Insomnia in the Geriatric Population

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Family Medicine – Ed Day

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Background

- Insomnia is a common problem in primary care, more than 5.5 million outpatient visits annually (10)
- Associated with older age; female sex; mental illness; poor general health; lower socioeconomic status (1, 2)
- **Sleep problems in the elderly are often undiagnosed and undertreated**
- Inadequate sleep is associated with decreased memory ,increased risk of falls, and impaired functional performance.
- Medications have worrisome side effects in the elderly population

Outline

Overview

Normal Sleep in the Aging Population

Total Sleep Time (TST): Decreases with age

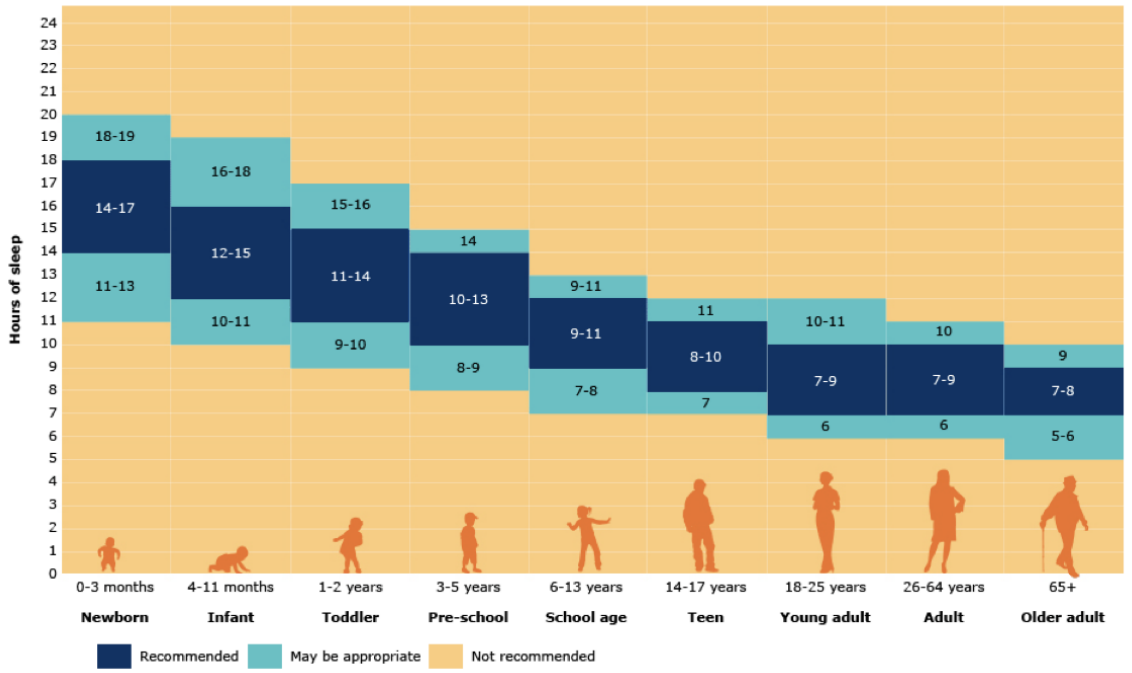
Sleep efficiency: Decreases with age

- Ratio between the time a person spends asleep and the total time dedicated to sleep

Sleep maintenance: Wakefulness after sleep onset (WASO) increases with age

Elderly patient population should be getting 7-9 hours of sleep

Sleep duration recommendations by age from the National Sleep Foundation*



* These recommendations are very similar, but not identical to those from the American Academy of Sleep Medicine (AASM).[1,2]

