



Managing Insomnia in the Geriatric Population

As our patients age, they encounter both an increase in medical conditions and increasingly complex pharmacotherapy. **OLDER PATIENTS MAY EXPERIENCE DECREASED QUALITY OF LIFE RELATED TO REDUCED MOBILITY OR SOCIAL LIMITATIONS. IN ADDITION, THEY ARE MORE LIKELY TO BE PHYSICALLY INACTIVE AND TO EXPERIENCE PHYSICAL OR MENTAL ILLNESS. POOR SLEEP HABITS AND ENVIRONMENT MAY ALSO BE MORE PREVALENT.**¹ These situations can trigger insomnia or worsen pre-existing insomnia.¹ Adequate treatment of older patients with insomnia is important not only for maintaining their quality of life but also to maximise treatment of comorbidities.

Insomnia can have several triggers. It can be stress-related; the result of poor learned behaviours; associated with inadequate sleep hygiene; or due to an underlying medical condition.² For older patients, the first steps should be to treat underlying conditions, reinforce appropriate sleep behaviours, and set realistic goals.³ Treating insomnia in the older population is frequently difficult but is important because insomnia is associated with significant morbidity and mortality. Examples of these morbidities include poorer quality of life; increased alcohol and sedative use; anxiety and depression.^{1,4} **NAPPING AND INSUFFICIENT NIGHT-TIME SLEEPING HAVE BEEN ASSOCIATED WITH AN INCREASED RISK OF FALLS, COGNITIVE DECLINE, MOBILITY DIFFICULTIES, AND VISION PROBLEMS.** These occur when the patient has a sleep onset time of more than 30 minutes and a sleep efficiency of less than 80%.⁴

Insomnia can be divided into several subtypes based on its features. Sleep latency is defined as difficulty falling asleep. Other sleep problems include trouble staying asleep, early waking and daytime sleepiness.¹ When patients try to self-treat these conditions they are at increased vulnerability, as many over-the-counter (OTC) sleep-aid products have side effects that are of concern in older patients. **DIPHENHYDRAMINE MAY HELP IN SHORT-TERM USE BUT THE ANTI-CHOLINERGIC PROPERTIES, SUCH AS CONSTIPATION AND COGNITIVE EFFECTS, ARE OF CONCERN IN OLDER PATIENTS.** Alcohol may also be used to self-medicate but while it can help reduce sleep latency it leads to poorer quality sleep. Older patients should be evaluated for comorbidities such as: sleep apnea, especially in obese patients; and Restless Leg Syndrome, the incidence of which increases with age.¹ However, it is important to be aware that insomnia may persist after comorbidities have been treated and to monitor for symptom resolution.⁵

It is our obligation to be aware of the medications our patients take. **MANY MEDICATIONS COMMONLY USED IN THE OLDER POPULATION CAN CAUSE INSOMNIA INCLUDING CAFFEINE, NICOTINE, DECONGESTANTS, MEDROXYPROGESTERONE, PROPRANOLOL, ATENOLOL, SELECTIVE SEROTONIN REUPTAKE INHIBITORS, CHOLINESTERASE INHIBITORS, THYROID HORMONES AND CORTICOSTEROIDS.**⁶

NON-DRUG THERAPY

The first step is to identify and treat underlying conditions. Comorbidities such as congestive heart failure; chronic obstructive pulmonary disorder; nocturia; pain; depression; and sleep apnea may be contributing to the sleep disturbances.⁴

When recommending therapy for an older patient, the first choice should always be non-pharmacological. **IT IS IMPORTANT TO ENSURE THAT HYPNOTICS ARE ALWAYS ACCOMPANIED BY NON-DRUG MEASURES.**⁶ There are several non-drug methods for managing insomnia:

