

# MANAGING INSOMNIA IN PRIMARY CARE OFFICE

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# OBJECTIVES

1. To develop an approach to Insomnia
2. To discuss diagnosis and management of sleep disorders causing:
  - Initial insomnia
  - Maintenance insomnia
3. Review non-pharmacological and pharmacological treatment for Insomnia

# INSOMNIA DISORDER: DIAGNOSTIC CRITERIA DSM-5

- **Main complaint: dissatisfaction with sleep quantity/quality ( $\geq 1$  of the following symptoms):**
  - Difficulty initiating sleep
  - Difficulty maintaining sleep (i.e., frequent awakenings or trouble returning to sleep)
  - Early morning awakening with inability to return to sleep
  - Non-restorative sleep
- **Sleep complaint is accompanied by great distress or impairment in daytime functioning ( $\geq 1$  of the following):**
  - Fatigue or low energy
  - Daytime sleepiness
  - Cognitive impairments
  - Mood disturbance
  - Behavioural difficulties
  - Impaired occupational or academic function
  - Impaired interpersonal/social function
- **Occurs for  $\geq 3$  nights/week, for  $\geq 3$  months, despite adequate opportunity for sleep**

# WHO GETS INSOMNIA: EPIDEMIOLOGY

- Prevalence of insomnia symptoms in adults: 35-50%
- Prevalence of Insomnia disorder: 12-20%
- Female
- Middle age and older adults
- Health Effects:
  - Higher risk of depression, anxiety and substance abuse
  - Higher risk of cardiovascular disease

# HOW CAN YOU STRUCTURE YOUR SLEEP HISTORY?

## Before getting to Bed

- Bedtime (weekdays, weekends)
- Exercise, smoking, alcohol, caffeine
- Environment

## In Bed

- Bed partner's behaviour
- Snoring, witnessed apnea
- Restless legs, teeth grinding , dream enactments, sleep walking, sleep hallucinations, sleep paralysis, seizures
- Awakenings in night

## After Awakening

- Wake up time
- Napping
- Sleepiness in daytime
- cataplexy



# RLS: CLINICAL FEATURES

Difficulty initiating sleep or return to sleep after an awakening

Symptoms may occur during quiet rest (watching TV)

Reduced daytime energy

Sequale of poor sleep (mood disturbance, difficulty focusing)

# ICSD-II CRITERIA

## Restless Legs Syndrome (RLS):

- An urge to move, associated with unpleasant sensation in the legs
- Provocation of symptoms by rest
- Symptoms partially or totally relieved with activity
- Worse, or only occur in evening or night
- Symptoms not be solely accounted for by other conditions, such as arthritis, myalgia, positional discomfort and leg cramps



# DEFINITION

## Periodic Limb Movement (PLM)

- A polysomnography demonstrates repetitive, highly stereotypical limb movements (0.5-5 sec in duration, sequence of 4 or more, separated by interval of 5-90 sec)
- PLM occur in 80-90% of patient with RLS, but converse is not true

# RLS: EPIDEMIOLOGY

Prevalence in adults:

- 5.5-11.6% in Europe and North America
- 1.0-7.5% in Asia

More common in female (1.5-2.0:1)

Unrecognized & under-diagnosed

Incorrectly labeled as insomnia / anxiety

Managed poorly

# WHAT MEDICAL FACTORS NEED TO BE CONSIDERED IN RLS?

## Primary RLS: early onset/slower progression

- No underlying cause
- Positive FHx >50%

## Secondary RLS: late onset/severe symptoms

Iron Deficiency	Thyroid Disorder
Renal Failure	Parkinson's
Pregnancy	Peripheral vascular disease
Peripheral neuropathy	Multiple Sclerosis
Medication side effects (dopamine blocking agents, SSRI, Lithium, TCA, Ca channel blocker, Statins)	

# WHAT ARE THE MAJOR TREATMENT CONSIDERATIONS?

## Nonpharmacologic therapy

- Treat underlying cause
  - Target Ferritin > 45 ug/ml
- Mental alerting activities, such crossword puzzles
- Counter Stimulus (hot or cold bath, massage)
- Remove offending agents if possible :
  - SSRIs –consider switch to Bupropion
  - TCAs – consider switch to  $\alpha_2\delta$  ligands
  - Caffeine, etoh, antihistamines

