

## Parasomnias and When to Refer to a Sleep Specialist

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**P**arasomnia involve abnormal and unnatural movements, behaviours, emotions, perceptions and dreams that occur while falling asleep, during sleep, between sleep stages or upon waking. They can occur during REM or non-REM sleep.

Most people experience a parasomnia during their lifetime. A large Canadian study found that 88% of children had at least one parasomnia between age five months and six years<sup>1</sup> and the incidence begins to decline after age 25.

The most common non-REM parasomnias are bruxism (teeth grinding), somnambulism (sleep walking), confusional arousals and sleep terrors. These generally occur in the first third of the night, when non-REM sleep is deepest. The most common REM parasomnias are nightmares, REM behaviour disorder and recurrent sleep paralysis.

### **Brief Recap on Sleep Stages**

Normal sleep is divided into non-rapid eye movement (NREM) and REM sleep. NREM sleep is further divided into progressively deeper stages of sleep: stage N1, stage N2, and stage N3 (deep or delta-wave sleep). Stage N1 is considered a transition between wake and sleep. It occurs upon falling asleep and during brief arousal periods within sleep and usually accounts for 2%-5% of total sleep time.

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Stage N2 occurs throughout the sleep period and represents 45%-55% of total sleep time. Stage N3 (delta or slow wave sleep) occurs mostly in the first third of the night and constitutes 5%-15% of total sleep time. REM represents 20%-25% of total sleep time and occurs in 4-5 episodes throughout the night.

Typically, N3 sleep is present more in the first third of the night, whereas REM sleep predominates in the last third of the night. This can be helpful clinically as NREM parasomnias such as sleep walking typically occurs in the first third of the night with the presence of N3 sleep. This contrasts with REM sleep behaviour disorder (RBD), which typically occurs in the last half of the night.

The following are the different types of parasomnias in NREM and REM sleep:

### **NREM**

#### **Normal Events**

1. *Sleep starts (hypnic myoclonus)* - sudden brief, but strong contractions of the body, or one or more body segments, occurring just as one falls asleep.
2. *Exploding head syndrome* - suddenly hallucinate a sudden and alarmingly loud noise while falling asleep or just waking
3. *Explosive tinnitus* - when a patient experiences unreal loud noises that are of short duration while falling asleep or when awaking

### **Abnormal Events**

1. *Confusional arousals* - a sleep disorder that causes you to act in a very strange and confused way as you wake up or just after waking and may appear that you don't know where you are or what you are doing. This can include slow speech, confused thinking, poor memory and blunt responses to questions or requests.
2. *Excessive fragmentary myoclonus* - EFM - though defined as at least 5 characteristic fragmentary myoclonus EMG potentials/minute during at least 20 minutes of NREM sleep, the patient can often be oblivious to the same, or complain of muscle twitchiness or cramps.
3. *Sleep-related eating disorder* - Frequent episodes of out-of-control eating or drinking while asleep, with little memory of the episode/s. The patient is often partially or fully unaware of their behaviour.
4. *Sleep sex (Sexsomnia)* - Individual performs sexual acts like masturbation or sexual intercourse completely unconsciously, and often with the eyes wide open, but is completely unaware. Not a common condition.
5. *Sleep terrors* - episodes of screaming, intense fear and flailing while still asleep. Also known as night terrors, a sleep terror episode usually lasts from seconds to a few minutes, but episodes may last longer. Sleep terrors affect almost 40 percent of children and a

much smaller percentage of adults. However frightening, sleep terrors aren't usually a cause for concern. Most children outgrow sleep terrors by their teenage years.

6. *Sleep walking (Somnambulism)* - is usually hereditary, is common among children and adults which originates in deep sleep and manifests in the form of walking or indulging in a series of complex behaviours while asleep. Symptoms include simply waking up in the middle of deep sleep, sitting up and looking around, walking around the house, leaving the house in deep slumber, driving long distances in a state of sleep, talking (somniloquy) or screaming in sleep, sleepiness during the day, no memory of the event, associated injury and even inappropriate social behaviour like urinating in closets

### **REM**

#### **Normal events**

Hypnagogic hallucinations - imagined sensations that feel very real as the patient falls asleep.

Sleep paralysis - is a feeling of being conscious but unable to move. It occurs when a person passes between stages of wakefulness and sleep. During these transitions, one may be unable to move or speak for a few seconds up to a few minutes

#### **Abnormal events**

*Nightmares (dream anxiety attacks)* - The most common REM parasomnia. They are recurrent episodes of awakening from

sleep or naps with detailed recall of dreams involving distressing or life threatening events. There is no confusion on waking. There is often a significant impact on the person's waking state, reduced daytime function and reluctance to return to sleep. Diagnostic criteria differ, but it is estimated that recurrent, problematic nightmares occur in 4 - 8% of people.<sup>6</sup>

*REM behaviour disorder* - Commoner in males with a prevalence of 0.5 to 2%, this presents with an intermittent loss of REM-sleep muscle atonia (i.e. protective muscle paralysis), which results in acting out dreams. Common behaviours include punching, kicking, leaping and running from the bed during dream enactment. Episodes usually occur in the later one third of the night, after at least 90 minutes of sleep.

