Insomnia Case

- A 40 year old man c/o insomnia at sleep onset. He worries about sleep at night, and takes 2-3 hrs to fall asleep. He stays in bed while tossing & turning from 11 pm on. Once asleep, he sleeps well, but it is hard to get up for work @ 6:30 am.
- He naps at lunch or after work to “catch up.” He sleeps late on the weekends.
- Occasional alcohol. Caffeine only in morning.
- PMH and exam negative.

Differential Diagnosis of Insomnia

Sleep onset or maintenance?

- Psychiatric / psychological
- Medical
- Drugs (especially caffeine and alcohol)
- Psychophysiological insomnia
  - Poor sleep hygiene
- Circadian rhythm issues
  - Jet lag or Shift work

SLEEP HYGIENE

- Keep regular bedtime and wake-up time (Sleep Restriction?)
- Keep bedroom quiet, comfortable, & dark
- Relaxation technique for 10-30 min before bed
- Get regular exercise
- Don’t nap
- Don’t lie in bed feeling worried, anxious, or frustrated
- Don’t lie awake in bed for long periods of time
- Don’t use alcohol, caffeine, or nicotine

HYPNOTICS (no active metabolites)

- Zolpidem 5-10 mg – Half-life 2-5 hrs
- Zaleplon 5-10 mg – Half-life 1-2 hrs
- Triazolam 0.125-25 mg – Half-life 2-5 hrs
- Temazepam 7.5-15-30 mg – Half-life 7-14 hrs
- Eszopiclone (Lunesta) 1.2 or 3 mg dose; Half-life 6 hrs
- Zolpidem CR (Ambien CR) 6.25 or 12.5 mg dose; Half-life 3-4 hrs
- Ramelteon (Rozerem) 8 mg dose; half-life 2-5 hrs
  - Takes 7-10 days to take effect
  - Do not use with fluvoxamine (Lavox); hepatic metabolism; not a scheduled drug
OTHER SEDATIVES

- Benzodiazepines help with anxiety, but all have longer half-life
  - Lorazepam 10-24 hrs; Alprazolam 12-15 hrs; Diazepam 20-50 hrs
- Sedating anti-depressants
  - Trazadone or Mirtazapine
- Benadryl (Tylenol PM)
- Consider non-sedating antidepressants to help anxiety
  - Paroxetine 20-40 mg or Citalopram 20-40 mg (a.m. or p.m.)

INSOMNIA SUMMARY

- Insomnia is common
- Is the insomnia a problem with sleep onset or sleep maintenance?
- Sleep hygiene interventions are essential and provide longer duration of benefit!
- Medications need to be individualized for the patient’s specific needs

LEG MOVEMENTS AT NIGHT

- Hypnic myoclonus (sleep starts) - normal!
- Restless Legs Syndrome (RLS)
  - Most common symptom in insomnia
  - Clinical Diagnosis
- Periodic Limb Movements of Sleep (PLMS)
  - Legs most common (rhythmic contractions of anterior tibialis), but arms can occur
  - Diagnosed by sleep study to document that kicking causes EEG arousals
TREATMENT OF RLS / PLMS

- Iron deficiency may worsen RLS
  - If ferritin < 50, replace iron to raise ferritin > 100
- May worsen on antidepressants
- Medications:
  - Dopaminergic agents
    - Pramipexole or Ropinirole
  - Clonazepam
  - Gabapentin
  - Opiates

DEFINITIONS

Apnea: complete cessation of airflow for 10 or more seconds

Hypopnea: decrease in airflow for 10 or more seconds, accompanied by 4% or greater oxygen desaturation

Apnea-hypopnea index (AHI; aka RDI): the average number of respiratory events per hour of sleep; for Medicare: AHI > 15 qualifies for CPAP; “mild” AHI 5-15 qualifies for CPAP if pt is also sleepy, HTN, CHF or CVA
PREVALENCE OF SLEEP APNEA

