

SLEEP AND SLEEP DISORDERS



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Overview

- **Definition of Sleep**
- **Sleep Disorders**

- * Dyssomnias
- * Hypersomnias
- * Parasomnias



What is Sleep?

Sleep is cyclic phenomenon consisting of

- ◎ **REM (rapid eye movement)**

- * dream sleep

- * paradoxical sleep

- ◎ **NREM (non-REM)**

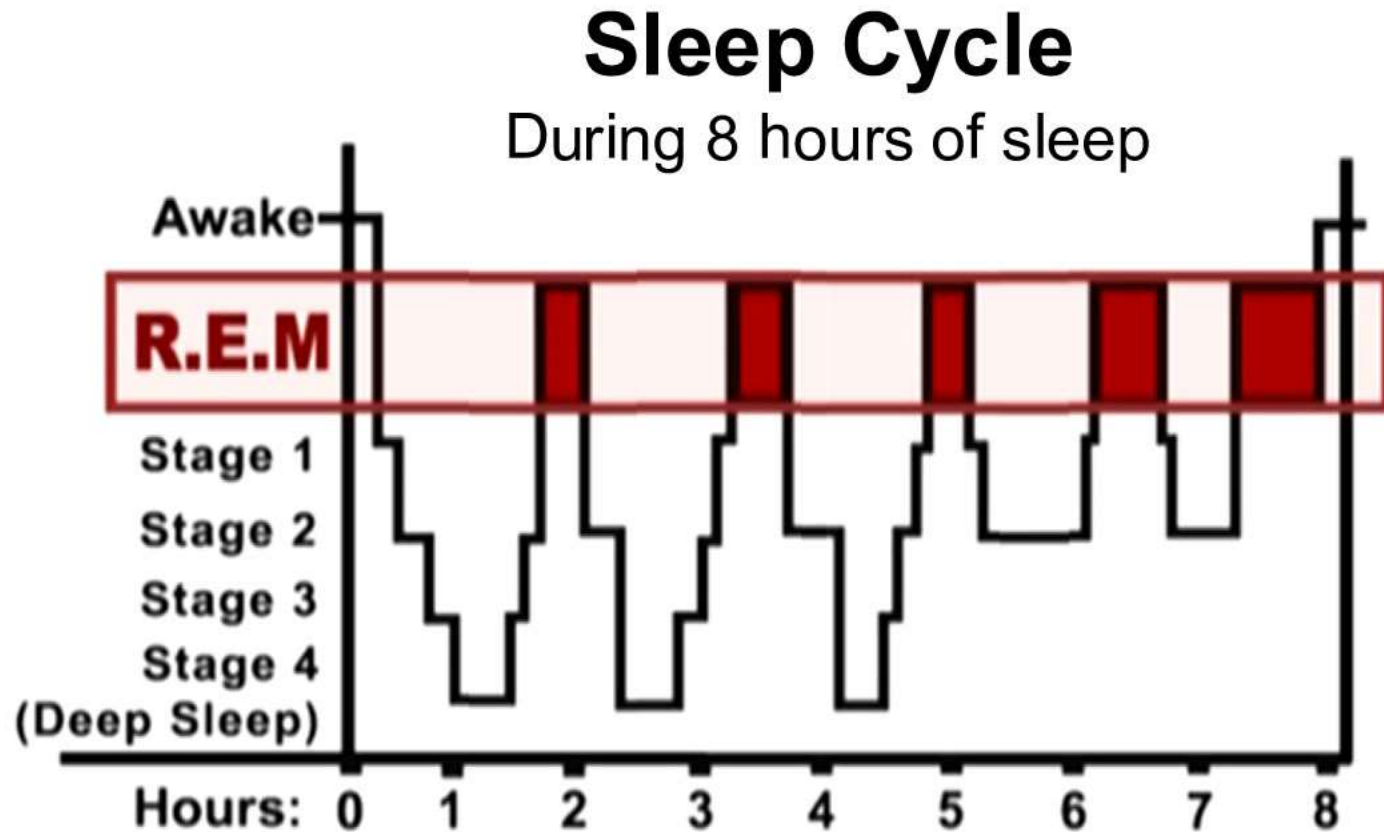
REM Sleep

- ⦿ There are **4 to 5 REM** periods during the night (about $\frac{1}{4}$ of total sleep period)
- ⦿ First **REM** occurs **80-120 minutes** after onset of sleep and lasts about 10 minutes
- ⦿ Later **REM** periods last **15-40 minutes** and occur in last hours of sleep
- ⦿ **MOST** dreaming occurs in **REM** sleep

