

Sleep Disorder



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Statistics

- Individuals spend one-third of their lives asleep.
- One in seven Americans has longstanding sleep/wake disorder.
- During period of one year, 30% of population will experience Insomnia.
- 90% of population have insomnia sometime during their life.

Statistics, continue

- Non-prescription drugs and/or alcohol are used in up to 30% of insomnias.
- 2.5% of the population uses prescription drugs for sleep.
- \$1 billion are spent annually on medications in US.
- Indirect cost estimated to be \$100 billions annually in US.

Sleep Disorders, Types

- Insomnia
 - Transient
 - Short term
 - Chronic
- RLS
- PLMS
- Sleep apnea
- Narcolepsy
- Primary snoring

Insomnia

Diagnosed by any of the following:

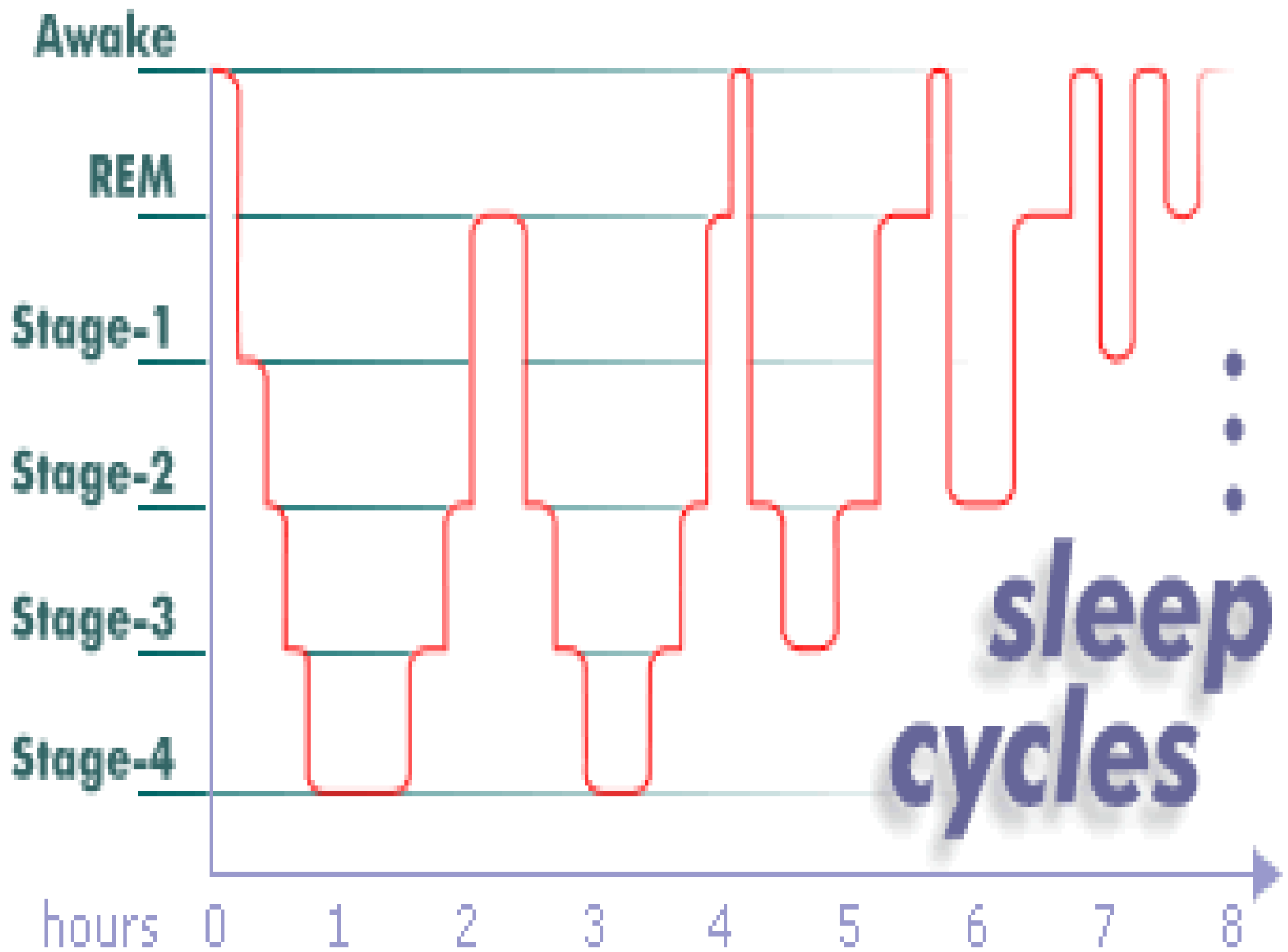
- > 30 min to fall asleep.
- Awaken throughout the night and cant immediately return to sleep.
- Experience early morning awakening.
- Total sleep time ≤ 6 hours.

