

Problems with Sleep in Parkinson's Disease

Most people with Parkinson's disease experience problems with sleeping at night [1]. A recent survey suggested that up to 90 percent of people with the Parkinson's experience such problems. Excessive daytime sleepiness and sudden onset of sleep can also be a problem in Parkinson's.

Excessive Daytime Sleepiness in Parkinson's Disease

Excessive Daytime Sleepiness (EDS) causes people with Parkinson's to fall asleep or doze frequently during normal waking hours. It can have several causes:

- Poor sleep at night;
- Sleep disorders such as sleep apnoea (when unknown to themselves, people seem to 'stop' breathing momentarily when asleep, with symptoms such as loud snoring);
- The use of sleep-producing medicines (such as sedatives, antidepressants, hypnotics);
- Some dopamine agonists and levodopa may lead to sleepiness in people with Parkinson's. If a person with Parkinson's experiences a sudden irresistible desire to sleep during the daytime, then they need to discuss this with their doctor. In some situations, medicines which promote wakefulness may be used.

Anyone experiencing sleepiness should use caution when carrying out activities such as driving and operating machinery.

Sudden Sleep Onset in Parkinson's Disease

Some dopamine agonists and levodopa may cause episodes of sudden sleep onset during daily activities, in some cases without awareness or warning signs. People with Parkinson's who have experienced an episode of sudden sleep onset must refrain from driving or operating machines. It is important a person with Parkinson's to let their GP, Specialist or PDNS know if they have experienced sudden onset of sleep. They may then decide to change the anti-Parkinson's medications so that this does not occur.

Causes of night time sleep disruption in Parkinson's Disease

There are a variety of possible causes which are discussed below:

- Sleep problems due to a change in response to common anti-Parkinson's medication, particularly levodopa containing medicines (trade names Sinemet, Stalevo or Madopar). When levodopa or other dopamine replacement drugs start to wear off or lose their effectiveness before the next dose is due at night, common Parkinson's symptoms, such as stiffness, tremor, pain and inability to move and turn in bed get worse. This in turn leads to disturbed sleep and frequent waking;
- Early morning dystonia. This is a painful cramp that can cause the person to wake up. Dystonia often affects the hands and feet, and can, for example, cause the feet to turn inwards. Early morning dystonia is usually a sign of Parkinson's medications wearing off late at night or early in the morning;
- Nocturia or the phenomenon of waking up at night with the urge to urinate. If this urge to urinate is accompanied by an "off" period (period of relative immobility), some people find that they become incontinent of urine because they can't get to the toilet. Increased frequency of urination at night may also lead to light-headedness and giddiness while attempting to stand up. This is due to an abnormal fall in blood pressure when standing and is known as postural hypotension;
- Insomnia or difficulty in falling or staying asleep. This can also cause sleep disruption and may in turn be caused by anxiety, depression and the symptoms of "off" periods;
- Parasomnias. These are disorders experienced on waking or when light sleep changes to deep sleep, and they can occur in Parkinson's. These include nightmares and sleepwalking. An important problem is rapid eye movement sleep behaviour disorder (RBD). During RBD,

people may act out violent dreams causing them to fall out of bed, cry or shout or even hurt their bed partner;

- Restless Legs Syndrome. During the evening and at night, people with Parkinson's often experience an irresistible desire to move their legs. This is known as 'Restless Legs Syndrome'. See also the Parkinson's Association's separate Information Sheet on Restless Leg Syndrome;
- Pins and Needles. These may occur in the calf muscles and those affected may need to walk around to obtain relief. Contact with bedclothes may also be uncomfortable;
- Periodic Leg Movements of Sleep. This is a very rare cause of sleep disruption in Parkinson's. It may cause "jumping" of the legs, arms or body during sleep;
- Rapid Eye Movement (REM) Behaviour Disorders (RBD). Dopamine is needed as our paralyzing chemical while we sleep, so the reduced level of this chemical can also cause sleep disruption problems. During REM sleep (the deepest phase of sleep) people can behave unusually. They may move their arms and legs vigorously, possibly injuring themselves. They may also call out or scream in their sleep. This occurs because people may be subconsciously acting out a violent dream which they may or may not be able to recall.
- RBD may be more common than previously realised in people with Parkinson's. If a person with Parkinson's or their partner notices any abnormal behaviour during sleep, such as wandering, talking or causing injury to themselves, they should discuss this with their doctor as it may indicate an RBD behaviour disorder;
- Panic attacks. These may occur at night and disturb sleep. In these attacks people may feel panicky with increased rate of breathing and palpitations. These may be related to "off" periods or anxiety;
- Incoherent talking during sleep (sleep talking). These may also disturb sleep;
- Depression and other psychological and cognitive problems, such as dementia. These may cause sleep problems;
- Some Anti-Parkinson's medications may interfere with sleep in various ways. Medicines such as amantadine (Symmetrel) or selegiline (Eldepryl) can keep people awake at night particularly if they are taken in the evening. In some people