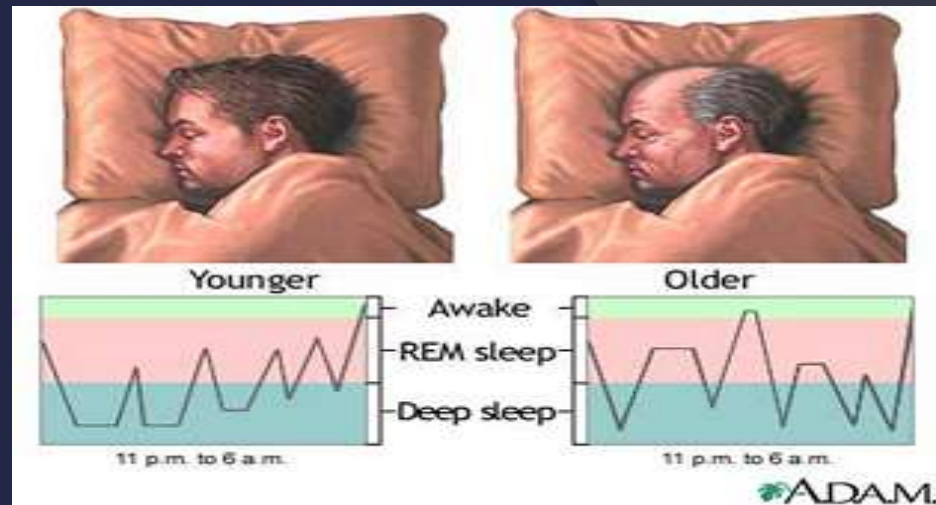
NREM Sleep

- **NREM** sleep divided into Stages 1, 2, 3, and 4
- Most **Stage 4** (the deepest) sleep occurs in the first few hours of sleep
- Dreaming occurs to a lesser extent in **NREM** sleep

Sleep Cycle



Sleep and Age



- Age-related changes include the following:
 - * no change in percentage of **REM** sleep and a marked decrease in **Stage 4** of **NREM** deep sleep of first hours
 - * an **increase** in wakeful periods during the night
 - * early bedtimes & daytime naps lead to complaints of **insomnia**

Sleep Disorders in Primary Care

- ◎ **Dyssomnias**

- Insomnia

- ◎ **Hypersomnias**

- Sleep Apnea

- Narcolepsy

- Excessive sleepiness

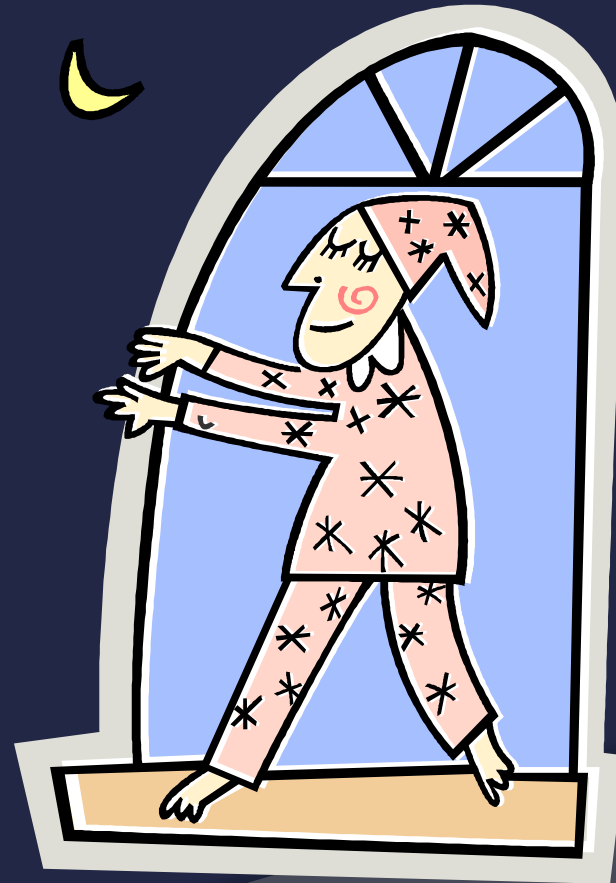
- RLS



Sleep Disorders in Primary Care

● Parasomnias

- Sleep Terror
- Nightmares
- Sleepwalking
- Enuresis



Dyssomnias (Insomnia)

What Is It?