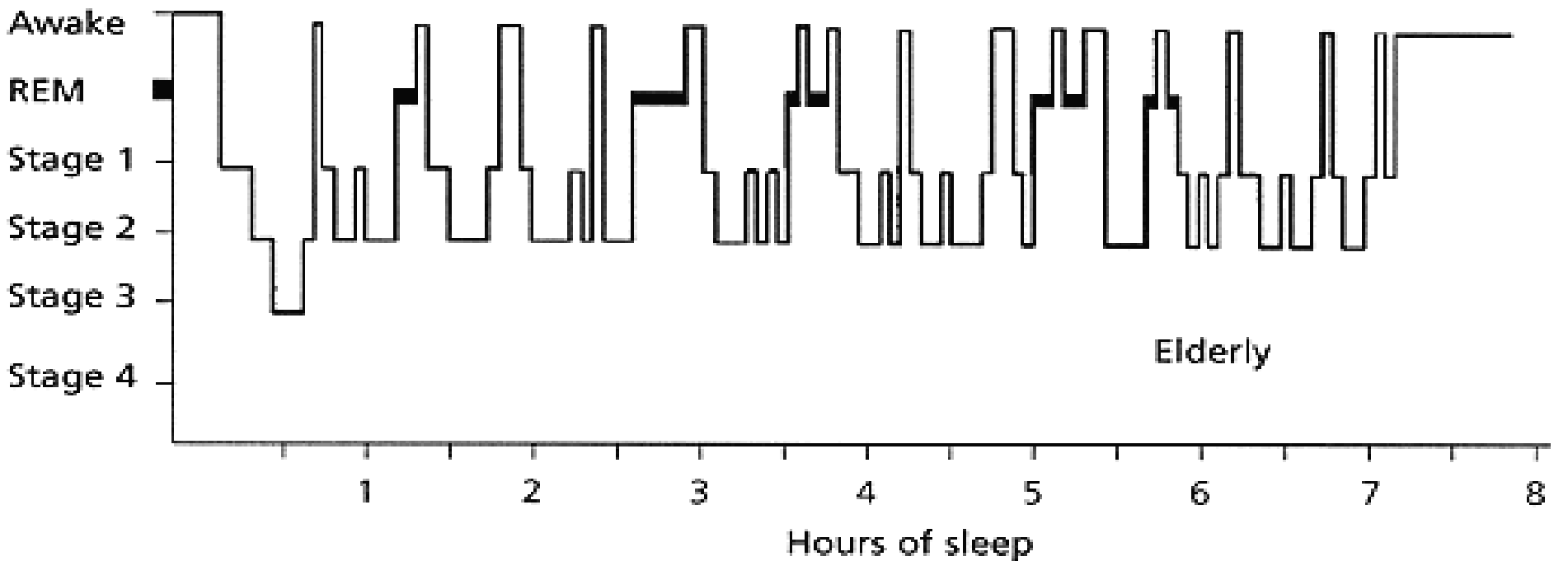
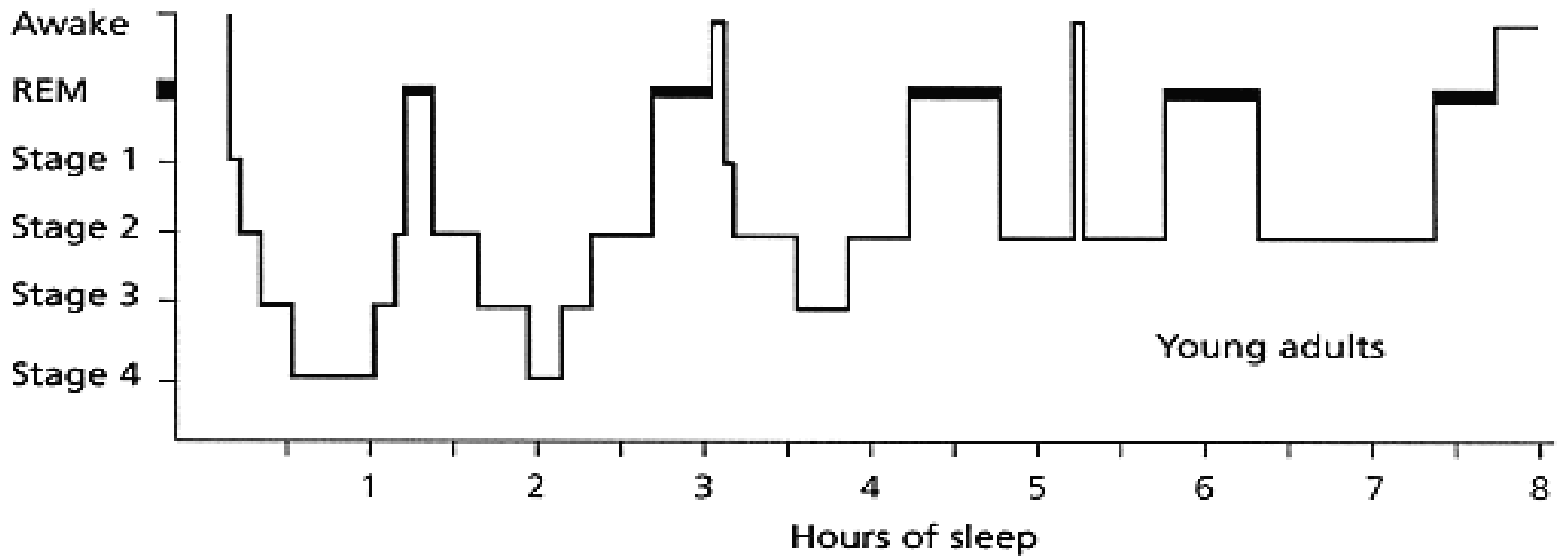
Insomnia, types

