping and inactivity also contribute to poor sleep. The average institutionalized individual spends 12.5–18 hours in bed each day. Napping contributes to inactivity and should thus be minimized, but eliminating napping entirely may not be the

solution in all cases. Edinger and colleagues found that the elimination of daytime naps increased sleep time,[15] and Cohen-Mansfield and colleagues found that older adults who napped earlier in the day reported feeling drowsier than usual at 4.00 p.m.[16] Evidence suggests that sundowning in patients with Alzheimer disease may be related to fatigue that can be reduced by regular napping.[9] The impact of increased physical activity is ambiguous. One study of nursing home residents found that a physical activity program had little impact on sleep; however, the level of physical activity employed was minimal. Common sense suggests that a more rigorous routine of physical activity would improve sleep patterns, while contributing positively to overall health and well-being.

Sleep medications (hypnotics) were widely used in long-term care settings in the past. However, current regulations recommend that behavioural and environmental interventions be attempted first.[17] When using medication, gradual dose reductions are required after six months. Sleep medications can impair mental functioning as a result of their effects on the central nervous system, and individuals with dementia may be particularly susceptible to further mental changes.[18] The older benzodiazepine hypnotics have long half-lives which result in serious side effects such as daytime sedation, falls and fractures. Although newer nonbenzodiazepine hypnotics have much shorter half-lives and carry a lower risk of side effects, an increased rate of sedation, falls and fractures is still observed and it is therefore recommended that medication of all types be used only for situational or acute sleep difficulties.

Behavioural interventions may benefit some patients. However, strict adherence to behavioural techniques, such as sleep hygiene[19] and stimulus control,[20] may not be possible in a nursing home setting. For example, instructing patients to leave the bed if they do not fall asleep within 15–20 minutes may not be reasonable for individuals who require assis-



tance to get out of bed. It may be possible, however, to modify some of the standard sleep hygiene and stimulus control instructions (Table 2). Because successful treatment may be difficult to measure in an institutional environment, the removal of factors that impair sleep may be a better indicator of success than standard indicators, such as increased sleep time.[5]

Conclusions

Evaluating and treating insomnia, or poor sleep, can be particularly challenging in the long-term care environment. A variety of patient (i.e., mental and physical illness) and environmental factors (i.e., nighttime noise and light) contribute to sleep disruption, and identifying and eliminating or reducing the impact of these factors is the first step to effective treatment. In most cases, psychological interventions should be attempted before medication. Residents without dementia may benefit from standard evaluation and treatment procedures. Residents with dementia, however, may require modified procedures, such as greater reliance upon staff and family reports for evaluation. Newer antipsychotic medications may prove beneficial for individuals with dementia who exhibit sundowning. ◆

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