- * Difficulty getting to sleep
- * Difficulty staying asleep
- * Intermittent wakefulness
- * Early morning awakening
- * Combinations of any of these

Insomnia

Causes:

- Stress
- Some psychiatric disorders (depression, manic states results in fragmented sleep)
- Excessive Alcohol Intake
- Heavy Smoking (> a pack a day)
- Sedative-Hypnotic Use
- Health Issues – chronic pain; thyroid, respiratory (SOB), urinary diseases

Insomnia

◎ **Two Broad Classes of Treatment:**

1. Psychological (cognitive-behavioral)
2. Pharmacologic

(May Have Combination of Both)

Insomnia

Good Sleep Hygiene (Cognitive-Behavioral)

1. Go to bed only when sleepy
2. Use bedroom for sleeping only
3. After 20 minutes, get up
4. Get up at same time each morning
5. No caffeine or nicotine
6. Avoid alcohol
7. Establish daily exercise regimen
8. Limit fluids
9. Learn and practice relaxation techniques

Dyssomnias (cont.)

Pharmacologic Measures

- ⦿ Lorazepam 0.5mg (Ativan)
- ⦿ Temazepam 7.5-15mg (Restoril)
- ⦿ Zolpidem 5-10mg (Ambien)
- ⦿ Zaleplon 5-10mg (Sonata)
- ⦿ Eszopiclone 2-3mg (Lunesta)

Hypersomnias

- Sleep Apnea
- excessive sleepiness
- Narcolepsy
- Nocturnal Myoclonus
(Restless Leg Syndrome)

Sleep Apnea

What is It?

- ⦿ Disorder characterized by cessation of breathing for at least 30 episodes; each lasting about 10 seconds during the 7-hour sleep period (in severe cases cessation of breathing may last 60 – 90 seconds and recur 500 times)

Sleep Apnea (cont.)

- ◎ **Three Types:**

- * **Central; Obstructive; Mixed**

- ◎ **Central**

- * Ventilatory effort is ABSENT for the duration of the apneic period
 - * Uncommon
 - * May be an isolated finding in patients with brainstem lesions

Sleep Apnea (cont.)

⦿ **Obstructive**

- * Ventilatory effort persists throughout the apneic episode but no airflow occurs because of obstruction of the upper airway

⦿ **Mixed**

- * Absent ventilatory effort precedes upper airway obstruction during the apneic episode

Sleep Apnea (cont.)

Obstructive/Mixed

- * Most common; frequently affects obese;
middle-aged men
- * Associated with life-threatening arrhythmias, severe hypoxemia during sleep, daytime sleepiness, pulmonary hypertension, cor pulmonale, and systemic hypertension

Cause of Sleep Apnea

Obstructive/Mixed

Most frequent **cause** is a relaxed tongue blocking the airway resulting in episodes of apnea.



Sleep Apnea Symptoms

- ⦿ Snoring with pauses in breathing
- ⦿ Excessive daytime sleepiness
- ⦿ Gasping or choking during sleep
- ⦿ Restless sleep
- ⦿ Inability to focus/memory loss
- ⦿ Quick to anger
- ⦿ Hypertension

Sleep Apnea Symptoms

- ⦿ Nighttime chest pain
- ⦿ Depression
- ⦿ Excessive weight
- ⦿ Large neck (>17" around in men, >16" around in women)
- ⦿ Morning headaches
- ⦿ Impotence
- ⦿ 7X more likely to be involved in MVA's

Sleep Apnea Diagnosis

⦿ **Diagnosis of Obstructive Sleep Apnea**

- Daytime sleepiness or fatigue
- Hx. of loud snoring with witnessed apneic episodes
- Epworth Sleepiness Scale (widely utilized
tool for assessing daytime sleepiness)
- Overnight polysomnography (sleep study) documenting apneic episodes with hypoxemia

Polysomnography- Sleep Study Measures

- Brain electrical activity
- Eye and jaw muscle movement
- Leg muscle movement
- Airflow
- Respiratory effort (chest and abdominal excursion)
- EKG
- Oxygen saturation



Sleep Study Results

- ⦿ Obstructive sleep apnea is indicated any time there is a greater than a 50% decrease in airflow with continued efforts to breathe lasting over 10 seconds in duration
- ⦿ Central sleep apnea is indicated when there is a cessation in airflow as well as respiratory effort lasting at least 10 seconds in duration.
- ⦿ Mixed sleep apnea is indicated if at least 10 seconds of central apnea followed by an obstructive component.