REM-related painful erections - characterised by penile pain during sleep-related erections, typically during REM sleep, contrasting with painless erections in the awake state. Usually occur after the age of 40.

### **General Principles of Parasomnia Management**

Management of parasomnias consists of identifying and resolving any underlying causes, providing reassurance and advice on optimal sleeping practices (sleep hygiene), and where necessary, modification of the sleeping environment. In severe cases, pharmacological treatment may be considered. Exclusion of underlying causes may include investigation of:

Use of sedative hypnotics, SSRIs, beta-blockers and tricyclic antidepressants

Use of caffeine, nicotine, alcohol, illicit drugs

Anxiety, stress or depression, or other mental illness

Dementia or confusion in older people

Other sleep disorders, e.g. restless leg syndrome, sleep apnoea, narcolepsy

Reassurance that parasomnias are common, usually without any specific cause and generally resolve over time may be helpful. It is advised that during parasomnia episodes, the person should not be woken as this may increase disturbance or lead to violent behaviour.<sup>2</sup> If they have left their bed, the person should be gently redirected back to bed without waking, or if there is a history of violence, observed but left alone.

Sleep hygiene advice remains very important in parasomnias - refer chapter on insomnia.

Making the sleep environment safe is also necessary if the parasomnia behaviour involves leaving the bed. Examples include placing locks on second storey windows, removing furniture, including mats and electrical cords, from around the bed, secure dangerous items such as knives or matches and securing exits to prevent wandering.

Scheduled waking can sometimes help to reduce the incidence of episodes of non-REM parasomnias such as somnambulism (sleep walking). The patient is gently woken 15 - 30 minutes prior to the normal episode time.<sup>3,4</sup> The

procedure is repeated every night for up to one month, and then a trial without waking can be done.

Pharmacological treatment (rarely recommended for a child) may be considered when parasomnias become frequent, cause extreme anxiety or there is potential for harm to the person or household members, and should only be prescribed after exclusion of reversible causes and all non-pharmacological options have been trialled.<sup>4</sup> Psychotherapy, particularly relaxation and cognitive behaviour therapy, where available, may be useful for some people with parasomnias.

Clonazepam 1 mg is the first choice drug as it has a strong evidence base and well known adverse effect profile. If not

effective tricyclic antidepressants like amitriptyline can be considered, 10 mg daily and increased, if required.

Melatonin 2 to 3 mg/day, and increased to a maximum of 12 mg/day (a few hours before sleeping) is also an option for REM parasomnias where the risk of falls is significant - and a benzodiazepine would be relatively contra-indicated.<sup>5</sup>

Overall, pharmacotherapy should only be an option if non-pharmacological methods have been adequately tried.

### **Differentiating a Parasomnia from Frontal Lobe Epilepsy**

In clinical practice differentiating parasomnias from each other, and from frontal lobe epilepsy is very important. The Table below gives us a better idea of how to do it well:<sup>7-9</sup>

	Non-REM Parasomnia	REM Parasomnia	Frontal Lobe Seizures
Usual age at onset	Childhood	Older adults	Any age, most often between age 9 - 20 years
Gender bias	None	More common in males	May be more common in males
Occurrence during the night	First third	At least 90 minutes after sleep onset	Most frequently between 2 am and waking
Episodes per night	Usually one	One to several	Several
Episode duration	1-30 minutes	1-2 minutes	Seconds to one minute
Episode frequency	Sporadic	Sporadic	Almost nightly
Episode amnesia	Often total	Occasionally total	No amnesia
Stereotyped movement	Absent	Absent	Present
Autonomic activity	Present	Absent	Present
Evolution	Tend to disappear	Rare remission	May increase in frequency

### **When Should A Primary Care Physician Refer To A Sleep/Chest Physician?**

Most cases of straightforward obstructive sleep apnoea, and many cases of insomnia can be very well managed at the primary care setting itself.

Referral to a sleep / chest physician is recommended in the following situations

- a. If usual treatment/s for the sleep disorder are ineffective
- b. Unclear diagnosis despite sleep studies
- c. Suspicion of narcolepsy and performing multiple sleep latency tests.
- d. Mild OSA where there may be confusion on whether to use CPAP or not.
- e. Treatment of chronic parasomnias when reassurance alone is not enough
- f. Chronic insomnia needing behavioural therapy - the chest physician should be either trained in cognitive behavioural therapy or refer to a psychologist trained in CBT.
- g. Severe OSA not responding well to CPAP
- h. Severe OSA non-adherent to CPAP
- i. Mild to moderate OSA that may need or benefit with surgery
- j. To determine the need for home non-invasive ventilation (NIV)

### **References**

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#### **Rivaroxaban with or without Aspirin in Stable Cardiovascular Disease**

Among patients with stable atherosclerotic vascular disease, those assigned to rivaroxaban (2.5 mg twice daily) plus aspirin had better cardiovascular outcomes and more major bleeding events than those assigned to aspirin alone. Rivaroxaban (5 mg twice daily) alone did **not** result in better cardiovascular outcomes than aspirin alone and resulted in more major bleeding events.

**J.W. Eikelboom, S. J. Connolly J. Bosch, et al, The NEJM, 2017, Vol 377, 314 1319**