- **SLEEP HYGIENE** is a good starting point for therapy. This includes: maintaining a regular sleep schedule; avoiding daytime naps; avoiding alcohol, caffeine, nicotine, chocolate, excessive fluids and large meals especially within four hours of bedtime; making the bedroom a comfortable and quiet place; exercising regularly but avoiding strenuous exercise within three hours of sleeping; leaving bed if unable to sleep within 20 minutes, returning when sleepy; reserving the bedroom for sleep and sexual activity only; and performing relaxing activities before bed.^{6,7}
- **PROGRESSIVE MUSCLE RELAXATION** involves learning to relax each muscle individually, usually starting at the head and ending at the feet. This cycle is repeated for approximately 45 minutes if needed.⁵ Relaxation therapy may be especially beneficial in patients with chronic insomnia.¹
- **SLEEP RESTRICTION THERAPY** requires knowing the baseline amount of time a patient spends asleep. For instance, patients getting six hours of sleep a night are allowed to spend only six hours in bed at the start of therapy, regardless of how much sleep they obtain (although the patient is ensured to have at least four hours of sleep). Once the sleep efficiency has increased to 80%, the time allowed in bed is increased by 15 minute increments until normal sleep is achieved. Elderly patients are also allowed a 30 minute nap during the day.⁵
- **COGNITIVE THERAPY** focuses on anxiety and catastrophizing associated with insomnia. It helps patients to direct their thoughts in more positive channels in order to decrease anxiety associated with insomnia.⁵
- **COGNITIVE BEHAVIOURAL THERAPY (CBT)** involves the combination of cognitive therapy with the behavioural interventions listed above.⁸ Success of behavioural therapy is related to the experience of the patient and should not be done by anyone other than a trained

sleep specialist (with the exception of sleep hygiene counselling). CBT lasts six to eight weeks and benefits are decreased when it is administered by a less experienced clinician.⁵

- Other strategies include music-assisted relaxation,¹ light therapy (which also may be beneficial in older patients who do not have insomnia),⁹ and appropriate activity such as tai-chi or low-level yoga in healthy, inactive patients.¹
- Patients should be encouraged to keep a sleep log to fully understand the benefits of various therapies.¹

The pharmacist's role includes educating the patient about the importance of non-drug therapies, whether delivered alone or in conjunction with medical therapy. We can teach them about sleep hygiene, or we can refer them to a sleep counsellor for other, more intensive therapies

DRUG THERAPY

Living in a province with a high rural population, the reality is that access to trained sleep therapists may be limited and, in this case, medication may be the only valid option. Ideally medication would be used for only two to four weeks. **IT IS IMPORTANT TO REMEMBER THAT ALL PRESCRIPTION HYPNOTICS ARE CONSIDERED EQUALLY EFFECTIVE. ALL CAN CAUSE DAYTIME DROWSINESS, CONFUSION, AND CAN LEAD TO REBOUND INSOMNIA ON DISCONTINUATION. THEY SHOULD BE TAKEN IN INTERMITTENT DOSES (TWO TO FOUR TIMES PER WEEK) FOR THREE TO FOUR WEEKS AND THEN DISCONTINUED GRADUALLY.**^{5,7} **EXPECT TWO TO THREE NIGHTS OF POOR SLEEP WHEN STOPPING SEDATIVE AGENTS.**⁷

When evaluating alternatives, it is important to remember that long-term medication alone is not optimal treatment for insomnia.⁵ Antihistamine sedatives should be avoided due to anticholinergic side effects, as should barbiturates.^{3,5} In the elderly population, the risk of sedative hypnotics may outweigh the benefits.¹ Most sedative-hypnotics are renally or hepatically cleared and may accumulate in organ dysfunction.⁵ **PATIENTS BEING TREATED FOR INSOMNIA SHOULD SEE THE DOCTOR NOT LESS THAN EVERY TWO WEEKS FOR FOLLOW-UP.**³

Benzodiazepines are a popular choice for managing insomnia. They appear to reduce latency, prolong stage 2 sleep, and increase total sleep time in chronic insomniacs.^{1,5} When selecting an appropriate benzodiazepine, long-acting agents should be avoided in the older population due to concerns about next day drowsiness leading to falls and fractures.⁵ Triazolam should also be avoided due to amnesiac effects.¹⁰ Benzodiazepines are often associated with complex sleep-related behaviours (such as sleep-driving) and are associated with such adverse events as tolerance, dependence, and increased risk of fracture, especially in patients over 60.^{1,5} **IF A BENZODIAZEPINE MUST BE USED, A SHORT-ACTING AGENT SUCH AS TEMAZEPAM, OXAZEPAM OR LORAZEPAM IS AN APPROPRIATE SELECTION AT A LOW DOSE FOR TWO TO FOUR WEEKS MAXIMUM.**¹⁰ It is important to keep the duration of use short as tapering from chronic use can take weeks to months.¹⁰