# PHARMACOLOGICAL CHOICES

Maintenance treatment for Moderate –Severe:

## Dopamine-receptor agonists

- Pramipaxole: 0.125mg-0.75mg one hour before bedtime
- Ropinirole : 0.25mg -4mg
- Rotigotine patch: 2-3mg/24hr
- Side effects: Insomnia, nausea and fatigue

## $\alpha_2\delta$ ligands

- Gabapentin: 300-1800 mg at bedtime
- Pregablin: 150-300 mg at bedtime
- Side effects: Daytime somnolence, dizziness, fatigue and headache

# ISSUES WITH LONG-TERM USE

## Loss of Efficacy

- Consider combining or substituting with another class of drug

## Augmentation

- Explore for secondary causes
- Consider adding a smaller dose of same medication earlier with reduction of latter dose or switching to or a single dose of a longer-acting dopaminergic agent
- For severe symptoms: discontinue dopamine agonist and switch to ligand or opioid

# ARE THERE ANY TESTS THAT WILL BE HELPFUL?

Fasting blood glucose = 4.8 (4.0-7.0)

CBC – Hb = 112 (110-150)

Ferritin = 25 (20-110)

Vitamin B12 = 456 (>258)

TSH = 2.35 ( 0.05-5.0)

# INSOMNIA MANAGEMENT: BEHAVIOURAL TECHNIQUES

## Sleep Hygiene

- Regular sleep schedule
- Avoid stimulants near bedtime (smoke, caffeine, alcohol)
- Avoid stimulating activity near bedtime
- Quiet sleep environment
- Avoid daytime napping
- Exercise regularly, but more than 4 to 5 hours prior to bedtime



# COGNITIVE BEHAVIOUR THERAPY FOR INSOMNIA

## Full CBT-I

- 6-8 sessions each 90-120 minutes
- 3 components
  - Education
  - Sleep scheduling
    - Stimulus Control Therapy and sleep restriction
  - What to do with your mind
    - Cognitive restructuring
    - Progressive relaxation, visualization

# STIMULUS CONTROL THERAPY

Goal: Extinguish negative association of bed with undesirable outcomes such as wakefulness, fear and worry

- Use bed only for sleep (not for reading, watching television, eating, or worrying).
- Not go to bed until sleepy
- No more than 20 minutes in bed awake – if awake, leave room and do a relaxing or boring activity, no rewarding activity (TV, eating)
- Repeat process if not sleepy

# RELAXATION THERAPY

Goal: Lower somatic and cognitive arousal state which interferes with sleep

Progressive Relaxation  
Guided Imagery

# SLEEP RESTRICTION THERAPY

Goal: Improve sleep continuity by using sleep restriction to enhance sleep drive. Forms Positive association with bed.

- Maintain a sleep log for total sleep time (TST) for 1 week
- Set bedtime and wake uptime to approximate the mean TST to achieve more than 85% sleep efficiency (Total sleep time/total time spent in bed)
- If after 10 days sleep efficiency  $<85\%$  , further restrict bedtime by 15-30 min
- If sleep efficiency  $>85\%$ , increase bedtime by 15-30 minutes

# BRIEF BEHAVIOURAL TREATMENT OF INSOMNIA

## Core techniques from stimulus control and sleep restriction therapy

- Limit time in bed to actual sleep time plus 30 minute
- Establish regular wake time everyday, regardless of prior night's sleep duration
- Do not get into bed until sleepy
- Do not stay in bed if awake

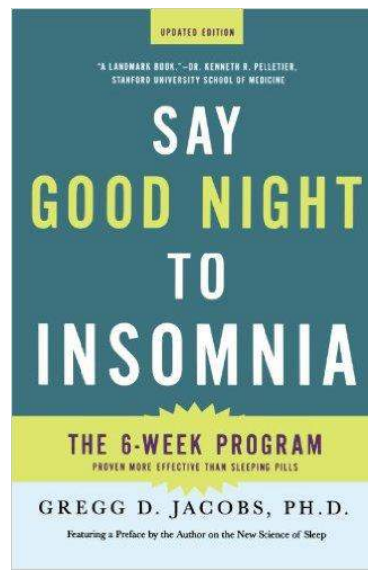
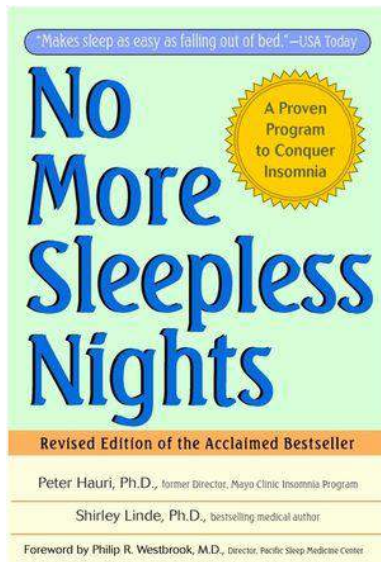
# CBT-I: PATIENT RESOURCES

