Classification of Sleep Disorders

Robertson Chapter 2

The Insomnias

- Insomnia is most common sleep disorder
  - Not normally studied in the sleep lab
- Defined as difficulty initiating sleep, maintaining sleep, and waking too early
  - These conditions occur despite adequate amount of time or opportunity to sleep
- Diagnosis based on subjective info from patient
- Primary insomnia due to conditioned aversion to bedroom or from subclinical emotional/cognitive/physiologic turmoil
- Secondary insomnia occurs as result of primary medical, psychiatric, or substance/medication use condition

Primary Insomnias

Idiopathic Insomnia

- Also known as childhood onset insomnia
- Rare, chronic, lifelong insomnia
- Onset during infancy or childhood with no cause
- Unable to initiate or maintain adequate sleep during entire life

Fatal Familial Insomnia

- Very rare
- Onset in adulthood
- Ends in death about 18 months after onset
- Genetic prion disease – only in about 40 families worldwide affected
- Characterized by progressively severe insomnia with sleep deprivation symptoms (panic attacks, phobias, paranoia, hallucination, and dementia?

Secondary Insomnias

Adjustment Insomnia

- Acute insomnia caused by a stressor
- Once stressor resolved, insomnia stops
- If patient worries about the insomnia, may turn into psychophysiologic insomnia

Psychophysiologic Insomnia

- Also known as learned insomnia, conditioned insomnia, and chronic insomnia
- Characterized by patient ruminating about not sleeping
  - Excessive focus and heightened anxiety about sleeping

Secondary Insomnias

- Paradoxical Insomnia
  - Also known as sleep state misperception, subjective insomnia, and pseudoinsomnia
  - Patient thinks they are not sleeping but daytime impairment not consistent with someone who is sleep deprived
- Inadequate Sleep Hygiene
  - Person voluntarily avoids sleep
  - Most common type of insomnia

Secondary Insomnias

- Behavioral Insomnia of Childhood
  - Has two major categories:
    - Sleep onset-association disorder
      - Needs specific item, activity, or environmental condition to fall asleep
    - Limit-setting disorder
      - Push the caregiver's boundaries by avoiding bedtime and insisting on staying awake

Sleep-Related Breathing Disorders

- Characterized by abnormal breathing during sleep
- Classified as:
  - CSA syndromes
  - OSA syndromes
  - Sleep-related hypoventilation and hypoxemic syndromes
  - Sleep-related hypoventilation and/or hypoxemia caused by a medical condition
- Most common sleep disorders seen in a sleep lab

CSA Syndromes

- Cheyne-Stokes Breathing
  - Also known as periodic breathing and Cheyne-Stokes respiration (CSR)
  - Characterized by apneas or hypopneas recurring between waxing and waning hyperpnea
  - Typically occurs in older men
  - Neurologic system disorder associated with CHF, stroke, or renal failure
  - Atrial fibrillation may be present
  - Treatment is challenging

CSA Syndromes

High-altitude Periodic Breathing

- Occurs with ascent to very high altitudes
- Often a sensation of suffocation but person will adapt if they remain at the high altitude

Drug-related CSA

- Occurs in patients on long-acting opioids for at least 2 months
- May also be seen in those taking methadone, time-release morphine, or hydrocodone

OSA Syndromes

- OSA
  - Obstruction in upper airway during sleep
  - Causes apneas, hypopneas, and snoring
  - Serious medical conditions tied to OSA:
    - Cardiovascular disease
    - MI
    - Hypertension
    - Stroke
    - Coronary heart disease
    - Metabolic syndrome
    - Depression
  - CPAP is gold standard treatment

OSA Syndromes

- Pediatric OSA
  - Signs and symptoms include:
    - Snoring
    - Labored breathing
    - Apneas
    - Hypopneas
  - Can be caused by large tonsils and adenoids
  - Primary treatment is adenotonsillectomy