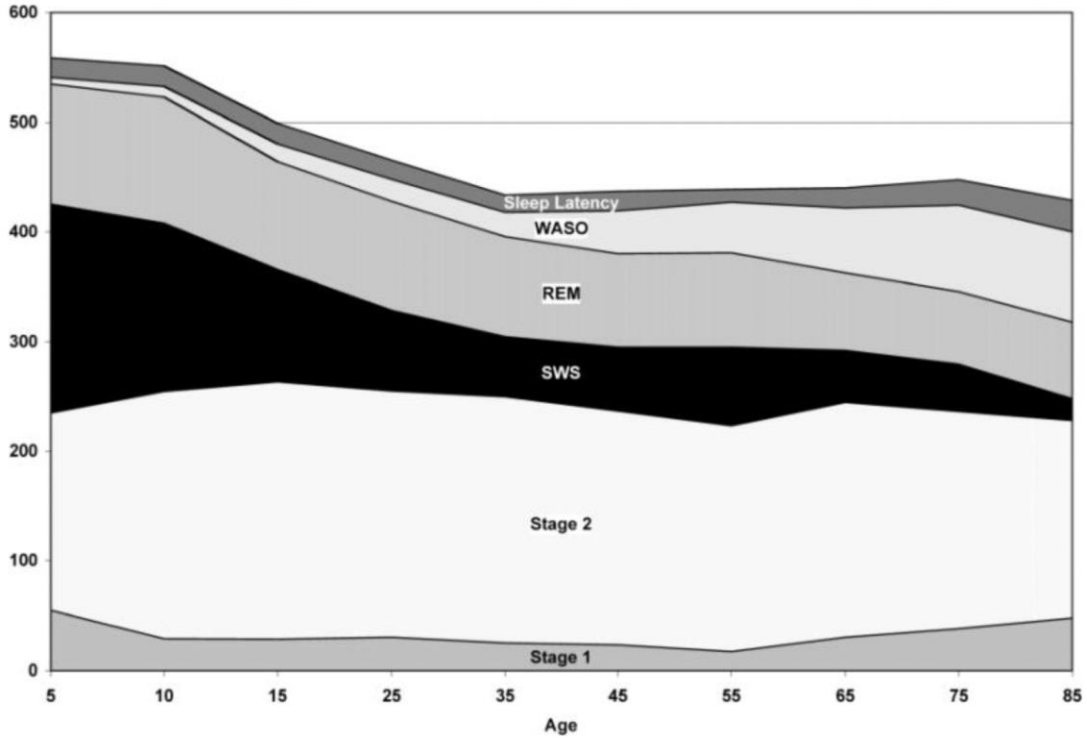
Paruthi et al. (2016)

Sleep architecture

- Rapid Eye Movement (REM) (5)
- Non Rapid Eye Movement (NREM)
  - -Stage 1 and 2: light sleep
  - -Stage 3 and 4: deep sleep

