To Sleep, Perchance to Dream

Insomnia and Sleep Hygiene
Dec 2012

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Sleep basics
- Adequate = 7-8 hours
- Stage IV → rejuvenating
  - Impaired by ETOH & Benzos
- Essential to restore neurotransmitters & ensure daytime cerebral functioning

Cases
- 53 yo woman, h/o depression, Hep C, former meth, HTN, pre-DM, panic attacks. Trouble sleeping most nights, “worrying too much.”

Value of REM sleep
- Memory consolidation
- Process emotions
- Dreams!

Epidemiology

- Affects 30-50% of US Adults
- 10% have chronic Insomnia
- $107 billion lost productivity
- ~24,000 die 2/2 sleep-deprivation accidents
- 60% of adults will fall asleep while driving
- 90 years ago we slept 9.5 hrs q night
  - Now → 6.8h M-F, 7.2h Sat/Su

Now that you mention it...

- Do you sleep "well"?
- Do you feel rested in the morning?

Types

- Sleep onset delay = “can’t fall asleep”
- Nighttime awakening = “can’t stay asleep”
- Poor sleep quality
  - Lack of deep stage 3 and 4 sleep
- Early awakening
- Circadian Rhythm Disturbances
  - Delayed sleep phase syndrome (ie, night owls)
  - Advanced sleep phase syndrome

Workup for patients with insomnia

1. The Presenting Complaint
2. Sleep-wake routine
3. Daytime functioning & symptoms
4. Sleep conditions and routines → SLEEP HYGIENE
5. Previous sleep treatments
6. Comorbid medical conditions
7. Psychiatric conditions and life stressors
8. Medication and substance use

Insomnia: Co-morbid medical conditions
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- Neuro: AD, Parkinson’s
- Pulm Dx Sleep Apnea
- Menopause
- Nocturia
- Restless Leg Syndrome
- Chronic pain/arthritis
- Thyroid dx
- CHF
- GERD
- BPH
- Offending drugs & substances
  - Drugs
    - Thyroid
    - OCP
    - Sedative Abuse
    - Decongestants
    - B-agonists
    - Steroids (up to 70%)
    - Calcium Channel Blockers
    - Diuretics
    - Anti-epileptics
    - SSRI
  - Herbs
    - Ephedra
    - Ginseng
    - Kola nut
  - Substances
    - Alcohol
    - Caffeine
    - Nicotine

Sleep Log
- 1-2 weeks
- To bed time
- To sleep time (approximate)
- wake time
- daytime naps
- number of nocturnal awakenings
- total sleep time
- subjective evaluations of sleep quality

National Sleep Foundation
http://sleep.buffalo.edu/sleeppdiary.pdf

*This is one week sleep diary for patients to fill out.

Treatment Basics (Doh!)

Two diverge treatment strategies:

1) Taking something to help sleep.
2) Letting go of something to help sleep.

REDUCE EXCESSIVE WAKEFULNESS*
Sleep Hygiene

- Sleep Only When Sleepy
- Keep a regular Sleep Schedule
- Don’t Over sleep
- Exercise (best is 4-5 hours before bed)
- Don’t go to bed hungry, but avoid large meals immediately before bedtime
- Avoid Caffeine, Alcohol, Nicotine (...and Meth) after lunch
- Create a healing environment in the bedroom
  - White noise
  - Black out shades
  - Ear plugs
  - Temperature, blankets vs. heat

Non-Pharmacologic Therapies

- Take a warm bath 90 minutes before bed
- Relaxation Techniques
  - Deep breathing
  - Self-hypnosis
  - Progressive Muscle Relaxation
  - Biofeedback
  - 42% improvement after 1 yr
- Cognitive Behavioral Therapy
  - More effective than benzos alone in long term
  - More effective than ambien in small RCT

Nutrition

- Avoid stimulants, sugar, refined carbs, and food additives (yellow #5).
- Inquire re: food sensitivities (dairy, wheat, corn, chocolate)
- Eat regular meals (balances circadian rhythm)
- B-Complex (maximizes catalytic conversion of neurotransmitters)
- Ca & Mg (45 min before HS)

Sleep Hygiene (cont.)

- Turn down lights before bed time
- Develop Ritual
  - Lavender, Music, Warm Drink
- Increase Blank or Boring Time before bed
  - Turn down the dimmer on your brain
- Bed is for Sex and Sleep ONLY
  - No reading, TV, working or eating in bed
- Avoid Day time Naps
  - If you must, limit to 1hr prior to 3pm

Non-pharmacological Therapies

- Stimulus control therapy
  - Unlearn fear and wake association with bed
  - If not sleeping after 20 minutes, leave bed and do something which does not reward you being awake.
  - Return to bed when sleepy
  - Repeat if not asleep after 20 minutes.