- Transient
 - Lasting for few days
- Short term
 - Lasting ≤ 3 weeks.
- Chronic
 - Persisting > 3 weeks.

Sleep stages

- Sleep stages are categorized based on POLYSOMNOGRAPHY
 - Electroencephalogram EEG
 - Electromyogram EMG
 - Electrooculogram EOG
- Based on those measures, sleep categorized into REM & NREM





REM

- Has aspects of both deep and light sleep.
- Dreaming mainly in this stage.
- Brain is active while the body appears in the deep sleep.
- When person is awakened, alertness returns relatively quickly.

REM, continue

- The cycle repeated \approx 90 min.
- Duration of REM increases in last half of the night.

NREM

- Stage I
- Stage II
- Stage III
- Stage IV

NREM, stage I

- Transitional stage.
- Main function is to initiate sleep.
- 2-5% of the sleep.
- Arousability is high during this stage.

NREM, stage II

- 50% of the total sleep.
- Muscle activity shuts down and brain activity become less active.
- Arousability is high during this stage.

NREM, stage III

- 5% of the total sleep.
- Directly after brief REM period.
- Arousability is difficult during this stage.

NREM, stage IV

- 10-15% of the total sleep.
- Arousability is difficult during this stage.

Brain neurotransmitters

- Serotonin
- Norepinephrine
- Acetylcholine
- Histamine
- Adenosine
- GABA

Risk factors

- Female gender
- Advanced age
- Marital separation
- Loss of spouse or close friend or relative.
- Unemployment
- Poor living conditions

Risk factors, continue

- Life style factors such as financial or marital stress.
- Change in sleep timing.
- Shift work.
- Jet lag.
- Stressful work environment.

Risk factors, medical

- Depression
- Anxiety
- Asthma
- COPD
- Pregnancy
- Neurological diseases

Risk factors, drugs

- CNS stimulants (amphetamines)
- SSRI antidepressants
- Corticosteroids
- Diuretics
- Anticonvulsants
- Beta blockers
- Tobacco and nicotine and caffeine
- Alcohol

Management

- Sleep hygiene
- Antihistamine
- Herbals
- Benzodiazepines
- TCA

Sleep Hygiene

- Keep the bedroom dark, comfortable, and quite.
- Keep a regular sleep schedule; awoken at the same time daily.
- Avoid daytime naps even after a poor night of sleep.
- Do not live in bed; the bedroom should be kept for sleep and sex.

Sleep hygiene, continue

- No eating, watching TV, or working in bed; it increases the stress.
- Turn the face of the clock aside to minimize anxiety about falling asleep.
- If unable to sleep, get out of the bed and do something to take your mind off sleep.

Sleep hygiene, continue

- Establish a predetermine rituals to condition your body for sleep.
- Relax before bedtime with soft music, mild stretching, yoga, or pleasure reading.
- Exercise early in the day before dinner to alleviate the stress; avoid exercising before bedtime

Sleep hygiene, continue

- Do not eat heavy meals before bedtime.
- Do not take any caffeine (e.g., coffee, tea, candy, soda) in the afternoon.
- Consult the pharmacist or physician as medical condition and/or drugs might affect your sleep pattern.

Get lag (time zoon shift)

- Risk factors includes:
 - Age more than 50.
 - Number of time zone.
 - East direction.
- Travellers should be educated to reset their watches and participate in activities corresponding to the new time.

