Sleep Disorders in the Psychiatric Context

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## Disclosure Information

<table>
<thead>
<tr>
<th>Type of Affiliation</th>
<th>Commercial Entity</th>
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<tr>
<td>Consultant/Honoraria</td>
<td>Advance Medical</td>
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<td>Cambridge University Press</td>
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</table>
Sleep medicine in psychiatry

- Sleep disturbance accompanies all psychiatric illness
- Sleep disturbance may also be a cause or a predictor of medical, neurological or psychiatric illness
- Sleep disorders are common and treatable and can improve quality of life and course of psychiatric illness
Sleep disorders

• Insomnias
  – Primary insomnia, psychiatric/medical disorders, RLS, medications

• Hypersomnias
  – Sleep apnea, medications, Periodic leg movements of sleep

• Parasomnias
  – Sleepwalking, sleep terrors, REM behavior disorder (RBD)

• Circadian rhythm disorders
  – Shift work sleep disorder, Delayed sleep phase disorder
Diagnostic tools in Sleep Medicine

- Complete sleep history
- Medical and psychiatric assessment
- Substance use (legal and illegal)
- Physical examination
- Sleep diary
- Polysomnography
- Limited channel test at home ("home sleep test")
- Actigraphy
Taking a Thorough Sleep History

• What is the specific complaint?
  – Sleep initiation, maintenance, early morning awakening?
  – Abnormal sleep-related behaviors, excessive daytime sleepiness?
• Duration of complaint and possible precipitants?
• What are the consequences of sleep disorder, including anxiety regarding sleeplessness?
• Do symptoms parallel underlying medical/psychiatric conditions, medication use?
• Bedtime and sleep hours
• Any sleep hygiene/lifestyle issues?
• Questions about specific sleep disorders
Patient should document sleep patterns in a diary for 2 weeks

Sleep diary will be most helpful in assessing insomnia, circadian rhythm disorders
Indications for polysomnography

- Suspicion of sleep apnea (loud snoring *PLUS one of the following*):
  - daytime sleepiness
  - witnessed apneas
  - refractory hypertension

- Abnormal behaviors or movements during sleep
- Unexplained excessive daytime sleepiness
- Refractory sleep complaints, particularly repetitive brief awakenings
Sleep disorders

- **Insomnias**
  - Insomnia, psychiatric/medical disorders, RLS, medications

- **Hypersomnias**
  - Sleep apnea, medications, Periodic leg movements of sleep

- **Parasomnias (4%)**
  - Sleepwalking, sleep terrors, REM sleep behavior disorder

- **Circadian rhythm disorders**
  - Shift work sleep disorder, Delayed sleep phase disorder
DSM-5 Insomnia disorder

• Dissatisfaction with sleep quality or quantity associated with (at least one of):
  – difficulty initiating sleep
  – difficulty maintaining sleep
  – early morning awakening

• Distress or dysfunction related to sleep disturbance

• Minimum of 3x/wk for 3 months

• The insomnia does not co-occur with another sleep disorder

• The insomnia is not explained by coexisting mental disorders or medical conditions
Chronic Insomnia Requires a Thorough Evaluation

Symptoms → Differential Diagnosis

Treatment ← Diagnosis
Sleep quality is only as strong as the weakest link and many insomniacs have many sleep-related issues.

All contributing factors must be treated to achieve maximum benefit.
Differential diagnosis of chronic insomnia

- Primary psychiatric disorders
- Medications
- Substances
- Medical disorders
- Restless Legs Syndrome (RLS)
- Sleep schedule disorders
- Obstructive sleep apnea
Everybody with chronic insomnia must practice good sleep hygiene

- Standardize wake time
- Limit amount of time awake in bed
- Limit napping
- Remove clock from vision
- Avoid caffeine (after noon) and alcohol (after 6 pm)
- Avoid stressful activities in evening
All psychiatric disorders produce insomnia

Mania > Schizophrenia > Depression and Anxiety Disorders
Psychiatric disorders are present in only 30-40% of those with insomnia.

