Sleep Problems: Bedtime Struggles and Night Wakings

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Sleep Problems: Bedtime Struggles and Night Wakings: Disclosure Slide

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- I do intend to discuss an unapproved/investigative use of a commercial product in my presentation.
Sleep Problems Practice Changes

As a result of attending this session, I encourage you to incorporate these changes in your practice

- Counsel parents of children with night waking about sleep associations
- Utilize a sleep diary in the assessment of children with sleep problems
Sleep Problems: Overview

- Epidemiology
- Sleep Physiology: Developmental Changes
- Evaluation of a Child with Sleep Problems
- Management of Specific Sleep Problems
  - Good Sleep Hygiene
  - Behavioral Strategies
  - Pharmacologic Interventions
Sleep Problems: Epidemiology

- 20% to 40% of children have sleep problems
- Most common sleep problems
  - Dyssomnias-disorders of initiation or maintaining sleep
    - Bedtime resistance and/or night waking
  - Parasomnias-unusual behaviors during sleep
    - Nightmares
    - Sleep talking, sleep walking, night terrors
Sleep Problems: Epidemiology

- Sleep problems tend to persist
  - Persistence over 3-4 years: 35-48%
  - Children with autism: over 90% persist

Siversten et al. Autism 2012:16:139-159
Simola et al., Child: Care, Health, and Development 2011;38:572-580
Impact of Insufficient Sleep

- Increased activity level and irritability
- Poorer attention span and memory
- More impulsive behavior and emotional lability
- Increased family stress and parental depression
- Drowsy driving can be fatal
  - 40% of adolescents report drowsy driving
Sleep Physiology: Developmental Changes in Need for Sleep

Mindell & Owens, 2003
Sleep Physiology: Developmental Changes in Timing of Sleep

57% of 4 year olds and 27% of 5 year olds take naps.
Sleep Physiology: Sleep Stages

- REM Sleep
  - Suppression of peripheral muscle tone
  - High level of cortical brain activity

- Non-REM sleep
  - Light sleep: stage 1 and 2
  - Deep sleep, slow-wave sleep, delta sleep, stage 3&4

- After 1st yr most sleeps begins with NREM sleep and most REM sleep occurs in the 2nd half of the night.
Sleep Physiology: Sleep Cycles

- Natural Circadian Rhythm slightly greater than 24 hours
  - Late afternoon sleepiness
  - Period of increase alertness prior to sleep onset (second wind)

- Waking between sleep cycles is a regular occurrence during the night
Evaluation of Sleep Difficulties: History

- Sleep schedules: weekday and weekend
  - Consistency of bedtime and morning wake-up time
  - Naps, daytime sleepiness vs. fatigue

- Bedtime routines and behaviors
  - Calming routine, duration
  - Sleep associations (co-sleeping, bottle, etc)
  - Stalling/refusal behaviors
  - Latency to sleep onset
  - Uncomfortable feelings in legs (? growing pains), does movement of legs relieve pain?
Evaluation of Sleep Difficulties: History

- Caffeine intake (Sunkist orange soda & Mountain Dew have more caffeine than tea or Pepsi)
- Sleep Environment: TV in room, light, noise
- Worries, fears, school or family stress
- Nocturnal behaviors: snoring, pauses in breathing, gasps, or snorts, sleepwalking, crying or screaming, repetitive behaviors
Behaviors During Sleep (Parasomnias)

Sleep Terrors

- **Description**
  - Child (usually 2-6 years of age) sitting upright in bed screaming,
  - appears confused and afraid, blank stare
  - diaphoretic and tachypnic,
  - not aware or calmed by parents
  - does not remember event in morning unless fully awakened.

