National Hospital for Neurology and Neurosurgery

Non-REM parasomnias
Sleep Neurology Services
If you would like this document in another language or format, or require the services of an interpreter, please contact the Sleep Clinic directly. We will do our best to meet your needs.

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1 Introduction

This booklet has been written by Dr Eriksson and Professor Walker at the National Hospital for Neurology and Neurosurgery. This booklet is intended for patients (or their family or carers) referred to our service. It is not intended to replace discussion with your consultant. The aim of the booklet is to provide information about non-REM parasomnias.

If you have any further questions please do not hesitate to contact a member of our team. They will be happy to answer any questions you may have.
2 Some basic facts about sleep

Sleep is divided into different stages; rapid eye movement called REM, where we do most of our dreaming, and non-REM sleep. Non-REM sleep is divided into light (stage N1 and N2) and deep sleep (stage N3).

Throughout the night we go through the different stages of sleep in approximately 90-minute cycles. There is usually more deep sleep early in the night after sleep onset and more REM sleep towards morning.

The graph below is called a hypnogram. This graph shows (in a simplified way) the stages of sleep that we go through over a night.
3 What are non–REM parasomnias?

Parasomnias are abnormal events that occur during sleep. Non-REM parasomnias occur from non-REM sleep, usually deep sleep (stage N3). They often take place in the first third of the night.

Non-REM parasomnias are the most common parasomnias, occurring in up to 20-30% of children. The majority of children will outgrow these parasomnias in adolescence. For some people the symptoms will continue and it is thought that as many as 1-2% of adults sleep walk.

Non-REM parasomnias often run in families but family members may not have exactly the same symptoms.

There are several different types of non-REM parasomnia and people may have one or several of these symptoms that include:

• Confused arousal
• Night terrors
• Sleep talking/walking
• Sleep eating and drinking

People usually look awake and sometimes seem confused or scared. On being woken, people may remember a nightmare-like episode, such as being chased or attacked. People often wake feeling scared with a pounding heart.
4 What can cause non-REM parasomnias?

Non-REM parasomnias are thought to be caused by not waking up properly from deep sleep. Research studies suggest that there is a mismatch between some parts of the brain waking up but others staying asleep. For example, the occipital lobes that look after vision and the limbic system that looks after emotions wake up but the frontal lobes that are important for sense and reasoning stay asleep. This means that people can see and react but usually not as sensibly and well as when they are awake.

Often the arousal (awakening) is spontaneous but may also be caused by noise or other stimuli.

Factors that can either cause sleep disruption or increased amount of deep sleep can make non-REM parasomnias worse and attacks can be triggered by sleep deprivation (lack of sleep), stress, fever and sometimes alcohol.

Other sleep disorders, such as obstructive sleep apnoea (OSA) and periodic limb movement of sleep (PLMS) may also make non-REM parasomnias worse.
5 How is non-REM parasomnia diagnosed?

In people with a typical history of non-REM parasomnia, the disorder may be diagnosed on history alone and investigations are not always needed. Many do not remember their night-time attacks and it is often very helpful to get a description from a bed partner.

For people where the history is less clear or there is suspicion of other sleep disorders, an overnight sleep study in hospital may be needed. This will help with the diagnosis and can also be useful to exclude other sleep disorders (such as obstructive sleep apnoea and periodic limb movements of sleep) that can make the non-REM parasomnia worse and may need separate treatment.

During the inpatient sleep study (polysomnography) wires will be placed on the head, face, chest and legs to record, brainwaves, eye movements, heart rhythm, breathing and leg movements. There is also a video camera in the room to record overnight events.
6 How is non-REM parasomnia treated?

Avoiding triggers

The main and most important treatment is to avoid provoking factors, such as stress and sleep deprivation. ‘Sleep hygiene’ advice is often given to help improve night-time sleep and reduce sleep deprivation. This includes going to bed at a regular time in a dark, quiet room and avoiding caffeine before bedtime.

Medical treatment

For most people, medication is not needed. However, if symptoms are severe or violent, medication may be required temporarily or for a longer period.

The most common treatments are:

• Clonazepam (Rivotril®).

This is a long acting benzodiazepine (type of sedative) that can be taken regularly or intermittently. It works by relaxing muscles as well as reducing the type of sleep in which non-REM parasomnias often happen. The most common side effect is a “hang over effect” the day after. Should this be the case, the dose can be reduced. There is also a risk of developing tolerance so that the medication may become less useful with time.

• Antidepressants (such as Paroxetine, Trazodone or Clomipramine) help reduce the number of arousals when non-REM parasomnias can happen. This medication needs to be taken regularly and it might take some weeks before you see
the effect. The most common side effects are tiredness, dizziness, dry mouth and constipation.

The safety of some antidepressants in pregnancy has not been established and for women who are pregnant or considering becoming pregnant, clonazepam may be a safer option.

Regardless of what type of treatment is prescribed, it is usually useful to consider stopping the medication after treatment for some time to evaluate if it is still needed.

We will explain all the relevant risks, benefits and alternatives of any treatments so you can make an informed decision. If you have any questions, or you are unsure about anything that has been said to you, do not hesitate to ask a member of our team.
9 Other important information

Non-REM parasomnias are in themselves not dangerous, but there are important safety aspects to avoid injuries. These include making sure windows and doors are properly locked, sharp or breakable objects on which the person can hurt themselves or others are put out of reach or locked away. Sometimes it may also be necessary to sleep in a separate room if symptoms are severe.

Non-REM parasomnias are not associated with other neurological or neurodegenerative disorders as can be the case with REM sleep behaviour disorder (RBD), another type of parasomnia.
10 Contact details

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11 How to find us

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