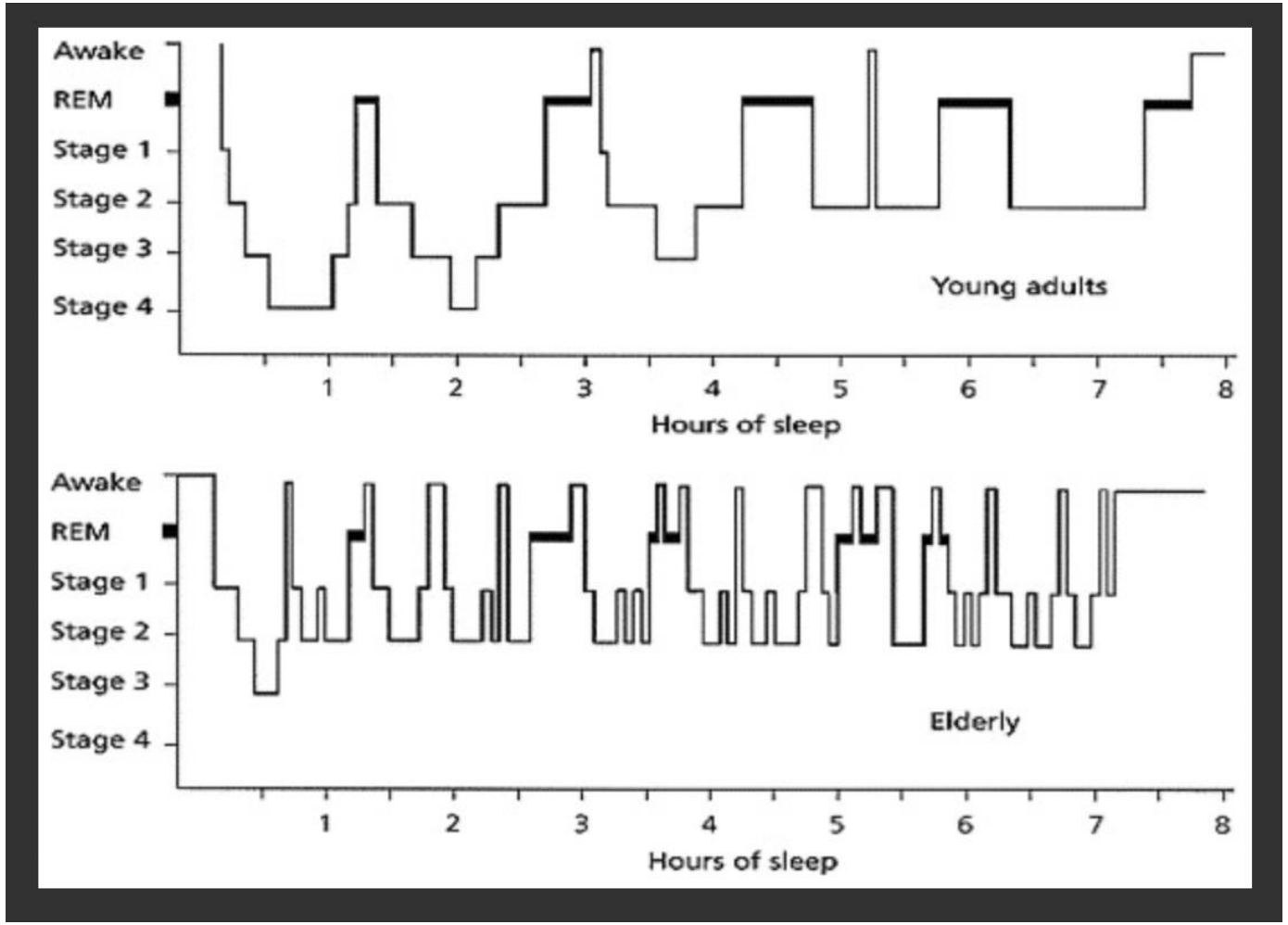
Aging and changes in sleep architecture

- NREM Deep Sleep (Stage 3 and 4) decreases with age
- NREM stage 1 and stage 2 increases with age
- REM sleep decreases with age (but associations are weak) (3)



Li et al. (2017)

Comparison of young adults versus Elderly sleep architecture



Sleep changes in the elderly compared with the young adult. Reproduced with permission from the 1999 issue of *American Family Physician*. Copyright © 1999 American Academy of Family Physicians. (5)

Definition of Insomnia

DSM- 5, these must be present for at least 3 months and must occur at least 3 nights per week.

1)Difficulty initiating sleep

2)Difficulty maintaining sleep

3)Early- morning awakening with inability to return to sleep (7)

Short-term insomnia and chronic insomnia (6)

Significance of Insomnia

- Increased risk for diabetes and metabolic syndrome (7)
- Associated with significant morbidity and higher rates of depression and suicidality in geriatric population (7)
- Incidence of HTN was 3.8x higher (8)
- Incidence of heart failure 4.5x higher (9)
- Brain health: Sleep duration correlated with amyloid plaques (11)
- Sleep disturbance is associated with a > 50% increased risk for Alzheimer's disease.(12)