- **Occur during partial awakenings from slow wave sleep**

- **Predisposing factors:** Illness, stress, sleep deprivation
Behaviors During Sleep (Parasomnias)

Nightmares

- Frightening dreams that awaken the child from REM sleep
- Recalls details of the content of dream and is calmed by parent
- Often begin during the toddler years
- Associated with periods of stress: Many normal transitions are stressful
Evaluation of Sleep Difficulties: PE

- Growth Parameters: Obesity risk factor for Obstructive Sleep Apnea
- ENT Exam: Tonsillar hypertrophy, although size may not correlate with degree of obstruction
- Neurological Exam—Especially if concerned about nocturnal seizures
Parents often underestimate total sleep time in young children
Parents may not know about naps at daycare or with sitters
Help determine when child is reliably sleepy
Bedtime Resistance: Possible Causes

- Child not tired: sleep phase problem, excess napping, irregular sleep schedule
- Limit setting problem
- Worries/Fears
- Changes in sleep associations
- Medical: Medications, Restless Leg Syndrome, Blindness, Autism, ADHD, genetic disorders (Angelman & Smith-Magenis syndrome)
Night Wakings

- Sleep phase problem: Waking early in the morning—getting enough sleep
- The problem is not usually the waking, but the getting back to sleep
  - Sleep Associations, Sleep Associations
- Environment: Noise during night
- Medical or psychiatric conditions: Pain, depression
# Distinguishing Nightmares and Sleep Terrors

<table>
<thead>
<tr>
<th></th>
<th>Sleep Terrors</th>
<th>Nightmares</th>
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</thead>
<tbody>
<tr>
<td>Timing during night</td>
<td>First third</td>
<td>Last third</td>
</tr>
<tr>
<td>Comforted by parent</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Recall of event</td>
<td>None unless awakened</td>
<td>Vivid</td>
</tr>
<tr>
<td>Treatment</td>
<td>Reassurance/education of parent/protect child</td>
<td>Reassurance of child/decrease stressors</td>
</tr>
</tbody>
</table>
Management of Sleep Problems: Good Sleep Hygiene

- **Environment**
  - Dark (no more than a night-light)
  - Quiet
  - Comfortably cool

- **Schedule**
  - Regular AM wake-up time
  - Consistent nap length
  - Regular bedtime

- **Position**—on back in infancy
Management of Sleep Problems: Good Sleep Hygiene

- **Activities Around Bedtime**
  - Child is put into bed drowsy, but still awake
  - No frightening TV or stories before bed
  - No vigorous physical exercise in the hour before bed
  - Consistent and soothing bedtime routine
  - Avoid meals or hunger around bedtime
Management of Bedtime Resistance: Delayed Sleep Phase

- Moving the bedtime earlier is difficult because of the circadian rhythm being > than 24 hours
  - Move wake-up time earlier then slowly move the bedtime earlier—15 minute increments

- Low dose melatonin 3-4 hours before the sleep onset time
Management of Bedtime Resistance:
Limit setting problem

- Extinction
  - Place child in bed at specified bedtime
  - Ignore all crying, tantrums
  - Place the child back in bed without other interaction if they leave the bed or the room
  - Intervention with the strongest scientific support
  - Not acceptable or tolerable for some parents
Management of Bedtime Resistance: Limit Setting Problem

- Graduated Extinction
  - Ignoring crying for progressively longer periods
  - Checks of the child must be brief
  - Good evidence for efficacy
  - Most commonly recommended in books for parents

- Routine with Rewards/Bedtime Fading
  - Must be at the time the child usually falls asleep, not the bedtime the parents desire. Once successful treat as sleep phase problem
**Management of Bedtime Resistance: Fears**

- Is child scared or has child learned that expressing fears results in interaction with parent

- Manage fears in manner that still requires the child to fall asleep in their own bed following good sleep hygiene. Examples:
  - Room door open as long as child stays in bed
  - Are parents sleeping on different floor?
  - Parenting sitting in room as long as child does not try to interact with the parent
Management of Insomnia in Older Children and Adolescents: Stimulus Control

- Remove negative association of being in bed and having difficulty falling asleep
  - Go to bed when sleepy
  - If you do not fall asleep in 20 minutes go to another room and engage in a relaxing activity until sleepy
  - Use the bed only for sleep (no eating, watching TV, reading, etc)
  - Good sleep hygiene (no napping, regular morning wake-up time)
Management of Night Waking