- Goal: “Sleep Efficacy” > 85%
  - i.e. 85% of time or greater spent in bed in sleeping


Sleep Inducing Foods

- High tryptophan/tyrosine and tryptophan/phenylalanine ratios:
  - Pumpkins, potatoes, bananas, onions, spinach, broccoli, cauliflower, eggs, fish, liver, milk, peanuts, cheddar cheese, whole grains (whole wheat, brown rice, oats), cottage cheese, beans, turkey, chicken, beef, soy, nuts, papayas, figs.
Natural Medicines

German Chamomile
- Can be taken as tea alone
- Mildly anxiolytic
- Studies inconclusive for insomnia
- Avoid if Daisy allergy
- Safe in Children

Valerian
- Mechanism: Increased GABA
- 600mg of 0.4% extract (Valerianic acid)
- 150-300mg of 0.8% extract
- Max 1800mg
- TEA: 3-5g whole root, steeped 10-15min
- Better when used daily
- Commission E approved: Nervousness & Insomnia
- Avoid with ETOH

Am Fam Physician 2003; 67:1755-1758.

Valerian (cont)
- Review of 16 studies with >1000 patients showed benefit but cited methodological flaws and publication bias
- Several sources state must be used regularly to produce effect, however...
- Recent RCT demonstrated superior to placebo when using valerian/hops combination for one night only.

Other Mild Herbs
- Passion flower
  - 200 mg at bedtime, 3.5% isovitexin per dose
  - Frequently combined with valerian
  - Likely binds benzo receptors
- Lemon Balm
  - Positive studies combined with valerian
- Chinese Skullcap
  - GABA
- Hops
  - RCT with valerian positive; sedative hypnotic
  - Found in IPA


Kava Kava
- Central muscle-relaxing,
  Anticonvulsivse, antispasmodic.
  Hypnotic, sedative, analgesic, psychotrophic, antiplatelet.
- 135-210mg Kavalactones, 1 hr prior to bed
- Positive RCT’s for anxiety, not for insomnia
- Avoid: pregnant, breastfeeding, organic depression, prolonged use (3mo), hepatic disease
Melatonin

- Endogenous Melatonin affected by drugs (B-blockers, ETOH, caffeine) and environmental lighting.
- Best for delayed sleep onset
- Sustained release forms available
- 0.3-3 grams 45-90 minutes before sleep. Up to 10 - 20 grams as needed. High doses can suppress endogenous melatonin system.
- Avoid after 10pm
- May have other effects: Depression, SAD, Anti-inflammatory, Anti-tumor in vitro

Melatonin

- Age related sleep inefficiency
  - Start 0.3mg.
  - double in one week if needed
- Jet Lag
  - 0.3-0.5mg QHS on day of arrival and 4 days after
- Avoid in Dementia, Seizure DO, Warfarin, Children. (2B, 2C)

Other

- St. John's wort
  - Superior to placebo
  - Equivalent to SSRI & TCA's
- L-theanine – Anxiolytic aa
  - Shown to improve alpha wave activity
  - Green tea (25-50 mg), Dose: 200 mg qhs
- 5-HT 150-200mg QHS
- B3 up to 1g HS for night awakening

Phototherapy

- For circadian rhythm disorders
- 15-30 minutes sun or full spectrum exposure upon waking.
  - Especially blue wavelength.

Pharma

- half-lives of 8.5 to 10 hours
- decreased alertness
- daytime sedation
- prolonged reaction times
- Constipation, Dry Mouth
- Do not improve quality of sleep
- Not recommended for prolonged use

Antidepressants

- Trazadone
- TCA’s: Amitriptyline, Nortriptyline
- Mirtazapine (Remeron)
- Sedate 2/2 anticholinergic/antihistamine effect
- Effective with coexisting depression, probably not without.

Benzos

- Judicious use is best
- Use short acting
- Mechanism poorly understood, improve subjective rather than objective parameters
- Decrease stage 4 sleep 😒
- Combine with non-pharm tx

Back to our Cases…

- Zolpidem (Ambien), Eszopiclone (Lunesta®) → non-benzo, but active at GABA-A, more selective.
- Less addictive, though frequently habituating.
- Theoretically don’t interfere with stage IV sleep
- Problems:

45 yo man, h/o congenital spina bifida, quadriplegia, bladder dystonia, c/o excessive daytime sleepiness. Lives at care facility. Meds: levetiracetam, phenytoin, baclofen, oxybutynin.

Rx: Lower dose offending drugs, wear earplugs

53 yo woman, h/o depression, Hep C, former meth, HTN, pre-DM, panic attacks. Trouble sleeping most nights, “worrying too much.”

Rx: Sleep hygiene, cut out soda, 4-7-8 relaxing breath, very occ low dose benzo.

Zzzzz End!