



It is important that as family physicians, we learn to not only diagnose insomnia but learn to counsel patients in the management, both behavioral and pharmacological.

Insomnia is a common problem, impacting 35-50% of adults. However, only 12-20% of patient with symptoms of insomnia meet the criteria for insomnia disorder.

Many other factors including other sleep related conditions, mental health concerns, and organic health problems may present with symptoms of insomnia.

Knowing what is causing the insomnia is an important step, as this will guide the most effective treatment strategies. Common, non-modifiable risk factors for insomnia include female gender and middle aged to older adults.

However, most patients with insomnia will have another treatable condition. It is important to note that the **MOST COMMON CAUSE OF SLEEPINESS IS INADEQUATE SLEEP WITH LACK OF TIME SPENT IN BED AND POOR SLEEP QUALITY**

Regardless of the cause of insomnia, there are some important, non-pharmacologic treatments that we will talk about that can be beneficial for all patients struggling (or not!) with sleep. The two main treatments are sleep hygiene techniques and Cognitive Behavioral therapy for insomnia (or CBT-I for short). We will get into this later in the episode.

WHY TALK ABOUT INSOMNIA?

Insomnia is a very common and important to treat. Whether an organic or mental health condition causes the insomnia or not, insomnia itself can increase the risk of depression, anxiety, and substance use, and even CVD.

Other health concerns related to insomnia are type 2 diabetes, metabolic syndrome, and obesity. In addition, it is a public health concern as poor sleep is associated with increased risks of MVAs and health care utilization.

Thus, even though it is an overlooked component of inpatient and outpatient medicine, insomnia is important to societal wellbeing and very rewarding when treated appropriately. With that, grab a cup of caffeine and let's get started!



Objective One

In patient presenting with sleep complaints, take a careful history to: Distinguish insomnia from other sleep related disorders that require more specific treatment

This is extremely important step in the diagnosis and management of insomnia because many of these conditions have a very specific treatment unique to them.

There are validated questionnaires that you can use to help distinguish between these and rule some out. We will link the sleep disorders assessment questionnaire in the show notes.

To start off with, let's talk about primary insomnia, which ultimately you can only diagnose once you rule out everything else as a part of its diagnostic criteria. In other words, primary insomnia is a diagnosis of exclusion.

Primary insomnia, according to the DSM 5

Dissatisfaction with quality/quantity of sleep, ≥ 1 of following symptoms:

- Problems initiating sleep
- Difficulty maintaining sleep
- Early morning wakening's
- Clinically significant distress
- it occurs at least 3 nights/week for at least 3 months
- Not due to substance, medical condition, inadequate sleep time.
- most importantly: it must cause clinically significant distress or impairment of functioning

Objective 1 b - Distinguish insomnia from OTHER SLEEP RELATED DISORDERS that require more specific treatment

Periodic limb movement aka Nocturnal Myoclonus

- i. Characterized by repeated leg twitches during sleep
- ii. Typically 20-40 seconds apart



- iii. These cause leg movement-related arousals leading to disrupted sleep
- iv. Patient often unaware. Bedpartner reports “kicking”
- v. More common in those with older age, vertebral degenerative disorders, pregnancy, Parkinson disease, and CKD
- vi. Increased four-fold in those taking SSIRs
- vii. May also occur with Fe ad B12 def

How do we diagnose? With polysomnography

The next up is Restless Leg Syndrome

Restless Legs Syndrome – DSM-5 “URGE” Unpleasant sensation

U – rge to move legs

R – est – symptoms worsened at rest

G – ets better with movement

E – vening – symptoms worse in evening

-≥ 3x/week, ≥ 3months

-Significant distress

-Not due to medical condition or substance however patient may experience the sequelae of poor sleep including mood disturbances and difficulty focusing

Etiology: common!! 5.5-11.6% in north America. 2:1 in females. It is underrecognized and underdiagnosed as it is often confused for insomnia, and therefore poorly managed.