Approach to Chronic Insomnia in Elderly: Evaluation

History

- including substance use and psychiatric history
- ask about sleep initiation, sleep maintenance and early awakenings
- Review of medications and supplements

Assessment using a validated sleep quality rating scale

PHQ-2 and GAD-7

Validated screening tools for chronic insomnia

- **Pittsburgh Sleep Quality Index:**
  - PSQI > 5 has sensitivity (89%) and specific (86.5%) for differentiating "poor" from "good" sleepers- Time to complete: 5–10 minutes
- Insomnia Severity Index: Validated for ages 17-84
- Insomnia Symptoms Questionnaire
- Epsworth Sleepiness Scale (ESS): ~5 min to complete
- Sleep problems questionnaire (17)

The Pittsburgh Sleep Quality Index (PSQI)

Instructions: The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions. During the past month,

1. When have you usually gone to bed? _____
2. How long (in minutes) has it taken you to fall asleep each night? _____
3. When have you usually gotten up in the morning? _____
4. How many hours of actual sleep do you get at night? (This may be different than the number of hours you spend in bed) _____

5. During the past month, how often have you had trouble sleeping because you…	Not during the past month (0)	Less than once a week (1)	Once or twice a week (2)	Three or more times week (3)
a. Cannot get to sleep within 30 minutes				
b. Wake up in the middle of the night or early morning				
c. Have to get up to use the bathroom				
d. Cannot breathe comfortably				
e. Cough or snore loudly				
f. Feel too cold				
g. Feel too hot				
h. Have bad dreams				
i. Have pain				
j. Other reason(s), please describe, including how often you have had trouble sleeping because of this reason(s):				
6. During the past month, how often have you taken medicine (prescribed or "over the counter") to help you sleep?				
7. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?				
8. During the past month, how much of a problem has it been for you to keep up enthusiasm to get things done?				
	Very good (0)	Fairly good (1)	Fairly bad (2)	Very bad (3)
9. During the past month, how would you rate your sleep quality overall?				

Component 1	#9 Score	C1_____
Component 2	#2 Score (≤15min=0; 16-30 min=1; 31-60 min=2, >60 min=3) + #5a Score (if sum is equal 0=0; 1-2=1; 3-4=2; 5-6=3)	C2_____
Component 3	#4 Score (>7=0; 6-7=1; 5-6=2; <5=3)	C3_____
Component 4	(total # of hours asleep)/(total # of hours in bed) x 100 >85%=0, 75%-84%=1, 65%-74%=2, <65%=3	C4_____
Component 5	Sum of Scores #5b to #5j (0=0; 1-9=1; 10-18=2; 19-27=3)	C5_____
Component 6	#6 Score	C6_____
Component 7	#7 Score + #8 Score (0=0; 1-2=1; 3-4=2; 5-6=3)	C7_____

Add the seven component scores together _____ **Global PSQI Score** _____

Buysse, D.J., Reynolds III, C.F., Monk, T.H., Berman, S.R., & Kupfer, D.J. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. *Journal of Psychiatric Research, 28*(2), 193-213.

Identify the cause of chronic insomnia

1) Primary sleep disorders
Circadian rhythm disorders:
    1) Advanced sleep-phase syndrome
    2) Delayed sleep-phase syndrome
  Sleep apnea (obstructive, central, or mixed), Restless leg syndrome, Periodic limb movement disorders (nocturnal myoclonus), REM, behavior disorder
2) Physical illness:
  Pain: arthritis, musculoskeletal pain, other painful conditions
  Cardiovascular: heart failure, nocturnal breathlessness, nocturnal angina
  Pulmonary: chronic obstructive pulmonary disease, allergic rhinitis (nasal obstruction)
  Gastrointestinal: gastroesophageal reflux disease, peptic ulcer disease, constipation, diarrhea, pruritus ani
  Urinary: nocturia and urinary retention, incomplete bladder emptying, incontinence
  Central nervous system: stroke, Parkinson disease, **Alzheimer disease**, seizure disorder
  Psychiatric illness: **anxiety, depression**, psychosis, dementia, delirium
  Pruritus
  Menopause (hot flushes)
3) Behavioral: daytime nap, early retirement to bed, use of bed for other activities (eg, reading and watching television), heavy meals, lack of exercise, and sedentary lifestyle
4) Environmental: noise, light and other disturbances, extreme temperatures, uncomfortable bedding, and lack of exposure to sunlight (2)

