Recognizing Signs of Fatigue

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Case One

A second year orthopedic resident is called by the medicine team at 9 am to consult on a suspected septic arthritis. The residents screams down the crowded hospital hallway that the consult is grossly inappropriate because the medicine team did not have results of a C-reactive protein and a bone scan prior to consultation.

Case Two

A first year pediatric intern meets with her residency program director to request a counseling referral for new feelings of hopelessness and depression following her PICU rotation. She states that she began to feel like this despite increased social engagements during the rotation.

Case Three

A fourth year surgery resident is meeting with the Surgery Department Chairman to explain his recent inability to show up in the OR at 6 am in the morning for scheduled cases. The resident admits to taking a benzodiazepine as a sleeping aid and Ephedrine to stay awake during afternoon conference.

Challenges

Culture of medicine is self-defeating:

- Practice habit "That's the way I trained"
- Moonlighting – 65% of internal medicine residents and fellows moonlight
- Didactics count against duty hours
- Sleep deprivation equates with dedication
- Sleep deprivation is not cured upon graduation

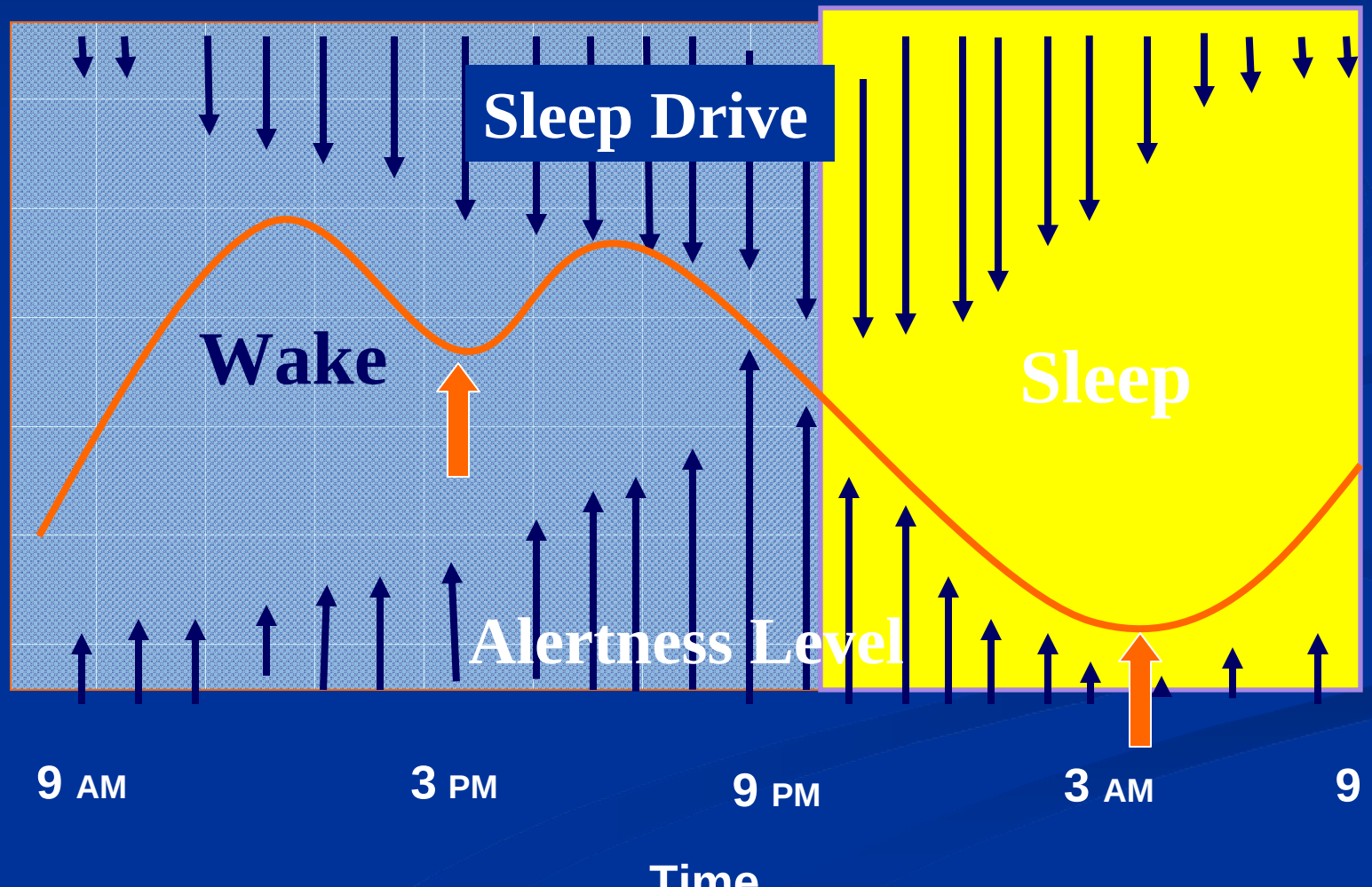
Expectations vs. Reality

- Society's expectations
  - Safe healthcare
- Medicine's expectations
  - Trainees must "learn" how to operate without sleep

Sleep Needs

- Adults typically need between 6 and 10 hours of sleep per day
- Most require 8 hours of sleep per day
- 8 hours required for IDEAL performance

Circadian Sleep and Wake Cycles



Sleep Deprivation

- Less than 5 hours of sleep per day results in decline of peak mental abilities
- After one night of missed sleep, cognitive performance may decrease 25%
- After a second consecutive night of missed sleep, performance can be reduced 40%

Sleep Debt

- Getting 2-3 hours sleep less than optimal
- If this continues over 5 to 10 days, general performance declines
- Chronically sleep deprived individuals function at the 9^{th} percentile
- More common in shift work. Night shift greater risk than day shift

Sleep Debt

- There is no learning curve for sleep deprivation
- Healthcare providers do not “adapt” to functioning with sleep debt