It can be primary or secondary due to iron def, renal failure, pregnancy, neuropathy, thyroid disease, PD, PVD, MS, or medication SE (dopamine antagonist, SSRI, Li, TCA, CCB, statin) *make sure to define the above acronyms in the podcast

Management

- Treat underlying cause. Check IRON (ferritin). •Target ferritin > 75 µg/L
 - May replace e.g. FeSO4 with vitamin C tid 2 hours before or after meals
- Mental alerting activities
- Counter the stimulus with a relaxing activity: bath, massage etc,
- Remove offending agents
 - a. Switch SSRI to bupropion
 - b. TCAs
 - c. Limit: Caffeine, etoh antihistamines
- Pharmacologic



- b. The standard of treatment is dopamine agonists such as Pramipexole, ropinirole, rotigiline
 - i. Intermittent sx's (less than 3x/week) use Levodopa (Sinemet) (Sinemet CR 25/100, 1 tab po qhs prn) take as abortive therapy when symptoms arise
 - ii. Daily or almost daily sx's (>3x/week) - choose Pramipexole (Mirapex) or Ropinirole (Requip) eg Pramipexole 0.25-0.5 mg po q2h before bed
- c. There is some evidence of gabapentin, pregabalin
- d. Interestingly, mg and mustard may be of help and are of little harm to most people!

Lasly, lets talk about Delayed sleep phase syndrome

This is a Desynchronization of our circadian rhythm. Basically a habitually delayed sleep, most commonly seen in shift workers yet present in approximately 3% in adolescents, usually a result of staying up late secondary to TV watching, gaming or social media. Melatonin likely a mediator

Treatment: sleep hygiene, phototherapy (aka bright light therapy), chronotherapy and melatonin 1- 10 mg 2-4 hours before desired sleep time.

Finally, it is useful to talk to a bed partner to see if there is sleepwalking or talking, as these can impair sleep quality.

What about other medical conditions to consider when making the diagnosis of insomnia?

Comorbid insomnia commonly happens with many conditions whether they are sleep related, mental health related, or other health issue related.

Obstructive Sleep apnea should always be ruled out.

OSA involves repeated pauses (apneas) or partial obstructions (hypopneas) in breathing (\geq 10 seconds) during sleep, in spite of normal respiratory drive . •Apnea/Hypopnea Index (AHI): \geq 5 hr = significant

Epidemiology of OSA

- Prevalence – up to 22% ♂ and 17% ♀, all ages
- 50% of snorers have OSA2
- 80% ♂, 93%♀ with moderate/severe OSA, undiagnosed
- Key diagnostic questions:

- Do you feel satisfied with the quality of your sleep?
- Does your partner complain that you snore?

Or you can further probe via STOPBANG : a useful tool to assess for sleep apnea. Patient with >4 of these are at high risk of having sleep apnea and those with 3-4 are at intermediate risk



- Do you snore loudly
- Do you feel tired during the day time
- Has anyone observed you stop breathing in your sleep
- Are you being treatment for hypertension
- BMI >35
- Age >50
- Neck circumference >40 cm
- Gender male

May also see: day time sleepiness, morning headache, nocturia, morning headache, cognitive changes (concentration, focus, memory)

On physical exam, look for: retrognathia, nasal abnormalities i.e. deviated septum polyps, or upper air way narrowing i.e. enlarged tonsils, macroglossia, narrow hard palate

Treatment of choice: CPAP, mouth device, and in rare cases, surgery.

Other medical conditions to consider

- a. Neurological disorders including infections, epilepsy and head injury
- b. Metabolic disorders such as diabetes and thyroid disease
- c. Pain related conditions such as any chronic pain or angina
- d. Respiratory conditions such as COPD

Objective 1 c - Assess the contribution of drugs, caffeine, and alcohol

Many over the counter, recreational, and prescription drugs may contribute for insomnia. It is important to know what your patient is using and when.

Caffeine, alcohol, OTC, rx, rec (opioids, methadone benzos, cannabis, cocaine, meth). Specifically, when counselling on alcohol use, it can be helpful to talk about the acute and chronic effects of ETOH on our sleep. **Acute effect:**

- ↓ _Sleep latency
- ↑ _SWS (modest)
- ↓ _REM sleep in the 1st half, REM rebound in 2nd half
- Effects – 6h after last drink i.e. “happy hour”
- Tolerance – approx 1 wk



Chronic

- ↑ Sleep latency
- Decreased - SWS - REM sleep - Sleep efficiency - Total sleep time
- Effects can persist up to 2 years after abstinence

Note that many of our prescription drugs may be activating and that there should be taken in the morning.