[www.sleepio.com](http://www.sleepio.com) (\$120 -12 week access)

<http://shuti.me> ( \$135 – 16 week access)

[www.cbtforsomnia.com](http://www.cbtforsomnia.com) (\$60- CD)

## Books:



# DELAYED SLEEP PHASE SYNDROME

- Desynchronization of circadian rhythm
- Characterized by sleep and wake times that are habitually delayed compared to conventional times
- Sleep is usually normal once it is initiated
- Prevalence in adolescents around 3%
- Develops due to an interaction of a delay in the intrinsic circadian rhythm and poor sleep hygiene
- Mechanism not clear, however endogenous melatonin may be an important mediator in pathophysiology

# DELAYED SLEEP PHASE SYNDROME: TREATMENT

Review sleep hygiene principles

- Reduce screen time before bedtime

Sleep diary and behavioural therapy as appropriate

Phototherapy

- Sunlight
- Light box (10, 000 lux box) for 30 min

Chronotherapy

Timed, low dose Melatonin ?

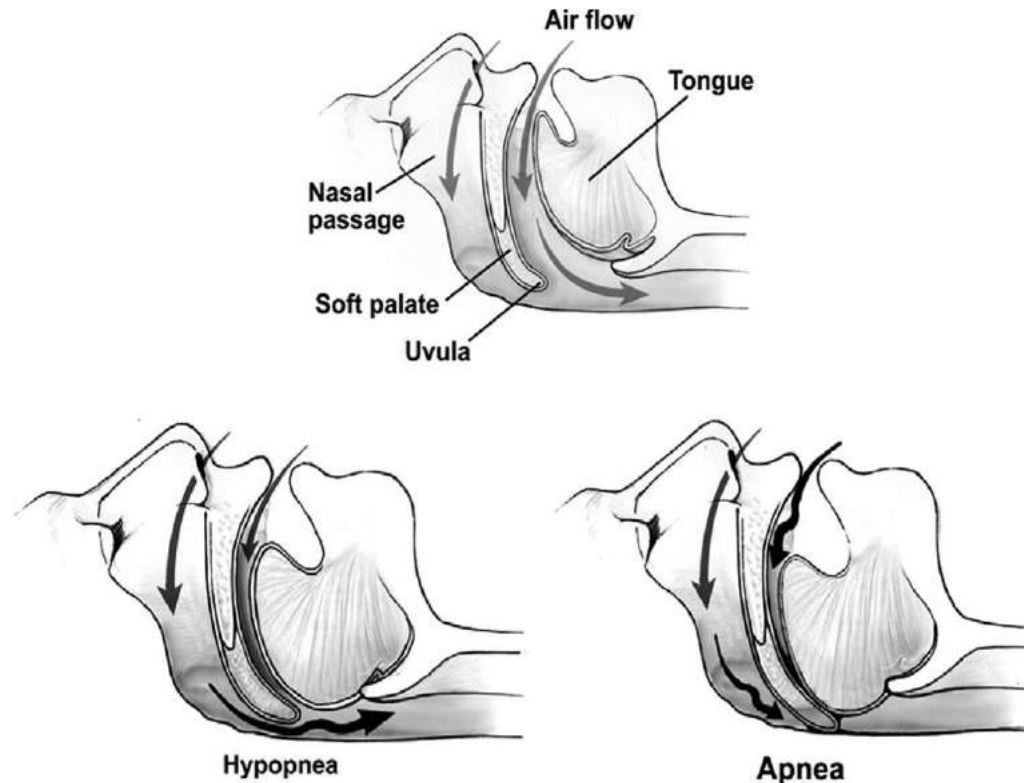


# WHAT IS THE MOST COMMON CAUSE OF EXCESSIVE DAYTIME SLEEPINESS?

## Inadequate sleep

- Lack of time spent in bed
- Poor quality of sleep

# OBSTRUCTIVE SLEEP APNEA



Somers, V. K. et al, J Am Coll Cardiol 2008;52: 686-717

AHI (apnea hypopnea index): normal <5/hour

- Mild: 5-15 events/hour
- Moderate: 16-30 events/hour
- Severe: >30 events/hour



# CLINICAL PRESENTATION OF OBSTRUCTIVE SLEEP APNEA

Snoring

Witnessed apnea

Sleep maintenance difficulty

Excessive sleepiness

Cognitive changes: concentration, focus,  
memory loss

Nocturia

Morning headache

# HIGH RISK FOR OSA

Obesity (BMI $\geq$ 35)

Congestive Heart Failure

Resistant HTN

Atrial Fibrillation

Stroke

Type II DM

Pulmonary HTN

# WHAT PHYSICAL EXAM FINDING MIGHT BE THERE FOR FRAGMENTED FRANK?

The physical exam can be normal, or

- Neck circumference (>17 inches for men, >16 for women)
- BMI
- Retrognathia
- Upperairway (macroglossia, tonsillar hypertrophy, enlongated uvula, narrow hard palate)
- Nasal abnormality (polyps, septum deviation, turbinates hypertrophy)