Bi-directional relationship between insomnia and depressive disorders
Insomnia with Major Depression

• Roughly 80% of those with MDD have an insomnia complaint and half of those have moderate to severe insomnia
• Insomnia is associated with more severe MDD, with increased levels of suicidality, and treatment resistant MDD
• Only ~25% of those with MDD and insomnia are treated with a hypnotic
All types of insomnia are present in MDD (from STAR*D)

PTSD, Panic disorder, GAD are most common comorbidities
Independent treatment of insomnia in MDD improves depression treatment outcome.
Sleep disturbance is the most common persistent symptom in treated MDD

**25% had treatment-emergent onset of nocturnal awakenings (Nierenberg et al, 2012)**

MDD = Major depressive disorder.
Persistent insomnia in treated MDD: sleep disorder or mood disorder?

- Fatigue
- Loss of interest
- Sleep disturbance
- Depressed mood
- Impaired concentration
- Worry
- Agitation
- Irritability
- Suicidality

- inadequately treated MDD
- treatment-induced insomnia
- pre-existing independent (or primary) insomnia
- combination of above
• PTSD is a disorder with an essential difficulty maintaining states of decreased vigilance

• PTSD will therefore nearly always interfere with sleep

• Specific questions as to the circumstances of traumatic episodes (eg night, bedroom) may shed light on sleep disturbance

• Treatments:
  - education as to relationship of PTSD to sleep disturbance
  - safety of sleep environment
  - judicious use of hypnotics
  - prazosin or Image Rehearsal Therapy for nightmares
INSOMNIA RELATED TO MEDICATIONS

- Antidepressants
- Stimulants
- Steroids, bronchodilators
- Decongestants
- Dopaminergic antagonists (akathisia)
No evidence of any distinctions between SSRIs in degree of benefit or worsening of sleep complaints in patients treated for depression

Fava et al., 2002
Stimulant pharmacokinetics are not kind to sleep
Poor sleep in elderly is not related to age, but to medical illness

- **Cardiac**: angina, PND
- **Pulmonary**: COPD, coughing
- **GI**: Nocturnal reflux
- **Musculoskeletal** pain
- **Endocrine**: Hypo/hyperthyroidism, diabetes, menopause
- **Neurologic**: Dementia, Parkinson’s, CVA, migraine
- **Urinary**: Nocturia, renal failure
LICIT SUBSTANCES

• Caffeine
  – Sleepiness can overcome stimulant effects, but awakenings are common

• Alcohol
  – produces 3-4 hours of good sleep, followed by increased wakefulness in 2nd half of night
Treatment of RLS

• Modify reversible causes
  – Iron Deficiency (keep Ferritin > 50)
  – Medication-Induced (SRIs, DA antagonists, antihistamines)

• Pharmacologic approaches
  – Dopaminergic agonists (pramipexole, ropinirole, rotigotine patch) but watch for iatrogenic worsening of RLS
  – Alpha 2 delts ligands (gabapentin, pregabalin)
  – Opioids (oxycodone, methadone)
SLEEP SCHEDULE DISORDERS

• Delayed Sleep Phase Syndrome
  – Most common in adolescents
  – Initial insomnia and difficulty awakening in AM
  – Daytime sleepiness

• Advanced Sleep Phase Syndrome
  – Most common in the elderly
  – Early AM awakening
Conditioned or Psychophysiological Insomnia

Begins with an acute insomnia and is then maintained by negative associations and anxiety regarding sleep initiation ("insomnia phobia") as well as by poor sleep hygiene.
Treatment of Conditioned Insomnia