Sleep Apnea

● Treatment:

- * Weight Loss
- * Nasal Continuous Positive Airway Pressure (Nasal CPAP)
- * Uvulopalatopharyngoplasty (UPPP)



Narcolepsy

What Is It?

- Characterized by an abrupt transition into REM sleep
- Usually begins in early adulthood; affects both sexes equally; usually improves by age 30



Narcolepsy

Causes

- ⦿ Believed to be caused by reduced amounts of a protein called hypocretin manufactured in the brain. What causes the brain to produce less of this protein is unclear.
- ⦿ Narcolepsy tends to run in families.
- ⦿ Conditions that cause insomnia may increase incidence.

Narcolepsy

Symptoms:

- ⦿ Sudden brief (15 minutes) sleep attacks occurring every 3 to 4 hours
- ⦿ Cataplexy
- ⦿ Sleep paralysis
- ⦿ Hallucinations

Treatment:

- ⦿ Modafinil (Provigil)
50-100 mg. OD
- ⦿ Methylphenidate (Ritalin)
10-20 mg. BID



Nocturnal Mycolonus (Restless Leg Syndrome)

What is It?

(Restless Leg Syndrome, RLS)

- Periodic lower leg movements that occur during sleep. May result in daytime sleepiness; anxiety; depression, and cognitive impairment. **Restless legs syndrome (RLS)** causes a powerful urge to move the legs. Legs become uncomfortable when are lying down or sitting. Some people describe it as a creeping, crawling, tingling or burning sensation. Moving makes the legs feel better, but not for long.

Restless Leg Syndrome

Cause

- ⦿ In most cases, there is no known cause for RLS. In other cases, RLS is caused by a disease or condition, such as anemia or pregnancy. Some medicines can also cause temporary RLS. Caffeine, tobacco and alcohol may make symptoms worse.

Restless Leg Syndrome

Treatment:

- Lifestyle changes, such as regular sleep habits, relaxation techniques and moderate exercise during the day can help. If those don't work, medicines may reduce the symptoms of RLS
- Pramipaxole 0.18 qd (Restin)



Parasomnias

- ◎ Sleep Terror
- ◎ Nightmares
- ◎ Sleepwalking
- ◎ Enuresis



Sleep Terror

What is it?

- ⦿ An abrupt, terrifying arousal from deep sleep characterized by fear, sweating, tachycardia, confusion, and amnesia of event; usually occurs in preadolescent boys ages 5 - 7, although they also can occur in girls. Sleep terrors may run in families. They can also occur in adults, especially with emotional tension and/or the excessive use of alcohol.

Sleep Terror Symptoms

- ⦿ Sleep terrors are most common during the first third of the night, often between midnight and 2 a.m.
- ⦿ Children often scream and are very frightened and confused. They thrash around violently and are often not aware of their surroundings.
- ⦿ It may not be possible to talk to, comfort, or fully awaken a child who is having a sleep terror.