Metabolism of benzodiazepines is of concern due to increased incidence of hepatic and renal problems among our older population. Of the three short-acting benzodiazepines which are of choice in the elderly, temazepam is 80-90% eliminated by conjugation.¹¹ Temazepam has the added advantage of having no active metabolites.³ Lorazepam is 75% hepatically eliminated.¹² Oxazepam is metabolized by phase II reactions and 50% renally eliminated unchanged (60% in patients with liver problems). Inactive conjugates

are also excreted in urine.¹³ When selecting a drug for use in hepatically or renally impaired patients, exercise extreme caution and use the lowest doses for the shortest duration. Monitor for daytime sedation and accumulation.

Zopiclone is another frequently used agent for insomnia treatment. It decreases sleep latency and improves sleep duration and quality.⁵ **ZOPICLONE IS CONSIDERED THE DRUG OF CHOICE FOR INSOMNIA IN THE ELDERLY.**¹⁴ Low doses should be used. As with benzodiazepines, complex sleep behaviours are a concern with this medication.¹⁵ Zopiclone is extensively hepatically metabolised by three major pathways and one metabolite may be active.¹⁶

Other non-benzodiazepine options exist with varying indications. Sedating tricyclic antidepressants (TCAs) such as amitriptyline are a common choice for insomnia. TCAs can moderately reduce sleep latency and may increase total sleep time.¹ **WHEN SELECTING A TCA IN THE OLDER POPULATION, NORTRIPTYLINE IS PREFERRED TO AMITRIPTYLINE DUE TO FEWER ANTICHOLINERGIC EFFECTS.** Tolerance to TCAs occurs in weeks and as such is not recommended for routine use.^{5,10} **TRAZODONE 25-50 MG MAY BE CONSIDERED FOR OLDER PATIENTS WITH CHRONIC "SUNDOWNING" (NIGHT-TIME AGITATED DEMENTIA).**¹⁰

THE USE OF ANTIPSYCHOTICS IN THE ELDERLY IS CONTROVERSIAL, with some resources indicating that they should not be used in patients without psychosis.⁵ Many are hepatically metabolised and some have active metabolites which must be considered in the presence of hepatic and renal issues. Side effects can be severe with this class of medications. In general, it is best to avoid the use of antipsychotics as an alternative treatment for insomnia in the elderly.¹⁷

OTC OPTIONS for insomnia are available, and chances are the patient will already have tried at least one before consulting with the pharmacist or doctor. Antihistamines should be avoided for chronic insomnia due to daytime sedation and other side effects.^{1,5} Valerian has inconsistent evidence for efficacy and can be hepatotoxic.^{1,5} Lavender oil may help with mild insomnia¹, but no regulated lavender oil-only products are currently available in Canada.¹⁸ Melatonin has little to no effect in adults with the possible exception of use for patients with circadian rhythm disorders;¹⁹ however, use of controlled-release melatonin may help facilitate discontinuation of benzodiazepines¹

SUMMARY

When dealing with geriatric patients, it is important to remember that non-drug methods are more effective than medication for this population. Pharmacists can educate their patients about sleep hygiene but any other sleep therapy must be referred to an appropriate professional. If no appropriate professional is available, or non-pharmacological measures are still inadequate, medication can be tried at the lowest dose with infrequent use for the shortest time possible. Zopiclone is a good first choice and can be followed by TCAs or short-acting benzodiazepines such as temazepam, oxazepam or lorazepam. The patient's hepatic and renal function must also be considered. Antipsychotics and antihistaminic drugs should be avoided in this population. Some herbals may be effective but studies are poor and side effects may be of concern.