- Improve sleep hygiene
- Cognitive Behavioral Therapy
- Hypnotics, intermittently or chronically, if CBT fails
<table>
<thead>
<tr>
<th>Component</th>
<th>Intended Effect</th>
<th>Specific Directions for Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep restriction</td>
<td>Increase sleep drive and stabilize circadian rhythm</td>
<td>Reduce time in bed to perceived total sleep time (not less than 5–6 hours), choose specific hours on the basis of personal preference and circadian timing, increase time in bed gradually as sleep efficiency improves</td>
</tr>
<tr>
<td>Stimulus control</td>
<td>Reduce arousal in sleep environment and promote the association of bed and sleep</td>
<td>Attempt to sleep when sleepy, get out of bed when awake and anxious at night, use the bed only for sleep or sexual activity (e.g., no watching TV in bed)</td>
</tr>
<tr>
<td>Cognitive therapy</td>
<td>Restructure maladaptive beliefs regarding daytime and health consequences of insomnia</td>
<td>Maintain reasonable expectations about sleep; review previous insomnia experiences, challenging perceived catastrophic consequences</td>
</tr>
<tr>
<td>Relaxation therapy</td>
<td>Reduce physical and psychological arousal in sleep environment</td>
<td>Practice progressive muscle relaxation, breathing exercises, or meditation</td>
</tr>
<tr>
<td>Sleep hygiene</td>
<td>Reduce behaviors that interfere with sleep drive or increase arousal</td>
<td>Limit caffeine and alcohol, keep bedroom dark and quiet, avoid daytime or evening napping, increase exercise (not close to bedtime), remove bedroom clock from sight</td>
</tr>
</tbody>
</table>
“A story? Honey, wouldn’t you rather a mild sedative?”
The complex neurochemistry of sleep provides many treatment options.

**Ascending arousal pathways**

- Thalamus
- VPAG (DA)
- LH (ORX, MCH)
- BCh (ACH, GABA)
- TMN
- Raphé (5-HT)
- LC (NA)

**Descending inhibitory pathways**

- Thalamus
- VPAG (DA)
- Pef (ORX)
- VLPO (GABA, Gal)
- TMN (His)
- Raphé (5-HT)
- LC (NA)

**Brain regions**

- Hypothalamus
- Pons
- Medulla
- Cerebellum
- Brainstem
Pharmacologic Treatments for Insomnia

- Benzodiazepine receptor agonists (BzRAs)
- Melatonin agonists
- Orexin antagonist
- Sedating antidepressants
- Anticonvulsants
- Dopaminergic antagonists (eg antipsychotics)
- Miscellaneous (eg prazosin, clonidine, hydroxyzine)
**Benzodiazepine-Receptor Agonists (BzRA) Commonly Used as Hypnotics**

<table>
<thead>
<tr>
<th>Agent (brand name)</th>
<th>Dose range</th>
<th>Half-life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clonazepam (Klonopin)</td>
<td>0.25 -1.0 mg</td>
<td>40 hr</td>
</tr>
<tr>
<td>Temazepam (Restoril)*</td>
<td>7.5-30 mg</td>
<td>4-18 hr</td>
</tr>
<tr>
<td>Lorazepam (Ativan)</td>
<td>0.5-2.0 mg</td>
<td>10-20 hr</td>
</tr>
<tr>
<td>Oxazepam (Serax)</td>
<td>10-30 mg</td>
<td>5-10 hr</td>
</tr>
<tr>
<td>Eszopiclone (Lunesta)</td>
<td>1-3 mg</td>
<td>5.5-8 hr</td>
</tr>
<tr>
<td>Triazolam (Halcion)*</td>
<td>0.125-0.25 mg</td>
<td>2-3 hr</td>
</tr>
<tr>
<td>Zolpidem (Ambien)</td>
<td>3.75-12.5 mg</td>
<td>2-3 hr (CR extends duration of action)</td>
</tr>
<tr>
<td>Zaleplon (Sonata)</td>
<td>5-10 mg</td>
<td>1-2 hr</td>
</tr>
</tbody>
</table>

*FDA approved for insomnia.*
Do z-drugs work for insomnia?

