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Monogram
Sleep and Disorders of Sleep

Editor-in-Chief
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CHAPTER

Abnormal Movements During Sleep

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JAYPEE BROTERS

RESTLESS LEG SYNDROME (RLS)

Symptoms

Patients complain of irresistible desire of moving the legs associated with creeping, crawling or aching dysesthesias deep inside the affected limb. Relief is obtained by walking when symptoms occur.

Etiology

Familial: Roughly one-third of patients will have multiple affected family members. There is higher incidence in Northern European ancestory.
Genetics: At least three separate chromosomal loci have been identified in familial RLS, though till date no specific gene has been identified. Iron deficiency and chronic kidney disease can cause RLS. Then, the RLS may be termed as secondary RLS.

Treatment

- Ropinirole: Adults over 18 years—initially 250 micrograms (μg) at 8 pm for 2 days; increased if tolerated to 500 mcgm at night for 5 days and then to 1 mgm at night for 7 days. Further increase at weekly interval in steps of 500 mcgm daily according to response. Usual dose, 2 mg at night, maximum 4 mg daily.
  Note: Repeat dose titration if restarting treatment after interruption of more than a few days.
- Pramipexole—is used in moderate to severe restless leg syndrome. Adults over 18 years: initially 88 micrograms once daily, 2 or 3 hours before bedtime; dose doubled every 4–7 days if necessary; maximum 540 micrograms daily.
  Note: Repeat dose titration if restarting treatment after interruption of more than a few days.
- Gabapentin—may also be used for adults over 18 years;
  1st day 300 mg once a day
  2nd day 300 mg twice a day
  3rd day onwards 300 mg thrice a day.
- Rotigotin patch 1 mgm/24 hours patch for a week. May increase by 1 mg every week = maximum 3 mg/24 hour patch.

PERIODIC LIMB MOVEMENT DISORDER (PLMD)

Czeister described this disorder under two categories:

- Periodic Limb Movement of Sleep (PLMS)
  When periodic limb movements during sleep don't disturb sleep and is only an incidental finding in polysomnogram, it is known as PLMS. However, PLMS is the principal objective

polysomnographic finding in 17% of patients of insomnia and 11% of those with excessive daytime somnolence.

It occurs also incidentally in (i) Narcolepsy (ii) Sleep apnea (iii) REM sleep disorder behavior.

- Periodic Limb Movement Disorder (PLMD)
  When the abnormal movements disturb sleep and cause insomnia and daytime sleepiness it is called periodic limb movement disorder. The movements in both the above conditions consist of stereotyped 0.5–5.0 second extensions of great toe and dorsiflexion of feet. They occur every 20–40 seconds during NREM sleep, in episodes lasting for minutes to hours as documented by bilateral surface EMG recordings of the tibialis anterior muscle in polysomnography.
- Etiology: Pathophysiology is not well understood. It has been found that patients with high spinal cord transection exhibit PLMS. On this basis, it is postulated that there may be a spinal generator for these movements which might be hyperactive in some individuals (Fig. 4.1).

Treatment

- Dopaminergic receptor agonists like ropinirol, rotigotin, pramipexol = Doses are same as described in patients of restless leg syndrome.
- Benzodiazepines, like Lorazepam 1 to 2 mg nocte or diazepam 2–5 mg nocte.

REM Sleep Behavior Disorder

This is a rare condition characterised by violent or agitated behavior during sleep commonly causing injury to bed partner. It primarily afflicts middle aged or older males.

Pathophysiology: In experimental animals bilateral lesion of pontine tegmentum have been found to produce a condition resembling REM sleep behavior disorder. Hence, one may hypothesize that it may be due to a damage to descending pathways from brain stem areas which normally cause muscle atonia, during REM sleep.

Treatment: Clonazepam 0.5–1mg 4 times a day gives sustained relief almost in cases.

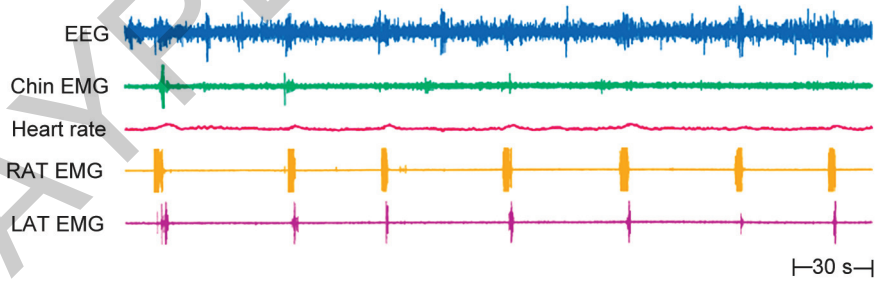

Figure 4.1: Polysomnography recording of periodic limb movement of sleep. Periodic limb movements occur with a relatively constant intermovement interval and are associated with changes in the EEG and heart rate acceleration. RAT, right anterior tibialis; LAT, left anterior tibialis (Adapted from the division of sleep medicine, Brigham and women's Hospital)

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