with advanced Parkinson's, high dose levodopa or dopamine agonist drugs such as pramipexole (Mirapexin) may also cause "insomnia". For this reason, it is advisable to take these medications before noon. Other substances and medicines taken for different conditions can also interfere with sleep. These include:

- Caffeine (as contained in coffee, tea, cola drinks) taken in large amounts at bed time;
- Diuretics (water tablets) taken at night-time and
- Clonidine (used for sweating disorders).

Treatment of night-time problems in Parkinson's Disease

This will depend upon the cause of the problem. It is therefore, important to discuss difficulties related to sleeping with a doctor or Parkinson's Disease Nurse Specialist (PDNS). Use of the Parkinson's sleep scale [2], developed in the UK, is helpful to determine the cause of sleep disruption.

If insomnia is the underlying cause, then it is important to make sure this is not due to anti-Parkinson medication such as amantadine or selegiline being taken late in the evening. These can act as stimulants and keep you awake.

Simple measures to help with sleep can be employed, such as:

- Ensuring regular sleep hours;
- Increasing day-time activity, where possible;
- Relaxation before bedtime (for example, taking a warm bath);
- Avoidance of alcohol, tobacco and caffeine (and remember that this includes tea and cola drinks as well as coffee) in the evenings.

Insomnia and other sleep disorders are more common in people with Parkinson's who have depression and their doctor may therefore also suggest specific treatment for depression.

If sleep problems are due to worsening of Parkinsonian symptoms at night causing stiffness, difficulty in turning in bed, pain and tremor then your doctor may consider using a 'longer' acting anti-Parkinson medicine to be taken at night before bedtime. These include controlled release preparations of levodopa (Sinemet CR) or a long acting dopamine agonist (Mirapexin Prolonged Release or Requip Modutab), which are effective given once a day.

Dystonia in the early morning may need to be treated by timed injections of apomorphine. This is often administered by the person with Parkinson's, or carer,

using a pre-filled syringe with an injection device. Again, consideration may be given to using a long-acting dopamine agonist, as mentioned previously, in the evening so that the effects last through the night.

Pain often accompanies night-time akinesia (lack of movement) and standard painkillers may be required at night. See the Parkinson's Association's Information Sheet on "Pain in Parkinson's Disease" for further information on this issue.

Difficulty with turning over in bed often accompanies sleep disruption and it can be tackled by using 'slippery' (for example, satin) bed sheets, and the use of bedrails. The person with Parkinson's should discuss these issues with their doctor or PDNS. A physiotherapist or occupational therapist might also be able to help. See also the Parkinson's Association's Information Sheet on "Physiotherapy in Parkinson's".

If sleep disability occurs because of an increased urge to pass urine at night (nocturia) then the person with Parkinson's should:

- Try and make sure that you reduce the amount of fluid intake in the evening and take a trip to the toilet before bedtime;
- Avoid drinks such as coffee, tea or beer before bedtime;
- Discuss with their doctor specific treatment with drugs such as oxybutynin (Cystrin or Ditropan) or tolterodine (Detrusitol). These drugs are useful if the urinary bladder (waterworks system) becomes abnormally sensitive due to Parkinson's and causes a frequent urge to urinate;
- Consider using a bedside commode or portable urinal. Occasionally a condom catheter can be used to prevent the soiling of bedclothes with urine;
- Seek advice from a PDNS, Public Health Nurse or a Continence Nurse. Many of the HSE areas and large hospitals offer continence advisory services run by a continence nurses with special knowledge and expertise about continence problems and their management. This service can be contacted directly through the local HSE office or via a referral from your GP or Public Health Nurses. The services are for people who have all types of incontinence. Where appropriate, the Continence Nurse may refer for specialist advice. See also the Parkinson's Association's Information Sheet on "Bladder and Bowel Problems in Parkinson's Disease".