Effects modified by higher dose, younger age, female sex

### Table 3

**Weighted mean raw differences in effect of Z drugs (treatment) or placebo on insomnia**

<table>
<thead>
<tr>
<th>Weighted mean differences (95% CI)</th>
<th>Within groups</th>
<th>Between groups</th>
<th>Homogeneity of effect sizes ( f ) (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No*</td>
<td>Treatment</td>
<td>Control</td>
</tr>
<tr>
<td><strong>Primary outcome—sleep latency</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSG</td>
<td>14</td>
<td>-42 (-60 to -23)</td>
<td>-20 (-28 to -11)</td>
</tr>
<tr>
<td>Subjective</td>
<td>2</td>
<td>-24.99 (-30.06 to -19.92)</td>
<td>-19.43 (-26.61 to -12.25)</td>
</tr>
<tr>
<td><strong>Secondary outcomes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wake after sleep onset (PSG)</td>
<td>2</td>
<td>-20 (-59 to 18)</td>
<td>-13 (-34 to 7.89)</td>
</tr>
<tr>
<td>No of awakenings (PSG)</td>
<td>2</td>
<td>1.24 (-6.34 to 3.89)</td>
<td>-0.94 (-12 to 9.99)</td>
</tr>
<tr>
<td>No awakenings (subjective)</td>
<td>2</td>
<td>2.88 (-7.15 to 1.39)</td>
<td>-1.05 (-4.86 to 2.76)</td>
</tr>
<tr>
<td>Total sleep time (PSG)</td>
<td>2</td>
<td>49.15 (-60 to 16)</td>
<td>35.10 (-34 to 10)</td>
</tr>
<tr>
<td>Sleep efficiency (PSG)</td>
<td>1</td>
<td>4.27 (2.01 to 6.52)</td>
<td>0 (-2.52 to 2.52)</td>
</tr>
</tbody>
</table>
Do benzodiazepines work for insomnia?

Buscemi et al, JGIM, 2007

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Number of Studies</th>
<th>Point Estimate (95% CI)</th>
<th>Heterogeneity (I²) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep onset latency (WMD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzodiazepine Polysomnography</td>
<td>11</td>
<td>-10.0 min (-16.6, -3.4)</td>
<td>72.6</td>
</tr>
<tr>
<td>Sleep Diary</td>
<td>26</td>
<td>-19.6 min (-23.9, -15.3)</td>
<td>55.5</td>
</tr>
<tr>
<td>Non-benzodiazepines Polysomnography</td>
<td>12</td>
<td>-12.8 min (-16.9, -8.8)</td>
<td>39.3</td>
</tr>
<tr>
<td>Sleep Diary</td>
<td>34</td>
<td>-17.0 min (-20.0, -14.0)</td>
<td>64.8</td>
</tr>
<tr>
<td>Antidepressants Polysomnography</td>
<td>4</td>
<td>-7.0 min (-10.7, -3.3)</td>
<td>34.1</td>
</tr>
<tr>
<td>Sleep Diary</td>
<td>2</td>
<td>-12.2 min (-22.3, -2.2)</td>
<td>0</td>
</tr>
<tr>
<td>Wakefulness after sleep onset (WMD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzodiazepine Polysomnography</td>
<td>5</td>
<td>-16.7 min (-25.3, -8.1)</td>
<td>0</td>
</tr>
<tr>
<td>Sleep Diary</td>
<td>4</td>
<td>-39.9 min (-71.0, -8.8)</td>
<td>68.2</td>
</tr>
<tr>
<td>Non-benzodiazepines Polysomnography</td>
<td>3</td>
<td>-7.0 min (-14.6, 0.7)</td>
<td>0</td>
</tr>
<tr>
<td>Sleep Diary</td>
<td>12</td>
<td>-15.0 min (-22.3, -7.7)</td>
<td>66.5</td>
</tr>
<tr>
<td>Antidepressants Polysomnography</td>
<td>2</td>
<td>-12.2 min (-17.5, -7.0)</td>
<td>0</td>
</tr>
<tr>
<td>Sleep Diary</td>
<td>1</td>
<td>-7.1 min (-19.1, 4.9)</td>
<td>NA</td>
</tr>
</tbody>
</table>
“Are sleeping pills addictive?”