The 4 most common medications to disrupt sleep are: levodopa, prednisone, rotigotine and stimulating SSRI's/SNRI's including (fluvoxamine, venlafaxine, duloxetine, fluoxetine, escitalopram, sertraline).

Other commonly prescribed medications that should be taken in the AM are bupropion, alpha blockers, statins, b agonists and blockers, stimulants, anything in combination with caffeine i.e. T3s, and thyroid supplements.

Objective 1 - d - Remember to Make a specific psychiatric diagnosis if present

Many psychiatric diagnoses can disrupt sleep, including anxiety, depression, bipolar mania, and psychosis. Rule these out before considering primary insomnia as a diagnosis. It is important to treat these issues before treating it as primary insomnia. In considering depression, the 3 key sleep findings in depression are

1. Less SWS (deep sleep)
2. More REM sleep, with shorter latency, and higher REM density
3. Poor sleep continuity – i.e. more sleep fragmentation – leads to insomnia

That being said, many of the treatments, both pharmacologic and non-pharmacologic, can apply to these patients as well.

In fact, the treatment of many of them, including antipsychotics and antidepressants, may be sedating allowing you to treat both problems with one medication. These will be highlighted when we talk about pharmacotherapy.

When considering the physical exam, be sure to include inspection of the head and neck

Next, when considering investigations, be sure to include a FBG, CBC (polycythemia may suggest sleep apnea), ferritin, B12, TSH, and extended electrolytes.

So far. We've covered the five different sleep disorders, considered the medical and mental health contributions to insomnia and reviewed the common drugs that can cause or exacerbate insomnia.



Objective Three

In all patients with insomnia, provide advice about sleep hygiene

While sleep hygiene is an important skill for everyone to learn, it has not been shown to be effective in treating chronic insomnia when used alone. However, it is an important part of any treatment for insomnia as these steps help prepare out mind and body for bed and contribute to a sleep routine.

- i. Maintain a consistent sleep schedule, even on weekends. According to the literature, anchoring the waking time and being consistent with this. is the most important factor in sleep hygiene.
 - ii. Avoid stimulants such as caffeine and nicotine as well as the stimulating medications we mentioned above, prior to bedtime, and ideally past lunch.
 - iii. Avoid stimulating activity such as exercise >4-5 hrs before bed (but exercise earlier in the day!!)
 - iv. Avoid large meals prior to bed
 - v. Keep the bedroom dark, quiet, and cool. Bedroom is only for sleep and sex.
 - vi. Avoid light emitting devices
 - vii. Avoid daytime napping
- e. CBTi – this is the most evidence-based treatment and is the standard of care for chronic insomnia. It consists of 5 key components: sleep restriction, stimulus control, cognitive restructuring, sleep hygiene, and relaxation techniques.
- i. Sleep restriction
 - Goal: improve sleep continuity by using sleep restriction to enhance sleep drive thereby forming a positive association with bed
 - Maintain a sleep log for TST (total sleep time)
 - Set bedtime and wake up time to approximate the mean TST to achieve > 85% sleep efficiency
 - If after 10 days sleep efficiency <85% - restrcut by 30 minutes
 - If >85%, increase by 30 minutes
 - My sleep well has a calculator
 - Core techniques
 - a. Limit time in bed to sleep time + 30
 - b. Establish regular wake time regardless of time in bed
 - c. Do not go to bed until sleepy
 - d. Do not stay in bed if awake
 - ii. Stimulus control
 - Goal: extinguish negative association of bed with undesired outcomes such as wakefulness, fear, worry
 - Bed = sleep and bed



- Go to bed when sleepy
- Do not lie awake for more than 20 minutes. For example, when feeling anxious or awake, get up and return to bed when tired
- Repeat process if not sleepy
- Do not stay in bed after alarm
- iii. Education and cognitive restructuring
 - Goal: understanding and disputing false beliefs around the negative consequences of poor sleep
 - Similar concept to CBT where patients much be education about why they can't sleep, and why this therapy helps.
- iv. Sleep hygiene, as discussed previously
- v. Relaxation techniques
 - Goal: lower somatic and cognitive arousal states which interfere with sleep
 - Cognitive restructuring
 - Progressive muscle relaxation (insight timer= free APP with lots of PMR exercises – we will link this in the show notes)
 - Visualization
 - Guided imagery

Objective Four - In appropriate patients with insomnia, use hypnotic medications judiciously

Finally, lets talk about Medications in the treatment of insomnia.