Jet lag, continue

- Staying active till new time zone bedtime.
- Avoid naps and stimulants.
- Might takes 1-3 weeks to readjust.
- Short acting benzodiazepines might be needed.

Antihistamines

- Diphenhydramine 12.5-50 mg taken 30-60 minutes prior to bedtime.
- Doxylamine 25 mg before bedtime.
- Lesser the use, better the response.
- Hangover sedation may occur next day in 50% of patients.
- No dependence upon withdrawal.

Antihistamines, continue

- Patients should be advised that dizziness, sedation, dry mouth, constipation, and urinary retention may occur.
- Tolerance could happen.
- Patients should be advised not to use those medications for more than 10 consecutive days.

Valerian (*Valeriana officinalis*)

- Mediate the release of GABA
- Placebo-controlled trials shows the effectiveness in improving quality of sleep, decrease sleep latency, with no hangover in the morning.
- No habituation.
- Dose is 200-400 mg at bedtime.
- No data on pregnancy and lactation.

Chamomile (*Matericaria recutita*)

- Few studies performed.
- Sedative, antispasmodic, anti-inflammatory, and wound healing agent.
- Oral dose is 400/1600 mg/day.
- Can be brewed as a tea using heaping teaspoonful of dried flowers steeped in hot water for 10 minutes up to 3 times a day.

Counselling on using nutraceuticals for insomnia

- The use of herbs that is not medically supervised, especially for more serious or chronic complaints, is not recommended. Patients should seek medical care if insomnia persists beyond 2 weeks.
- With few exceptions the use of herbs during pregnancy or lactation or in children is not recommended.

Counselling on using nutraceuticals for insomnia

- Take the same dosage and frequency that have been studied in clinical trials for a given condition, and do not exceed the labelled amounts.
- If possible, use the same brand name product administered in clinical trials.
- Most herbs should only be consumed only for limited time period.

Counselling on using nutraceuticals for insomnia

- The use of herbals that do not list the exact amount of the herb should be discouraged.
- Patients with allergies to ragweed and daisies may have allergic reactions to products containing Chamomile.
- Patients anticipating surgical procedures should discontinue use of all herbs and notify their anaesthesiologist.

Melatonin

- Endogenous hormone affects the sleep pattern.
- Patients with poor sleep having lower levels of melatonin.
- Several small trials shows the effectiveness in improving sleep quality, duration, and onset.
- No day time drowsiness or hangover.
- Average dose was 5.4mg/day.

Benzodiazepines

TCA

Snoring

- Comes from vibrations in the tissue of the throat.
- 40 millions snorers in US.
- Might be a sign of other medical problem.
- Affects the quality of sleep.
- Affects the bed partner.

Snoring, risk factors

- Congested nose due to allergies, polyps, sinus infections, or flu.
- A deviated sputum.
- Weight gain.
- Abuse of sleeping pills.
- Alcohol.
- Cigarette smoking.
- Extreme fatigue.

Snoring, management

- For overweight patients, follow weight loss program combined with an exercise program.
- Try sleeping on your side, on a firm mattress with low pillow, in a cool, well ventilated room.
- Avoid heavy meals and caffeinated or alcoholic drinks just before going to bed.

Snoring, management

- Anti-snore device.
- Earplugs for partner.
- Traditional decongestant or antihistamine pills or nasal sprays can lessen the snoring, but can be habit forming and other SE.
- New product (SnoreStop) appeared to be effective in clinical trials.

Sleep Apnea

- Its neurological disorder characterized by mini-episodes of cessation of breathing which may occur 10-200 times per hour.
- The brain respond to those episodes by mini-arousals.
- This affects the quality of sleep.

Narcolepsy

- Its neurological disorder characterized by:
 - Sleep attacks
 - Cataplexy
- Management involves using CNS stimulants (Methylphenidate or dextroamphetamine) plus low doses of antidepressants for cataplexy.

RLS & PLMS

- RLS stands for: Restless Leg Syndrome.
- PLMS stands for: Periodic limb movement during sleep.
- RLS is a condition characterized by unpleasant limb sensations with irreversible urge to move.
- 80% of RLS patients have PLMS.

RLS & PLMS, continue

- PLMS also known as Nocturnal Myoclonus.
- PLMS described as rhythmic extensions of the big toe and foot occurring every 5-90 seconds.
- ≥ 5 movements per hour on EMG consider pathological.
- Occur at any age, but mainly in elderly.

RLS & PLMS, continue

- Sudden remission and relapses, in period of months or years, without obvious reason.
- Management includes reduction of caffeine, alcohol, and smoking.
- Dopaminergic agents, benzodiazepines, opioids, and anticonvulsants all have the same efficacy.

Questions are welcomed