- Wisconsin: 602 working subjects, age 30-60, studied by overnight polysomnography
- Obstructive sleep apnea defined as both AHI > 5 and hypersomnolence
- 9% of women had AHI >5; 22% c/o hypersomnolence; yields 2% prevalence
- 24% of men had AHI >5; 15% c/o hypersomnolence; yields 4% prevalence

T Young; NEJM 1993;328:1230-5

CLINICAL PREDICTORS OF OSA

- Sleep Heart Health: male, age, BMI, neck girth, snoring & apnea predict AHI>15
- NEJM: snoring, daytime sleepiness, drowsiness while driving, obesity and HTN
  - W Flemons; NEJM 2002;347(7):498-503

TREATMENT

- Weight loss – 10% weight loss reduces AHI by 25%
- Avoid alcohol and sedatives
- Postural training
  - “Tennis ball” effective in selected pts
- Nasal patency
  - Allergies may also reduce CPAP effectiveness
- CPAP – Most consistently effective treatment
  - CFLEX or BiLevel may help if high pressures are uncomfortable
- Oral (dental) appliances
- Surgery

Figure 1. Anterior mandibular positioner (Snore-Guard).
New Data on OSA & Cardiovascular Risk

- Spanish prospective observational study in 1387 men referred to sleep center; control group (n=264) recruited from a separate population-based study.
- AHI < 5 simple snorer; if AHI >30, CPAP always recommended; AHI 5-30 mild-mod – CPAP given if sleepy or heart failure.
- At 3 & 6 month fu, if CPAP use < 4 hrs per night, treatment stopped.
- Severe OSA group (AHI> 30) had significantly higher rate of fatal (1.06 per 100 person-yrs) and non-fatal (2.13 per 100 person-yrs) cardiovascular events.
- CPAP treatment reduces risk to level comparable to other groups.
SURGICAL THERAPY

- Nasal Surgery
- Uvulopalatopharyngoplasty (UPPP) reduces AHI by 50% in 50-60% of patients
  - For snoring only: Laser (LAUP), Radiofrequency (Somnoplasty), Pillar
- Tonsillectomy
  - If 3-4+ hypertrophy, success rate as high as 80-90%
- Mandibular advancement
  - Genioglossus advancement with hyoid
  - Mandibular - maxillary osteotomy & advancement
- Tracheotomy remains gold standard

SLEEP

QUESTION #1
What is the most common cause of sleepiness in the US?

1. Restless Legs Syndrome
2. Obstructive sleep apnea
3. Purposeful sleep deprivation
4. Nocturnal visits to Starbucks

QUESTION #2
What is the most effective long-term treatment for insomnia?

1. Hypnotics
2. Sedatives
3. Sleep hygiene
4. Antidepressants
Question #3
What is the prevalence of OSA?

1. Less than 1%
2. 2% in middle-age women and 4% in middle age-men
3. 9% in middle-age women and 25% in middle age-men
4. the same as snoring, which can be over 50% of men over the age of 50

GENERAL REFERENCES
• Behavioral and pharmacological therapies for late-life insomnia. CM Morin et al. JAMA 1999;281:991-9
• No More Sleepless Nights: A Proven Program to Conquer Insomnia; Peter Hauri, PhD - 1995
• Sleep Disorders Clinic in Chest Medicine 2003; June 24(2)
• Restless Legs Syndrome Foundation: www.rls.org – also has good information about Periodic Limb Movements
• The Journal SLEEP is devoted entirely to sleep medicine.

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• Principles and Practice of Sleep Medicine. 4th edition 2005
• Clinics in Chest Medicine “Sleep Disorders.” June 2003;24(2)
• Yaggi HK, Concato J et al. Obstructive Sleep Apnea as a Risk Factor for Stroke and Death. NEJM 2005;353:2334-2341
• Masa JF et al. Alternative Methods of Titrating Continuous Positive Airway Pressure. AJRCCM 2004;170:1218-1224