Identify the cause, continued

5) Medications: (2)

Central nervous system stimulants: sympathomimetics, caffeine, nicotine, antidepressant, amphetamines, ephedrine, phenylpropanolamine Phenytoin

Antidepressants: **bupropion, selective serotonin reuptake inhibitors, venlafaxine**

Anti-Parkinsonian agents: levodopa

Decongestants: pseudoephedrine

Bronchodilators: theophylline

Cardiovascular: **B-blockers**, diuretics

Antihypertensives: clonidine, methyldopa, corticosteroids

Histamines, H2 blockers: cimetidine

Anticholinergics

~~Alcohol~~

Herbal remedies

Stimulant laxative

Management

- Physical examination, appropriate lab test
- Consider 2-week sleep diary

Treatment

- Effective treatment of the primary problem
- **Sleep hygiene measures**
- **Nonpharmacologic measures**
- **Pharmacologic intervention**

Nonpharmacological interventions

Sleep Hygiene (may not be enough to cure insomnia, but a great first step

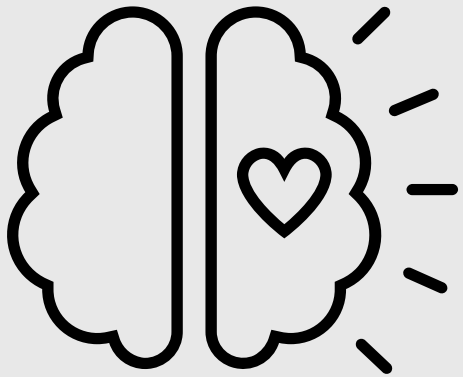
Exercise:

- Moderate exercise in older patients improved sleep time, sleep onset latency, global sleep quality (15)

CBTI: First-line treatment

Cognitive behavioral therapy for insomnia (CBTI)

- First line treatment
- About 4-8 sessions
- Behavioral and Cognitive components
- Different modalities:
  - individual, in-person, televisits, ect.