“Substance use disorders occur when their recurrent use causes clinically and functionally significant impairment, such as health problems, disability, and failure to meet major responsibilities at work, school, or home.”

- DSM 5
The Current Status of BzRA Risks in the Treatment of Insomnia

- Motor vehicle accidents in elderly: long $T_{1/2}$ agents
- Hip fractures in elderly: long $T_{1/2}$ agents?
- Anterograde amnesia: $T_{1/2}$ dependent
- Abuse: rarely seen outside of drug abusers
- Tolerance: no evidence from recent 12- and 26-week studies
- Rebound insomnia: depends upon dose, duration of use, and speed of taper

### Benzodiazepines do increase risk for dementia

#### Table 3: Risk of Alzheimer’s disease associated with benzodiazepine use (variables assessed five to up to 10 years before diagnosis) in people with Alzheimer’s disease (cases) and controls

<table>
<thead>
<tr>
<th></th>
<th>No (%) of cases (n=1796)</th>
<th>No (%) of controls (n=7184)</th>
<th>Univariable odds ratio (95% CI)*</th>
<th>Multivariable odds ratio (95% CI) Model 1†</th>
<th>Multivariable odds ratio (95% CI) Model 2‡</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benzodiazepine ever use:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-users</td>
<td>902 (50.2)</td>
<td>4311 (60.0)</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Users</td>
<td>894 (49.8)</td>
<td>2873 (40.0)</td>
<td>1.52 (1.37 to 1.69)</td>
<td>1.51 (1.36 to 1.69)</td>
<td>1.43 (1.28 to 1.60)</td>
</tr>
<tr>
<td><strong>Benzodiazepine density exposure (No of prescribed daily doses):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-users</td>
<td>902 (50.2)</td>
<td>4311 (60.0)</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>1-90</td>
<td>234 (13.0)</td>
<td>1051 (14.6)</td>
<td>1.08 (0.92 to 1.27)</td>
<td>1.09 (0.92 to 1.28)</td>
<td>1.05 (0.89 to 1.24)</td>
</tr>
<tr>
<td>91-180</td>
<td>70 (3.9)</td>
<td>257 (3.6)</td>
<td>1.33 (1.01 to 1.75)</td>
<td>1.32 (1.01 to 1.74)</td>
<td>1.28 (0.97 to 1.69)</td>
</tr>
<tr>
<td>&gt;180</td>
<td>590 (32.9)</td>
<td>1565 (21.8)</td>
<td>1.85 (1.63 to 2.09)</td>
<td>1.84 (1.62 to 2.08)</td>
<td>1.74 (1.53 to 1.98)</td>
</tr>
<tr>
<td><strong>Benzodiazepine elimination half life:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-users</td>
<td>902 (50.2)</td>
<td>4311 (60.0)</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Short half life (&lt;20 h)</td>
<td>585 (32.6)</td>
<td>1996 (27.8)</td>
<td>1.43 (1.27 to 1.61)</td>
<td>1.43 (1.27 to 1.61)</td>
<td>1.37 (1.21 to 1.55)</td>
</tr>
<tr>
<td>Long half life (≥20 h)</td>
<td>309 (17.2)</td>
<td>877 (12.2)</td>
<td>1.72 (1.48 to 1.99)</td>
<td>1.70 (1.46 to 1.98)</td>
<td>1.59 (1.36 to 1.65)</td>
</tr>
</tbody>
</table>

*Matched for age, sex, and follow-up length.
†Adjusted for high blood pressure (diagnosis or treatment), myocardial infarction (diagnosis), stroke (diagnosis), platelet inhibitors or oral anticoagulant treatment, diabetes mellitus (diagnosis or treatment), hypercholesterolaemia (diagnosis or treatment), comorbidity (diagnosis).
‡Further adjusted for anxiety, depression, and insomnia diagnosis.