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References are posted with the newsletter on the SDIS website www.druginfo.usask.ca

References

- 1) DynaMed Editorial Team. Insomnia. Last updated 2010. Available from Dynamed: <http://www.ebscohost.com/dynamed>. Accessed April 19, 2010.
- 2) Bonnet M, Arand D. UpToDate. Types of insomnia. Chicago, IL. UpToDate; updated April 6, 2009, accessed April 19, 2010. Available from: <http://www.uptodate.com>.
- 3) Krishnan P, Hawranik P. Diagnosis and management of geriatric insomnia: a guide for nurse practitioners. *J Am Acad Nurse Pract*. 2008 Dec; 20(12):590-9.
- 4) Bloom HG, Ahmed I, Alessi CA, et al . Evidence-based recommendations for the assessment and management of sleep disorders in older persons. *J Am Geriatr Soc*. 2009 May;57(5):761-89.
- 5) Bonnet M, Arand D. UpToDate. Treatment of insomnia. Chicago, IL. UpToDate; updated October 7, 2009, accessed April 19, 2010. Available from: <http://www.uptodate.com>.
- 6) Lee M, Jensen B, Regier L. Sedative patient information sheet. Rx Files. Saskatoon, SK: Saskatoon Health Region; May 2001 . Available from: www.RxFiles.ca. Accessed April 26, 2010.
- 7) Jensen B, Regier L. Sedatives: a concise overview. Rx Files. Saskatoon, SK: Saskatoon Health Region; May 2010. Available from: www.RxFiles.ca. Accessed June 23, 2010.
- 8) University of Texas, School of Nursing, Family Nurse Practitioner Program. Practice parameters for the nonpharmacologic treatment of chronic primary insomnia in the elderly. Austin (TX): University of Texas, School of Nursing; 2005 May 9. Available online: <http://www.guideline.gov/>. Accessed April 19, 2010.
- 9) Gammack JK. Light Therapy for insomnia in older adults. *Clin Geriatr Med*. 2008 Feb;24(1):139-49, viii.
- 10) Lee M, Jensen B, Regier L. Psychotropic drugs in the elderly. Rx Files. Saskatoon, SK: Saskatoon Health Region; May 2001 . Available from: www.RxFiles.ca. Accessed April 26, 2010.
- 11) e-CPS. Ottawa (ON): Canadian Pharmacists Association; c2010. Restoril. Available from: <http://www.e-cps.ca>. Accessed April 19, 2010.
- 12) DrugDex Editorial Team. Lorazepam. New York: Thompson Reuters; March 25, 2010. Available online: <http://www.thompsonhc.com/>. Accessed April 19, 2010.
- 13) DrugDex Editorial Team. Oxazepam. New York: Thompson Reuters; March 12, 2010. Available online: <http://www.thompsonhc.com/>. Accessed April 19, 2010.
- 14) Insomnia in the elderly. *Pharmacist's Letter/Prescriber's Letter* 2009;25(9):250919. Available online: <http://www.CanadianPharmacistsLetter.com>. Accessed April 19, 2010.
- 15) Sedative hypnotics and complex sleep-related behaviour. *Pharmacist's Letter/Prescriber's Letter* 2009;25(11):251122. Available online: <http://www.CanadianPharmacistsLetter.com>. Accessed April 19, 2010.
- 16) e-CPS. Ottawa (ON): Canadian Pharmacists Association; c2010. Imovane. Available from: <http://www.e-cps.ca>. Accessed April 19, 2010.
- 17) Jibson M. UpToDate. Antipsychotic medications: classification and pharmacology. Chicago, IL. UpToDate; updated October 22, 2009, accessed April 19, 2010. Available from: <http://www.uptodate.com>.
- 18) Health Canada. Natural Health Products Database [home page on the Internet]. Natural Health Products Directorate. [cited 2010 Jun 11]. Available from: <http://webprod.hc-sc.gc.ca/lnhpd-bdpsnh/index-eng.jsp>
- 19) Jellin J, editor. Melatonin. Natural Medicines Comprehensive Database; April 23, 2010. Available online: <http://www.naturaldatabase.com>. Accessed April 26, 2010.