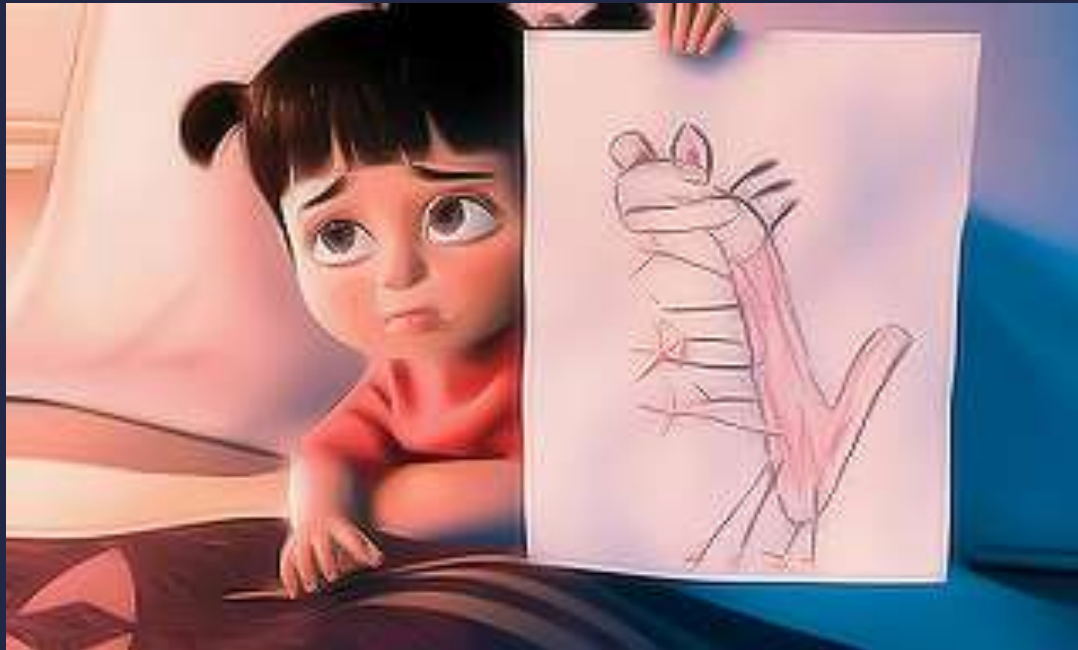
Sleep Terror Symptoms

- ⦿ The child may be sweating, hyperventilating, have a fast heart rate and dilated pupils.
- ⦿ The episode may last 10 - 20 minutes, then normal sleep returns.
- ⦿ Most children are unable to explain what happened the next morning. There is often no memory of the event when they awaken the next day.
- ⦿ Children with sleep terrors may also sleepwalk.

Sleep Terror

Treatment:

Benzodiazapines (diazepam) 5-20mg
HS



Sleepwalking

What is it?

- ⦿ (Somnambulism) includes ambulation and other intricate behaviors while still asleep with amnesia of event, Sleepwalking is a disorder that occurs when a person walks or does another activity while they are still asleep.
- ⦿ Most often occurs during deep, non-REM sleep (stage 3 or stage 4 sleep) early in the night. If it occurs during REM sleep, tends to happen near morning.
- ⦿ Most common in children aged **6-12**

Sleepwalking

- When people sleepwalk, they may sit up and look as though they are awake when they are actually asleep. They may get up and walk around, or do complex activities such as moving furniture, going to the bathroom, and dressing or undressing. Some people even drive a car while they are asleep.
- The episode can be very brief (a few seconds or minutes) or it can last for 30 minutes or longer. If they are not disturbed, sleepwalkers will go back to sleep. However, they may fall asleep in a different or even unusual place.

Causes of Sleepwalking

- ⦿ The cause of sleepwalking in children is usually unknown. Fatigue, lack of sleep, and anxiety are all associated with sleepwalking. In adults, sleepwalking may be associated with the following:
 - ⦿ Mental disorders
 - ⦿ Reactions to drugs and alcohol
 - ⦿ Medical conditions such as partial complex seizures
 - ⦿ In the elderly, sleepwalking may be a symptom of an organic brain syndrome or REM behavior disorders.
- ⦿ Sleepwalking can occur at any age, but it happens most often in children aged 6 -12. It appears to run in families.

Sleepwalking Symptoms

- ⦿ Eyes open during sleep
- ⦿ May have blank look on face
- ⦿ May sit up and appear awake during sleep
- ⦿ Walking during sleep
- ⦿ Performing other detailed activity of any type during sleep
- ⦿ Not remembering the sleep walking episode when they wake up
- ⦿ Acting confused or disoriented when they wake up
- ⦿ Rarely, aggressive behavior when they are awakened by someone else
- ⦿ Sleep talking that does not make sense

Sleepwalking (cont.)

Treatment:

Benzodiazapines (diazepam) 5-20mg
HS

Safety Measures



Nightmares

What are they?

- Frightening dreams that occur during REM sleep; a universal experience
- Occur during REM sleep resulting in feelings of strong fear, terror, distress, or extreme anxiety. Nightmares are usually in the latter part of the sleep cycle and wake up the sleeper who is able to remember the content of the dream and is not disoriented after the episode.



Nightmares

- Nightmares tend to be more common among children and become less frequent toward adulthood. About 50% of adults have occasional nightmares, women more often than men.



Causes of Nightmares

- ⦿ Anxiety and stress are the most common causes of nightmares. A major life event occurs before the nightmare in most cases.
- ⦿ Abrupt alcohol withdrawal
- ⦿ Breathing disorder in sleep (sleep apnea, narcolepsy, sleep terror disorder)
- ⦿ Death of a loved one (bereavement)

Causes of Nightmares (cont.)

- Illness with a fever
- Reaction to or side effect of a drug
- Recent withdrawal from a drug, such as sleeping pills
- Eating just before going to bed, which raises the body's metabolism and brain activity, may cause nightmares to occur more often.