Billioti de Gage et al, BMJ, 2014

[www.mghcme.org](http://www.mghcme.org)
Benzodiazepines do not increase risk for dementia

Gray et al, BMJ, 2016
Orexin antagonist in the Treatment of Insomnia

Suvorexant

- Advantages: little abuse liability, 1-year efficacy data
- Disadvantages: unclear efficacy vs BzRAs
Antidepressants in the Treatment of Insomnia

Mirtazapine, Trazodone, Amitriptyline, Doxepin

- Advantages: little abuse liability
- Disadvantages: probably not as effective as BzRAs, daytime sedation, weight gain, anticholinergic side effects, switch into mania in bipolar disorder
Atypical Antipsychotics in the Treatment of Insomnia

Quetiapine

- Advantages: anxiolytic, mood stabilizing in bipolar disorder, little abuse liability
- Disadvantages: less effective than BzRAs, daytime sedation, weight gain, risks of extrapyramidal symptoms and glucose + lipid abnormalities
Anticonvulsants in the treatment of Insomnia

*Gabapentin*

- Advantages: little abuse liability, efficacy in ETOH
- Disadvantages: less effective than BzRAs, cognitive impairment, daytime sedation, dizziness, weight gain
Issues with Non-BzRA Hypnotics in the Treatment of Insomnia
(eg antidepressants, anticonvulsants, antipsychotics)

• Paucity of short-term efficacy data
• Absence of long-term efficacy data
• Assumptions of lack of tolerance and rebound insomnia are unsubstantiated
• Anecdotally less effective hypnotics than BzRAs
• May have deleterious side effects
Sleep medicine in psychiatry

• Sleep disturbance accompanies all psychiatric illness
• Sleep disturbance may also be a cause or a predictor of medical, neurological and psychiatric illness
• Sleep disorders are common and treatable and can improve quality of life and course of psychiatric illness
Sleep disorders

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• Parasomnias (4%)
  – Sleepwalking, sleep terrors, REM sleep behavior disorder

• Circadian rhythm disorders
  – Shift work sleep disorder, Delayed sleep phase disorder
Differential diagnosis of hypersomnia

• “Tired”:
  – excessive daytime sleepiness (EDS)
  – fatigue
  – apathy

• *If* EDS:
  – inadequate sleep time
  – impaired sleep quality
  – excessive sleep drive
Epworth Sleepiness Scale

“how likely to dose off or fall asleep”

0= not likely at all; 3= very likely

(range of scale 0-24, with abnormal > 10)

• sitting and reading
• watching TV
• sitting inactive in public place
• passenger in a car for an hour

• Lying down to rest in afternoon
• sitting and talking to someone
• sitting quietly after lunch
• in a car stopped in traffic for a few minutes
POOR SLEEP QUALITY

• Obstructive Sleep Apnea
• Periodic Limb Movement Disorder
• Pharmacologic agents
• Environmental disturbances
OSA is common in those with psychiatric illness

Obstructive Sleep Apnea and Severe Mental Illness: Evolution and Consequences

Wei-Chen Lin & John W. Winkelman
Physical exam (kind of) predicts likelihood of sleep apnea
Berlin questionnaire (kind of) predicts sleep apnea

1. Complete the following:
   height ________ age ________
   weight ________ male/female ______

CATEGORY 1

2. Do you snore?
   □ Yes
   □ No
   □ Don’t know

If you snore:
3. Your snoring is?
   □ Slightly louder than breathing
   □ As loud as talking
   □ Louder than talking
   □ Very loud...can be heard in adjacent rooms

4. How often do you snore?
   □ Nearly every day
   □ 3-4 times a week
   □ 1-2 times a week
   □ 1-2 times a month
   □ never or nearly never

5. Has your snoring ever bothered other people?
   □ Yes
   □ No

6. Has anyone noticed that you quit breathing during your sleep?
   □ Nearly every day
   □ 3-4 times a week
   □ 1-2 times a week
   □ 1-2 times a month
   □ never or nearly never

CATEGORY 2

7. How often do you feel tired or fatigued after your sleep?
   □ Nearly every day
   □ 3-4 times a week
   □ 1-2 times a week
   □ 1-2 times a month
   □ Never or nearly never