- Sleep needs are individualized and fixed
- Sleep needs are necessary and must be met

Sleep Debt

- Mood is affected more than cognitive function more than motor function
- Are we measuring mood?

Impairment

Psychological/Mood:

- increased stress
- depression
- somatic complaints

Neurobehavioral Effects

Sleep-wake imbalance

- Cognitive speed reduced
- Learning and recall deficits
- Vigilance decreases
- Reaction times increase

Signs of Fatigue

- Low point for performance begins approximately 15-16 hours of continued wakefulness
- The low point for alertness after wakefulness all night is between 6am and 11am

Greatest Risks

- Linked to Circadian rhythms of alertness and sleep drive
- Typically Performance Errors are greatest between 2 AM and 5 AM
- Second greatest Performance Error occurrence between 2 PM and 5 PM

Signs of Fatigue

Disturbed mood

- Depression
- Anxiety
- Labile emotions
- "I don't care", anhedonism

Signs of Fatigue

- Communication errors
  - Charting
  - Team dysfunction
  - Family dysfunction
- Impaired judgment/focus
- Impaired procedural competency

Limiting Work

- Adhere to ACGME requirements
- Monitor and document institutional guidelines
- Monitor and document program guidelines
- Be wary of didactics and moonlighting

Sleep Hygiene

Establish a routine

- Pre-sleep/pre-nap routine
- Use relaxation techniques as a sleep aid
- Protect your sleep time

Sleep Hygiene

Sleep Environment:

- Cooler temperature
- Darkness-eye covers, blinds
- Quiet - ear plugs, white noise, no pagers or phones
- No extremes with meals prior to bed

Sleep Hygiene

Medications

- Caffeine
  - None before bed time-erodes sleep quality
  - Strategic times during awake periods improves function-temporary only
  - Onset 15-30 mins, half life is 3-7 hours
  - Tolerance
- Stimulants - avoid using these to stay awake

Sleep Hygiene

Medications

- Alcohol - enhances onset, but disrupts stages later on. Also magnifies fatigue and error
- Melatonin
  - No significant effect for shift workers
- Benzodiazepines
  - Impaired waking, “hang-over” Caffeine, HA

Resources

- www.ahrq.gov **Chapter 46**
- www.acgme.org Dinges Lecture
- www.aasmnet.org American Academy of Sleep Medicine-S.A.F.E.R. (Sleep, Alert, and Fatigue Education in Residency) Educational Model
- www.centercme.com Sleepiness and Fatigue in the Medical Profession: Toughing it out is not Dealing With it.