In appropriate patients with insomnia, use hypnotic medication judiciously

Sleep medications are not meant for long term use and should be prescribed judiciously. We will outline when it might be appropriate to prescribe these medications and things to consider when prescribing them,

- f. When are hypnotics appropriate to use?
 - i. Short term while applying and adjusting to CBTi
 - ii. Hospitalized patients
 - iii. Transition from day to night shifts (in which case melatonin is most appropriate)
 - iv. Short term adjustment disorders
 - v. Long term use may be implicated in chronic or refractory insomnia or with multiple comorbidities
 - vi. Essentially, when the benefits outweigh the risks!
- g. The following prescribing principles should be applied



- i. Discussion of goals of therapy
- ii. Medication review
- iii. Drug interactions
- iv. Careful dosing – most people are prescribed a higher than recommended dose of the z drugs
- v. Communication of risk, especially highlighting immediate risks in susceptible patients (fall risk, sedation, driving) and chronic risks (cognitive impairments, dependency)
- vi. Review ongoing use; consider using a physician-patient agreement,
- vii. Pharmacologically, important factors to consider are a medications time to onset, half-life, benefits, risks. In general, those with short half-lives and fast time to onset are good for sleep onset and those with long half lives are for sleep maintenance. We will provide some of these numbers below. CAMH has an excellent table for each medication for your reference. This will be linked in the show notes.

Please note that the only hypnotics approved by health Canada for the use of insomnia: temazepam (Short term), benzo agonists (for short term use), and doxepin (sleep maintenance insomnia). The others, which are often more frequently used, are all off label and this needs to be communicated to the patients and clearly documented in their chart.

1. Z drugs (non-benzo targets GABA-BZI)
 - a. Zopiclone: <https://www.sciencedirect.com/science/article/abs/pii/S0924977X21002108>
 - i. Decreased sleep latency by 18 mins, time awake by 13 minutes, increases TST by 30 minutes, improve sleep efficiency and quality, decreases awakenings (half-life 4-6 hours, onset 30 mins)
 - ii. Use should generally not exceed 7-10 day
 - iii. Benefits: No impact on memory, No cardiac risk, memory impairment, or impact on psychomotor performance, less risk of hangover, safe in the elderly
 - iv. Risks: Metallic after taste, respiratory depression, falls, fractures, tolerance, hangover effect
 - v. Dose 3.75-max 7.5 mg, lower if >65, hepatic, or renal impairment
 - b. Zolpidem
 - i. Half-life 2-3 hours, onset 30 mins, good for sleep initiation but will wear off faster
 - ii. Benefits: less risk of hangover, faster onset than zopiclone, safe in the elderly
 - iii. Risks: dizziness, anterograde amnesia, ataxia
 - iv. Dose 5-10 mg
2. Benzos
 - a. Only temazepam is approved
 - b. temazepam



- i. Decrease slow wave sleep, reduces sleep onset by 120 minutes and increases TST by 30-60 minutes
- ii. Use should not exceed 7-10 days
- iii. Risks: Increased risk for falls in elderly, tolerance, daytime sedation, psychomotor impairment, rebound insomnia
- iv. Dose 15-30 mg

3. TCAs

a. Doxepin

- i. Onset 3.5 hours, half-life 15 hours. Good for sleep maintenance, not onset. Decreases awake time by 20 minutes
- ii. Benefits: does not impair cognition or increase risk of falls, may be good for use in the elderly
- iii. Risks: anticholinergic, caution with drugs that prolong QTc or inhibit CYP2D6 (fluoxetine, paroxetine, bupropion), additive sedative effects, weight gain
- iv. Dose 3-6 mg

Non-approved sleep-aids that are still commonly used

4. Antidepressants

a. Trazodone (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5842888/>)