Some people with Parkinson's develop nocturia with a pronounced drop in blood pressure while standing (postural hypotension) in the morning. This may cause

feelings of dizziness and light-headedness while attempting to stand after getting out of bed in the morning. If this happens then:

- Desmopressin spray (Desmospray) to be nasally inhaled before bedtime may be prescribed. This spray reduces the urine output at night;
- Discuss with your GP if it is possible to avoid drugs which promote urination at night, for example, blood pressure lowering pills, antidepressants or water tablets;
- Care must be taken before getting up from a lying position in the morning and you should attempt to do so slowly;

See also the Parkinson's Association's Information Sheet on "Blood Pressure and Parkinson's Disease" .

Very rarely, sleep disruption may occur due to overproduction of dopamine or overstimulation of the dopamine receptors in the brain due to drugs and may resemble "restless legs syndrome". This is in effect a manifestation of abnormal involuntary movements (dyskinesias) at night-time. If this happens then:

- The dose of levodopa taken at night-time may need to be altered (although, paradoxically, levodopa is used to treat restless legs syndrome in other conditions);
- A long acting dopamine agonist may be needed at night-time;
- Occasionally, sleep-producing medicines such as clonazepam (Rivotril) or zopiclone (Zimovane) may be useful for a short time.

If sleep disruption occurs due to neuropsychiatric problems (such as hallucinations) or abnormal behaviour (such as wandering, agitation, talking loudly during sleep) at night, then specialist referral and treatment to a neurologist or geriatrician who has a specialist interest in Parkinson's is advised. In some cases a neurologist with a special interest in sleep disorders may also be consulted.

Nocturnal hallucinations often occur as a secondary effect of anti-Parkinson's medicines taken at night-time or other factors such as infections. See the Parkinson's Association's Information Sheet on "Hallucinations and Parkinson's" for further information on this issue. Sleep disorders, such as sleep apnoea, may need expert treatment from a sleep specialist.

Night-time panic attacks in Parkinson's disease
"Off" period panic attacks can occur in up to 40

percent of people and they can occur at night. People with Parkinson's experiencing panic attacks might feel panicky, hyperventilate, sweat and become agitated during "off" periods. Their blood pressure and heart rate may rise and palpitations may occur.

Effective treatment of "off" periods by using dopaminergic (working with dopamine) medicines such as apomorphine or controlled release levodopa often proves effective. Some people may need treatment with medicines that reduce anxiety.

Where can help be obtained for sleep problems? Often, symptoms of poor sleep are not recognised or adequately treated. For this reason, if a person with Parkinson's is experiencing poor sleep then this should be discussed with their GP or PDNS. In most cases, the simple measures as discussed above will help. However, it is likely that referral may be needed to a neurologist or geriatrician with a special interest in Parkinson's for specific therapy.

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References

1. Ray Chaudhuri K. The nocturnal symptom complex of Parkinson's disease and its management. *Neurology* 2003; 61(6): suppl 3.S17-S23.
2. Ray Chaudhuri K et al. The Parkinson's disease sleep scale: a new instrument for assessing sleep and nocturnal disability in Parkinson's disease. *J Neurol Neurosurg Psychiatry* 2002; 73:629-635.

Other Relevant Information Sheets

NM3: Blood Pressure in Parkinson's Disease

NM5: Pain in Parkinson's Disease

NM6: Bladder and Bowel Problems in Parkinson's Disease

NM12: Hallucinations in Parkinson's Disease

NM13: Restless Legs Syndrome in Parkinson's Disease

EX1: Physiotherapy and Parkinson's Disease

DISCLAIMER – The information on these pages is not intended to be taken as advice. No changes to your treatment should be made without prior consultation with your doctor or allied health professional.

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