Nightmares

Treatment:

- Reassurance
- Removal of Cause of Anxiety
- Sertraline (Asentra)
12.5-25 mg. HS



Enuresis

What is it?



- Involuntary bedwetting during sleep in a person who usually has voluntary control
- Most common in children, no specific age group; 3-4 hours after bedtime
- Confusion about and amnesia of event common

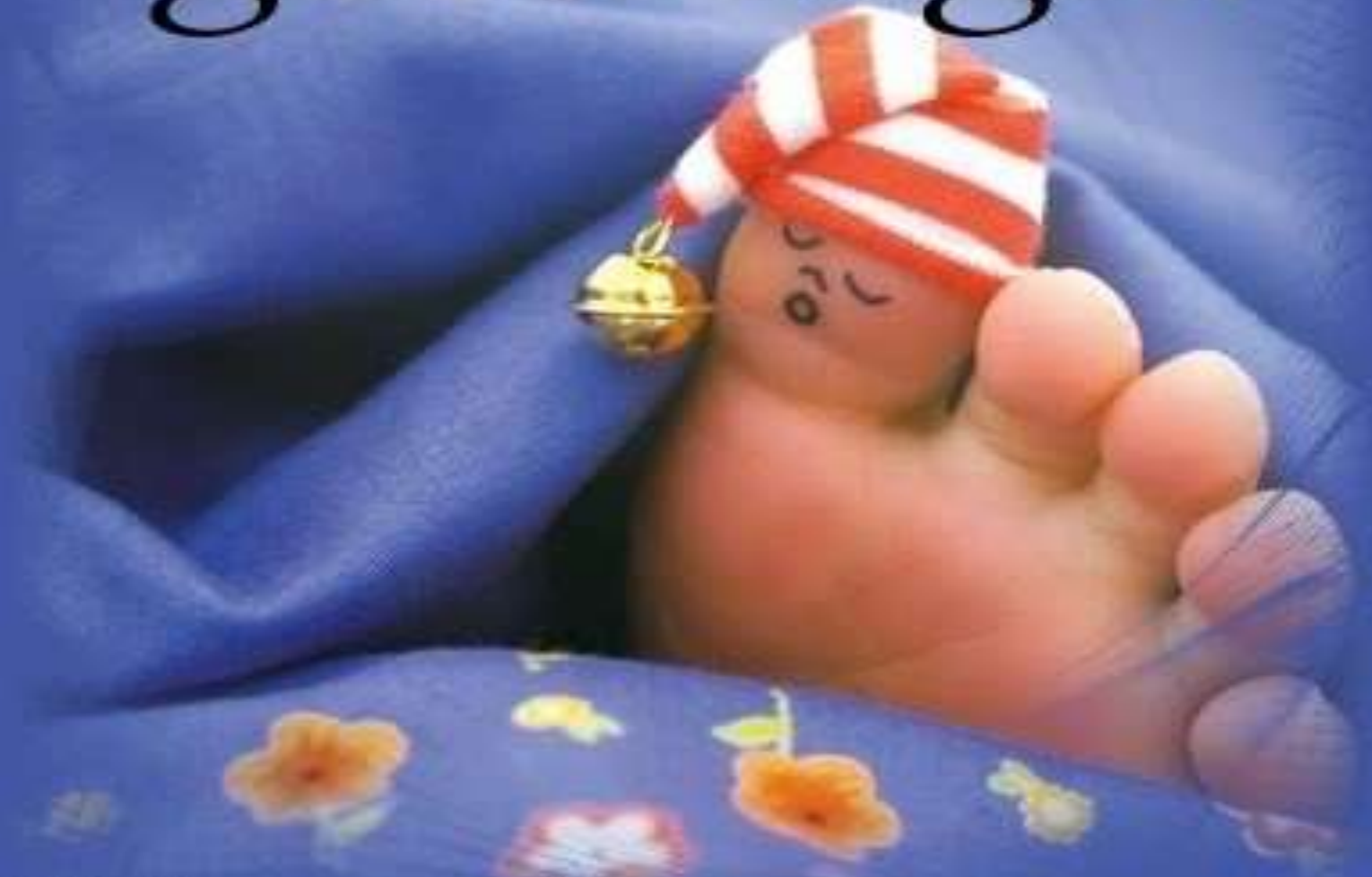
Enuresis (cont.)

Treatment:

- Imipramine (Tofranil)
10-25 mg. HS
- Nasal Spray (Desmopressin)
0.1 mg. 2 puff. HS
- Behavioral Approaches



good night



Editor : Dr. Parviz Molavi