- i. Half-life 8-10 hours, onset 60+ mins, thus better for sleep maintenance than initiation
- ii. Benefits: Not habit forming
- iii. Risks: OH, dizziness due to alpha adrenergic blockade, morning sedation, priapism, Can cause QT prolongation, hyponatremia, AAG, NMS, cardiac issues, and drug interactions
- iv. Dose: 25-100 mg (**the higher the dose, the less sedating)

b. Mirtazapine

- i. Helps sleep onset
- ii. Risks: weight gain, hangover effect
- iii. Benefits: increase appetite, decrease depression, may be good in the elderly
- iv. Dose: 7.5-15 mg

5. Antipsychotics: Note that choosing wisely recommends against routine use of antipsychotics for primary insomnia in any age group

a. Quetiapine Immediate release (IR)

- i. Onset 2 hours, half-life 6 hours
- ii. Risks: metabolic side effects, weight gain, anticholinergic, EPS, alpha adrenergic blockage- OH
- iii. Benefits: no dependence
- iv. Dose; 12.5-50 mg QHS (*the higher the dose, the less sedating)



6. Other off label things to consider include amitriptyline, nortriptyline, gabapentin which you can consider in the setting of chronic pain or migraines to decrease medication burden.
7. New things: orexins i.e. Lemborexant
 - a. Approved by health Canada for sleep onset and sleep maintenance insomnia
 - b. Decreases time to sleep by 4-8 mins and awake time by 13-25 minutes
 - c. Dose 5-10 mg
 - d. Risks: complex sleep behaviours i.e. sleep walking, cataplexy, and CNS depressant, possible misuse)
8. Natural things
 - a. Melatonin
 - i. Helps fall asleep
 - ii. Risks: daytime drowsiness, cognitive impairment
 - iii. Benefits: not habit forming
 - iv. Dose: 1-10 mg, 2-4 hours before desired sleep time
 - b. Valerian root
 - i. Limited evidence but be aware some of your patients might be using this
9. Over the counter asleep aids such as diphenhydramine and doxylamine are not recommended

How to DEPRESCRIBE?

Hypnotics should be gradually weaned off. They should NOT be used PRN. When you use them use them consistently and short term. Do not increase once you have decreased the dose. Rebound insomnia may occur. Decrease dose over weeks to months then start skipping nights

Resources

For HCP

<https://www.choosingwisely.org/patient-resources/sleeping-pills-for-insomnia/>

<https://www.healthlinkbc.ca/illnesses-conditions/fatigue-and-sleep>

<https://aasm.org/resources/pdf/pharmacologictreatmentofinsomnia.pdf>



<https://choosingwiselycanada.org/wp-content/uploads/2017/06/Sleeping-pills-EN.pdf>

<https://www.camh.ca/en/professionals/treating-conditions-and-disorders/sleep-disorders/sleep-disorders---treatment/sleep-disorders---pharmacotherapy>

<https://top.albertadoctors.org/CPGs/Lists/CPGDocumentList/Adult-Insomnia-CPG.pdf>

https://www2.gov.bc.ca/assets/gov/health/practitioner-pro/provincial-academic-detailing-service/pad_insomnia_handout.pdf

https://tools.cep.health/wp-content/uploads/2021/07/CEP_Management_of_Chronic_Insomnia_2017.pdf

For patients

<https://www.sleepio.com/>

<https://mysleepwell.ca/>

<https://myhealth.alberta.ca/Learning/Modules/Sleep-Strategies/Documents/sleep-diary.pdf>

https://content.ca.healthwise.net/resources/13.1/en-ca/media/pdf/hw/form_tm4434.pdf

<https://www.anxietycanada.com/sites/default/files/SleepHygiene.pdf>

<https://www.bcpsychonline.ca/online-resources/sleep>

<https://keltymentalhealth.ca/collection/sleep-diaries>

<https://actt.albertadoctors.org/CPGs/Lists/CPGDocumentList/Sleep-Diary.pdf>

https://www2.gov.bc.ca/assets/gov/health/practitioner-pro/provincial-academic-detailing-service/pad_insomnia_handout.pdf

<https://www.ualberta.ca/current-students/wellness-supports/community-engagement/unwind-your-mind/sleep-hygiene.html>

<https://insighttimer.com/en-ca>