Sleep-Related Hypoventilation and Hypoxemic Syndromes

- Hypoventilation = Significant reduction in normal tidal breathing
  - Results in hypercapnia (increased CO_2 levels in blood) and hypoxemia (reduced O_2 levels in blood)
- Seen in COPD and muscular dystrophy patients
- Overlap syndrome = Comorbid conditions of COPD and OSA
- Obesity worsens symptoms of hypoventilation

Hypersomnias of Central Origin

- Excessive sleepiness or daytime sleepiness not caused by nighttime sleep disturbances or circadian rhythm disorders
- Results in drowsiness, microsleeps, and unintentional napping
- Diagnosed through MSLT

Narcolepsy

- Sleep attacks, often in REM sleep
- Patient falls asleep during everyday activities
- Frequently seen with cataplexy
  - Cataplexy can be minor to complete loss of muscle tone and physical collapse
  - Usually only lasts a few minutes with complete recovery
- Sleep paralysis and hypnagogic hallucinations also seen in these patients
- What is Narcolepsy?

Recurrent Hypersomnias

Kleine-Levin Syndrome

- Usually begins in adolescence
- More common in males
- Characterized by recurring episodes of excessive sleeping, binge eating, and hypersexuality
- Have an altered personality when awake during episodes
  - May appear aggressive, confused, disoriented, or depressed
- Normal between episodes

Menstrual-related hypersomnia

- Usually begins within first months after first menstrual cycle
- Hormone imbalance is the suspected cause

Circadian Rhythm Disorders

- Sleep disturbances out of rhythm with the 24-hour clock
- Irregular sleep-wake rhythm
  - Lack of clearly defined circadian sleep and wake rhythm
  - Sleep and wake varied through the 24 hours
    - Causes chronic insomnia and EDS

Circadian Rhythm Disorders

- Delayed sleep phase disorder
  - Sleep-wake cycle delayed in relation to desired clock time
  - Results in sleep-onset insomnia/difficulty waking at desired time
  - More common in adolescents and young adults
  - Refreshing, restorative sleep achieved when allowed to sleep at body's natural rhythm, going to bed late and sleeping in late
- Advanced sleep phase disorder
  - Occurs frequently in older adults
  - Sleep is advanced in relation to desired clock time
  - Early morning awakenings

Circadian Rhythm Disorders

- Free-running
  - Rare, non-entrained disorder where there is steady pattern composed of 1–2-hour daily delays in sleep onset and wake times
  - Affects more than half of all totally blind people due to lack of light cues
  - These patients have sleep-wake cycle of 25 hours/day
    - Leads to being out of phase for many days of the month
    - Would get less sleep if they tried to sync with normal society

Circadian Rhythm Disorders

- Jet lag
  - Common problem caused by temporary mismatch of sleep-wake cycle when flying over more than 2 time zones
  - The more time zones crossed, the more severe
  - Flying eastward more difficult to adjust than flying westward
  - Usually takes 1 day per time zone to adjust back to normal sleep-wake cycle

Circadian Rhythm Disorders

- Shift work disorder
  - Caused by a recurring work schedule that overlaps usual time for sleep
  - Most common in the midnight shift and early morning shifts
- Circadian disorder due to medical conditions
  - Seen in those with dementia, Alzheimer disease, Parkinson disease, hepatic encephalopathy, and blindness

Parasomnias

- Undesirable physical events or experiences that occur while falling asleep, during sleep, or during arousals from sleep
  - Result of CNS activation being transmitted to skeletal muscles via the autonomic (“fight or flight”) mechanism
  - Can occur in NREM and REM sleep

NREM Sleep Parasomnias

- Typically occur during N3 sleep and can be familial in nature
- Confusional arousal
  - Mental confusion or confusional behavior during or after arousals from sleep
  - Patient may move slowly, mumble, moan, be unresponsive, exhibit automatic behavior, or become agitated
  - Patient doesn’t remember episode

NREM Sleep Parasomnias

- Sleepwalking
  - Ambulation while asleep
  - Usually occurs in children ages 8-12 and spontaneously stops around puberty
  - Difficult to arouse and usually no memory of episode
  - How does sleepwalking work?