# CASE 4 – FRAGMENTED FRANK: WHAT TESTS NEED TO BE DONE?

Polysomnography: a basic sleep study

CBC - polycythemia

TSH – hypothyroidism

# TREATMENT OPTIONS FOR OBSTRUCTIVE SLEEP APNEA: BEHAVIORAL

- Positional therapy
- Weight loss
- Avoid sedating substances

# OPTIONS FOR THERAPY: PAP

## Pros:

- Highly effective
- Evidence-based
- Easily monitored
- Cost (mostly paid by ADP)

## Cons:

- Adherence
- Better interface
- Variety of machine settings: APAP, BiPAP, autoBiPAP



# OPTIONS FOR THERAPY: MANDIBULAR ADVANCEMENT DEVICE

## Pros:

- Better Adherence
- Similar efficacy for mild-mod OSA long-term
- 2015 AASM guideline recommend “offering it to those who are intolerant to CPAP or prefer alternatives”

## Cons:

- Certified dentist
- Cost \$\$
- Dentation

# OPTIONS FOR THERAPY: NASAL EPAP

## Pros:

- Easy to use
- Better adherence
- Travel

## Cons:

- Cost \$\$\$
- Efficacy
- Lack of studies comparing to other devices

# HOW DOES THE HISTORY OF DISRUPTED SLEEP RELATE TO HIS STROKE?

Sleep Apnea and Hypertension: adjusting baseline pressure, BMI, neck size, age, sex and alcohol

Odd Ratio for developing HTN:

- AHI 5-15 = 2.03
- AHI >15 = 2.89

Sleep apnea and Cardiovascular Events: adjusting for age, race, sex, a.fib, HTN, DM, BMI

Men in highest quartile (AHI >19)

- HR for CHF 2.38,
- HR for Stroke 2.76

# ARE THERE ANY CONCERNS FOR PUBLIC SAFETY?

## Reportable to Ministry of Transportation

- Uncontrolled Severe Sleep Apnea
- Narcolepsy

# SCREENING TOOLS FOR OSA

## Berlin's Questionnaire

- Developed in 1988 in Berlin by group of family and sleep doctors
- Assess 3 risks categories
  - Presence and frequency of snoring behaviour
  - Daytime sleepiness and fatigue
  - History of obesity and/or HTN
- Validated to use in primary care setting
- Highly sensitive (90%), low specificity (25%)

# SCREENING FOR OSA: STOP-BANG

S – Do you snore loudly

T – Do you feel tired or sleepy during daytime?

O- Observed: Has anyone observed you stop breathing during sleep?

P- Blood Pressure: Are you being treated for HTN?