CBT-I

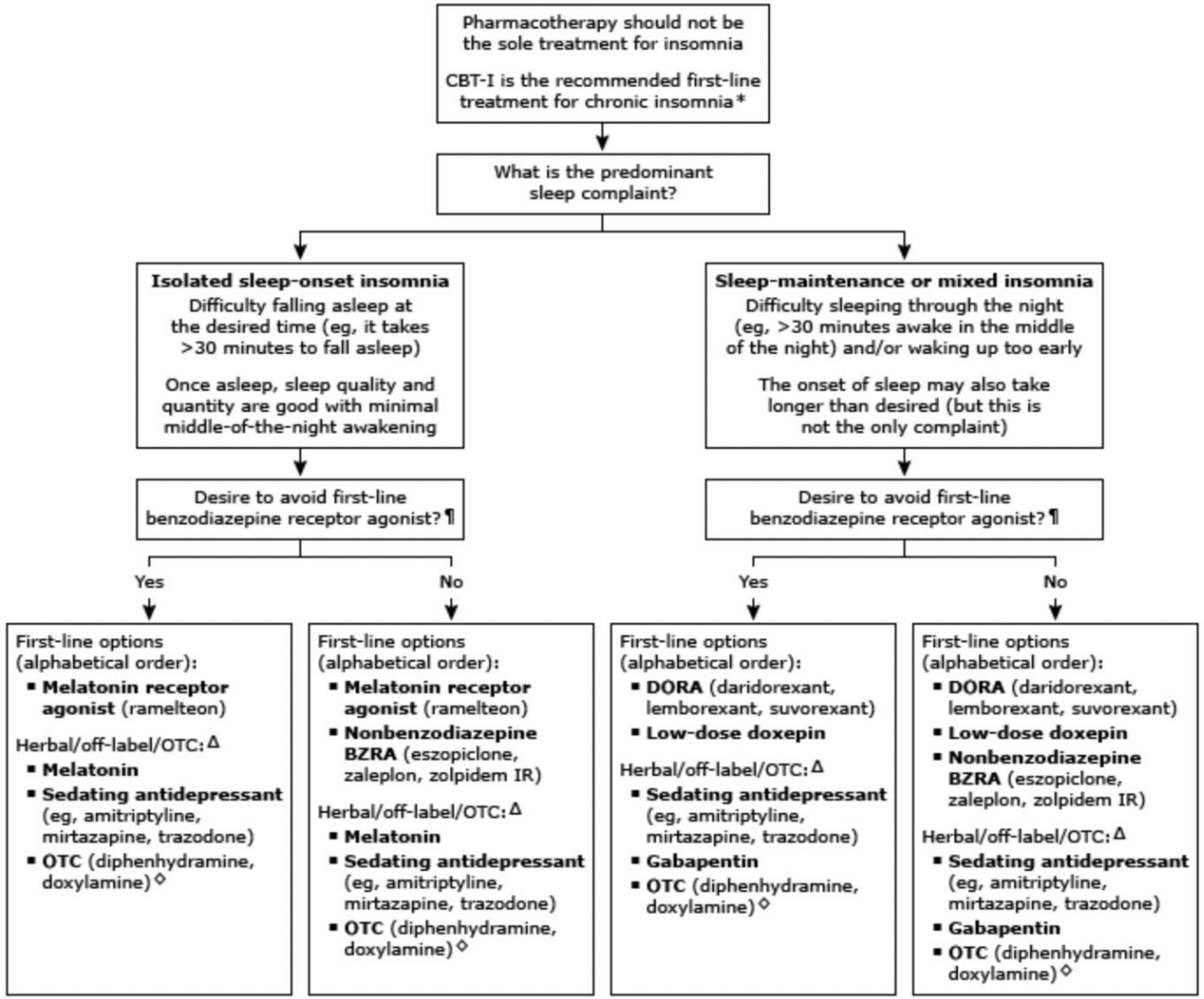
- Short-term trials: CBT-I alone = CBT-I + medication , > Medication alone
- Longer-term trials (12-24 months) CBT-I alone or CBT-I + medication > Medication alone (16)
- CBT-I has greater efficacy than sleep hygiene education, especially for patients with comorbid conditions (2)
- American Academy of Sleep Medicine, the British Association for Psychopharmacology, the American College of Physicians, and the European Sleep Research Society all endorsed CBT-I or other behavioral therapies over medication as initial therapy (16)

Resources for CBT-I

- Resources: Under psychiatry at UCLA there is a UCLA insomnia clinic https://www.uclahealth.org/medical-services/psychiatry/adult/ucla-insomnia-clinic/our-treatments
- Online: Somryst, Sleepio , VA Sleep Coach app

Pharmacologic intervention

◊ Not recommended for chronic use. Avoid use in older adults. (16)



Medications for primary insomnia treatment (2)

Medication class/name	Dose	Sleep Outcome	SOR	Adverse effects
Nonbenzodiazepines				
Eszopiclone	**2 mg** or 3 mg	Sleep-onset latency, sleep maintenance	B	Dizziness, dry mouth, headache, dementia, serious injury, falls with fracture, somnolence
Zaleplon	**5 mg** or 10 mg	Sleep-onset latency	B	Headache, dementia, somnolence, falls with fracture
Zolpidem 10 mg		Sleep-onset latency, sleep maintenance	B	Dizziness, sedation, headache, rebound insomnia after discontinuation, excessive sleepiness at dosese>10 mg, dementia, falls with fractures
Melatonin agonist				
Ramelteon	**8 mg**	Sleep-onset latency	B	Headache, nausea
Orexin-receptor antagonist				
Suvorexant	**10 mg,** 15/20 mg, or 20 mg	Sleep maintenance	B	Mild day time sedation
TCA				
Doxepin	3 mg or 6 mg	Sleep maintenance	B	Somnolence, headaches