- Eliminate the sleep association at bedtime
- Use Extinction, Graduated Extinction, or Routine with Rewards at bedtime
- What do you do when child wakes in the middle of the night?
- Scheduled night awakening
  - Wake 15 minutes prior to usual wake-up time
  - Wake earlier each night until you no longer need to awaken the child
  - Has also been used for sleep terrors
Management of Sleep Terrors

- Demystify
- Good Sleep Hygiene, prevent sleep deprivation
- Do Not Awaken the Child During the Night Terror
- Do not discuss child’s “strange behavior” with them in the morning
- Protect from injury during the sleep terror
Management of Sleep Terrors: Medications

- Benzodiazepines and TCAs decrease partial arousals by suppressing slow wave sleep.
- Medications of limited usefulness, because tolerance develops and rebound effects lead to increased partial arousals when the medication is stopped.
Management of Nightmares

- Assist parents in helping child manage stressors
- Good sleep hygiene: Avoid sleep deprivation
- Comfort child at night without extensive discussion of nightmare
- Relaxation, Imagery, Hypnosis effective in some cases
Melatonin for Sleep Disorders

■ Chronobiotic Effects
  – Ideally: 2-3 hours before dim light melatonin onset
  – 3-4 hours before sleep onset time
  – Dose 0.5 mg initially increase by 0.5 mg weekly

■ Hypnotic Effects
  – 30 minutes before bedtime
  – 1 mg initial dose, increase by 1 mg per week

Melatonin for Sleep Disorders

- Maximum dose
  - <40 kg: 3mg, >40 kg: 5mg
  - But higher doses frequently used in practice

- Loss of efficacy may be due to slow metabolizers having high daytime levels

- Not effective for sleep maintenance problems

- No evidence supporting SR preparations

Melatonin Side Effects

- **Minimal with short term use**
  - Morning drowsiness, enuresis, headache, dizziness, rash, transient headache, transient diarrhea

- **But….**
  - High levels (in pathologic conditions) associated with delayed puberty and anovulation
  - Complex immune modulating effects,
    - Questions for patients on steroids or other immunosuppressants
  - Purity and dose consistency may be concerns
    - Look for USP Dietary Supplement Verification
# Melatonin For Sleep Disorders

|                        | Primary Sleep Disorders
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<tbody>
<tr>
<td></td>
<td>Children/Adults</td>
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<tr>
<td>Meta-Analysis of 19</td>
<td></td>
</tr>
<tr>
<td>studies</td>
<td></td>
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<tr>
<td>Sleep Latency</td>
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<tr>
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<td></td>
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<tr>
<td>Sleep Latency</td>
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<tr>
<td>Actigraphy</td>
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<tr>
<td>Total Sleep Time</td>
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<tr>
<td>subjective/diary</td>
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<td>Total Sleep Time</td>
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<td>Actigraphy</td>
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<table>
<thead>
<tr>
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<th>Children with Neurodevelopmental Disorders</th>
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<tr>
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<td>-47 min</td>
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<tr>
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<td>-10 min</td>
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<tr>
<td>Sleep Latency</td>
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<tr>
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<tr>
<td>Total Sleep Time</td>
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<tr>
<td>subjective/diary</td>
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<tr>
<td>Total Sleep Time</td>
<td>+16 min</td>
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<tr>
<td>Actigraphy</td>
<td>+8 min</td>
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Medications: Not Well Studied (none FDA approved) and Infrequently Needed

- **Sedating Antihistamines (e.g. diphenhydramine)**
  - Decrease sleep latency, don’t effect night wakings
  - Anticholinergic side effects, daytime sedation
  - One small study: use with extinction can decrease extinction burst, but prolong number of days with crying
Medications: Not Well Studied (none FDA approved) and Infrequently Needed

Alpha 2 agonists (e.g. clonidine)
- Decrease sleep latency, suppress REM sleep
- Side effects: hypotension, bradycardia—particularly in overdoses which are becoming more common

If given too early (during second wind) or at too low a dose can cause disinhibition, irritability or other inappropriate behavior
Bedtime Resistance and Night Wakings

- Common and likely to persist without treatment
- A good history and sometimes a sleep diary can distinguish the cause of most sleep problems
- Good sleep hygiene can prevent sleep problems and is part of any treatment
- Effective behavioral interventions are available
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