B- BMI  $\geq 35$

A- Age  $> 50$

N- Neck circumference  $> 40$  cm

G- Gender: Male

Score : 3-4: intermediate risk

Score  $\geq 5$  : high risk

<http://stopbang.ca>



# PRINCIPLES OF PHARMACOLOGICAL TREATMENT FOR INSOMNIA

- Considered an adjunct to cognitive and behavioral therapies in the comprehensive management of primary insomnia
- Generally recommended at the lowest effective dose for short term
- Long-term use of hypnotic agents is discouraged due to the potential for tolerance and dependence
- Specific situations and circumstances under which long term use of hypnotics may be appropriate.

# MEDICATIONS INDICATED FOR INSOMNIA IN CANADA<sup>1,2</sup>

Benzodiazepines	Doses	Half-life
Flurazepam (Dalmane)	15, 30 mg	40-250 (75 mean)
Nitrazepam (Mogadon)	5, 10 mg	16-38 (28.8 mean)
Temazepam (Restoril)	15, 30 mg	4-18 (8.8 mean)
Triazolam (Halcion)	0.125, 0.25 mg	1.5-5.5 (2 mean)
<b>Z-drugs (Non-benzodiazepine sedative-hypnotics)</b>		
Zopiclone (Imovane)	5, 7.5 mg	3.8-6.5 (6 mean)
Zolpidem (Sublinox)	SL 5, 10 mg	2-3
<b>Low dose antidepressant</b>		
Doxepin (Silenor)	3, 6 mg	17 (51 metabolite)

1. Health Canada. Authorized Sleep-Aid Medications in Canada.  
<http://www.healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2009/13335a-eng.php>.

2. MacFarlane. *Insomnia Rounds*. 2012;1(2):1-6





# OVER-THE-COUNTER AGENTS

## Antihistamines

- Limited number of studies
- Concern re: anticholinergic side effects

## Valerin

- Small but consistent effect on sleep onset latency, but inconsistent effect sleep duration, continuity and architecture

## Melatonin

- Small effect on sleep onset latency with little effect on wakefulness after sleep onset or total sleep time
- Most studies are done on its chornobiotic property rather than insomnia

Long term efficacy or safety is not known for these agents

# WHAT SHOULD YOU CONSIDER BEFORE PRESCRIBING SLEEP AIDS

## Benzodiazepine receptor Agonist (BzRA) :

- short term efficacy for treatment of insomnia is good, but long term efficacy is very limited
- Health Canada warning 2009 – Zopiclone related to complex sleep behaviour
- Health Canada Jan 2014- Recommend lower doses of Zolpidem in women

## Benzodiazepines:

- decreases slow wave sleep (restorative sleep)
- Increased risk for falls in elderly
- Addictive
- Reduces sleep onset by 10 minutes and increases total sleep time by 30-60 min.

Non-pharmacological therapy superior to combined therapy in long – term.

# LONG-TERM PHARMACOTHERAPY

May be necessary

- Severe or Refractory Insomnia
- Co-morbid illness

Requires consistent followup, ongoing assessment of effectiveness and monitoring of side effects

Should receive adequate trial of CBT-I when possible

# IS HIS SUBJECTIVE COGNITIVE DEFICIENCY RELATED TO SLEEP AIDS?

Meta-analysis (24 randomized trials, 2417 patients) evaluated the impact of pharmacotherapy in adults older than 60 years with insomnia

- improvement of sleep quality, total sleep time, and frequency of nighttime awakening
- However, the magnitude of these benefits was relatively small compared to two-to fivefold increase in adverse cognitive or psychomotor events

Glass J et. al, Sedative hypnotics in older people with insomnia: meta-analysis of risks and BMJ. 2005;331(7526):1169.

# WEANING OFF

Weaning can be accomplished by

- Gradually reducing the nightly dose (smallest increment possible) over weeks-months
- Not taking hypnotic for one night of the week (typically starting with the weekend), and then gradually increasing the number of drug-free nights

The hypnotic should not be taken PRN

Once the dose or frequency of the hypnotic has been reduced,  
*there is no going back*

Some rebound insomnia may occur

Continue to apply principles of behavioural sleep techniques/hygiene during the weaning process and record with a sleep diary

# TAKE HOME POINTS

Get an adequate sleep history

Search and treat for underlying causes of  
Insomnia

First line treatment for Insomnia: Behavioral  
therapy

Be aware of prescribing sleeping aids

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