SOR: strength of recommendation

Medications NOT recommended for primary insomnia treatment (2)

- Antidepressants: Mirtazapine, Trazodone
- Anticonvulsants: Tiagabine
- Antihistamine: Hydroxyzine, diphenhydramine
- Amino acid- L tryptophan
- Herbal supplement : Valerian root
- TCA: Amitriptyline
- Atypical antipsychotics: Olanzapine, quetiapine

American Academy of Sleep Medicine

- **Physiological and Behavioral Treatment of Insomnia in Adults**
- **<u>We recommend that clinicians use multicomponent cognitive behavioral therapy for insomnia for the treatment of chronic insomnia disorder in adults. (STRONG)</u>**
  - We suggest that clinicians use multicomponent brief therapies for insomnia for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)
  - We suggest that clinicians use stimulus control as a single-component therapy for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)
  - We suggest that clinicians use sleep restriction therapy as a single-component therapy for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)
  - We suggest that clinicians use relaxation therapy as a single-component therapy for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)
  - We suggest that clinicians *not* use sleep hygiene as a single-component therapy for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)(19)

American Academy of Sleep Medicine

- We suggest that clinicians use suvorexant as a treatment for sleep maintenance insomnia (versus no treatment) in adults. (WEAK)
- We suggest that clinicians use eszopiclone as a treatment for sleep onset and sleep maintenance insomnia (versus no treatment) in adults. (WEAK)
- We suggest that clinicians use zaleplon as a treatment for sleep onset insomnia (versus no treatment) in adults. (WEAK)
- We suggest that clinicians use zolpidem as a treatment for sleep onset and sleep maintenance insomnia (versus no treatment) in adults. (WEAK)
- We suggest that clinicians use triazolam as a treatment for sleep onset insomnia (versus no treatment) in adults. (WEAK)
- We suggest that clinicians use temazepam as a treatment for sleep onset and sleep maintenance insomnia (versus no treatment) in adults. (WEAK) (20)

BEST PRACTICES IN SLEEP MEDICINE: RECOMMENDATIONS FROM THE CHOOSING WISELY CAMPAIGN

Recommendation	*Sponsoring organization*
Do not use benzodiazepines or other sedative-hypnotics in older adults as a first choice for insomnia, agitation, or delirium.	American Geriatrics Society
Avoid the use of hypnotics as primary therapy for chronic insomnia in adults; instead, offer cognitive behavior therapy and reserve medication for adjunctive treatment when necessary.	American Academy of Sleep Medicine
Do not routinely prescribe antipsychotic medications as a first-line intervention for insomnia in adults.	American Psychiatric Association

Source: For more information on the Choosing Wisely Campaign, see http://www.choosingwisely.org. For supporting citations and to search Choosing Wisely recommendations relevant to primary care, see http://www.aafp.org/afp/recommendations/search.htm.

Summary

Management:

Evaluation

- Thorough history
- Validated insomnia screening tool

Treatment: Multifactorial

- CBTI!!!!
- Treat underlying medical/psychiatric conditions
- If medications are required, start with lowest dose and titrate upward slowly (FDA approved medications)
- Use sedating low-dose antidepressants for insomnia only when the older patient has comorbid depression
- Limit use of nonbenzodiazepine receptor agonist "Z-drugs"
- Avoid benzodiazepines, OTC medications, and off-label medications
- When using pharmacologic treatment, always in conjunction with nonpharmacologic treatments

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Questions? ☺