NREM Sleep Parasomnias

- Sleep terrors
  - Wakes from N3 sleep crying or screaming and displaying signs of intense fear
    - Inconsolable and don’t respond to caregivers
    - No memory of event
  - Spontaneously stops during teen years

REM Sleep Parasomnias

- Usually occur in latter half of sleep
- Nightmare disorder
  - Develops from recurring nightmare experiences
  - No confusion on awakening
    - Patient is alert and can remember the nightmare, but may have delay falling back asleep
- Catathrenia
  - Sleep-related groaning when exhaling during REM
  - Patient unaware
    - Usually, bed partner complains
  - Video

REM Sleep Parasomnias

- REM behavior disorder
  - Occurs when there is lack of skeletal muscle paralysis and patient is able to move and act out dreams
  - Patients often remember dreams on awakening
  - More common in males over 60 and often associated with underlying neurologic disorder (Parkinson disease or narcolepsy)
    - Also seen during alcohol withdrawal or with antidepressant use
  - Injury is common
  - Video

Other Parasomnias

- Sleep-related dissociative disorder
  - Patients have corresponding daytime dissociative disorder
  - Mostly affects females who are victims of sexual or physical abuse or PTSD who have exhibited self-mutilating behaviors or attempted suicide, and have had psychiatric hospitalizations
  - Onset is childhood to middle adulthood

Other Parasomnias

- Sleep enuresis
  - Also known as nocturnal bedwetting
  - Occurs in patients older than 5
  - Can be primary or secondary
    - Primary is when recurrent involuntary voiding occurs during sleep at least 2x per week in patient who has never been consistently dry
    - Secondary is when recurrent involuntary voiding begins to occur at least 2x per week, following at least 6-month consistent dry period

Other Parasomnias

- Sleep-related eating disorder (SRED)
  - Recurrent episodes of involuntary “out of control” eating and drinking during arousals from sleep
  - May eat substances not normally consumed
    - Coffee grounds, cat food, etc.
  - Safety a concern when cooking attempted
  - Problems include weight gain/obesity, digestive tract disorders, morning anorexia, and sleep disruption
  - Video

Other Parasomnias

- Parasomnias related to drug or substance use
  - Secondary disorder
  - Disorders of arousal, SRED, and RBD are the most common
- Testing for parasomnias
  - Need detailed video and audio recordings
  - Full EEG helps to rule out seizure activity
  - Tech should keep detailed notes of any unusual happenings

Sleep-Related Movement Disorders

- Body movements delay sleep onset or disrupt sleep
- Must have sleep disturbance or EDS to diagnose
- Movements are repetitive and stereotypical
- Includes:
  - RLS
  - PLMD
  - Sleep-related leg cramps
  - Sleep-related bruxism
  - Sleep-related rhythmic movement disorder
  - Sleep-related movement disorder, unspecified
  - Sleep-related movement disorder resulting from drug or substance use
  - Sleep-related movement disorder caused by medical condition

Sleep-Related Movement Disorders

- RLS
  - Also known as Willis-Ekbom disease
  - PSG not needed for diagnosis
  - Occurs while patient is awake
  - Involves strong, nearly irresistible urge to move legs, trunk, or arms accompanied with unpleasant sensation of tingling, vibration, or pins and needles
  - Symptoms worse in late afternoon and evening
  - Lying down or sitting may make symptoms worse
  - Women more affected than men
  - May be genetic link
  - Secondary RLS may be caused by iron deficiency, pregnancy, severe kidney failure, and certain medications

Sleep-Related Movement Disorders

PLMD

- Closely associated with RLS
  - 85% of those with RLS experience PLMD
- Characterized by very stereotypical PLMs during sleep
- PSG is needed for diagnosis

Sleep-related bruxism

- Strong repetitive jaw muscle contractions in grinding or clenching fashion, usually causing an arousal

Sleep-Related Movement Disorders

- Sleep-related rhythmic movement disorder
  - Repetitive, stereotypical, rhythmic movements in large muscle groups that begin in drowsiness or sleep
  - Can be seen as body rocking, head banging, head rolling, body rolling, and leg banging
  - Video