8. During your wake time, do you feel tired, fatigued or not wake up to par?
   □ Nearly every day
   □ 3-4 times a week
   □ 1-2 time a month
   □ Never or nearly never

9. Have you ever nodded off or fallen asleep while driving a vehicle?
   □ Yes
   □ No

   If yes, how often does it occur?
   □ Nearly every day
   □ 3-4 times a week
   □ 1-2 times a week
   □ 1-2 times a month
   □ Never or nearly never

CATEGORY 3

10. Do you have high blood pressure?
    □ Yes
    □ No
    □ Don’t know

BMI =
OSA treatments

Positive Airway Pressure (PAP)

Auto-PAP is allowing both diagnostic and titration to be performed in the home (no sleep lab necessary)

Weight loss, upper airway surgery, positional treatment
Medication-induced hypersomnia

- Benzodiazepines (e.g., Clonazepam $t_{1/2} = 40$ hrs)
- Antidepressants (not uncommon with SSRIs)
- Neuroleptics (e.g., olanzapine)
- Anticonvulsants
Narcolepsy: classic tetrad of symptoms

- Pathological daytime sleepiness (100%)
- Cataplexy (50-90%)
- Hypnogogic/pompic hallucinations (30%)
- Sleep paralysis (50%)
Diagnosis of Narcolepsy

- Overnight polysomnography
  - Disrupted sleep, short REM latency, comorbid PLMS are common findings
- Multiple Sleep Latency Test (MSLT)
  - Mean sleep onset latency < 8 minutes
  - 2 Sleep-onset REM naps
- Negative toxic screen
- Discontinue REM-suppressing and stimulant medications at least 2 wks before testing (if feasible)
Stimulants are often only partially successful in improving sleepiness in narcolepsy

Abbreviations: GHB = gamma-hydroxybutyrate; COD = codeine; RIT = ritanserin; VIL = viloxazine; PEM = pemoline; MOD = modafinil; PRO = protriptyline; DEX = dextroamphetamine; MET = methylphenidate.

Mitler et al., 1991
Sleep disorders

• Insomnias
  – Insomnia, psychiatric/medical disorders, RLS, medications

• Hypersomnias
  – Sleep apnea, medications, Periodic leg movements of sleep

• Parasomnias (4%)
  – Sleepwalking, sleep terrors, REM sleep behavior disorder

• Circadian rhythm disorders
  – Shift work sleep disorder, Delayed sleep phase disorder
Differential diagnosis of abnormal sleep-related behaviors

Parasomnias
/ \ NREM REM

Seizures

Psychiatric

- Frontal lobe
- PTSD
- Nocturnal Panic
- Dissociative Disorders
Parasomnias are mixtures of the primary states

- REM Behavior Disorder (RBD)
- Hypnagogic Hallucinations
- Sleep Paralysis
- ? Nightmares

Wake

• Confusional Arousals
• Sleepwalking
• Sleep Terrors
• Sleep-related eating

REM

NREM
Causes of RBD

• Alpha synucleinopathies
  – Parkinson’s, Lewy Body, Multiple System Atrophy
• Serotonergic antidepressants
• Narcolepsy
Treatment of parasomnias

• Night terrors/sleepwalking
  – Short-acting benzodiazepines (eg triazolam)

• REM behavior disorder
  – Discontinue serotonergic antidepressant (if present)
  – Benzodiazepines (short, long)
  – Melatonin (6-10 mg)
  – +/- pramipexole

• Sleep-related eating disorder
  – Treat RLS, if present
  – SSRRI or topiramate
When to refer for sleep study?

- Suspicion of sleep apnea (loud snoring *PLUS one of the following*):
  - daytime somnolence
  - witnessed apneas
  - refractory hypertension
  - refractory sleep complaints

- Abnormal behaviors or movements during sleep
- Unexplained excessive daytime sleepiness
- Refractory sleep complaints, particularly repetitive brief awakenings
GOT SLEEP?
UnderstandingSleep.org

Presented by: Harvard Medical School
Division of Sleep Medicine
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