Parkinson's Disease Society

Information Sheet

Sleep and Night-time Problems in Parkinson's

Most people with Parkinson's experience problems with sleeping at night. A recent survey suggested that up to 90 percent of people with the condition experience such problems.

What are the causes of sleep disruption in Parkinson's?

There are a variety of possible causes:

Sleep problems are often caused when people experience a change in their response to common anti-Parkinson's drugs, particularly levodopa (trade names Sinemet 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.

Another cause of sleep disruption is 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 drugs wearing off late at night or early in the morning.

An important cause of sleep disruption is 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 depletion of minerals in the blood and 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 can also cause sleep disruption and may in turn be caused by anxiety, depression and the symptoms of "off" periods.

Parasomnias 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.

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'.

People may also have pins and needles in their calf muscles and they may need to walk around to obtain relief. Contact with bedclothes may also be uncomfortable.

Periodic Leg Movements of Sleep 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) 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 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) may also disturb sleep.

Depression and other psychological and cognitive problems, such as dementia, may cause sleep problems.

There are several anti-Parkinson's drugs that may interfere with sleep in various ways. Drugs 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". Other substances and drugs 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

Clonidine (used for sweating disorders)

Ephedrine (a stimulant drug used for postural hypotension)

What causes excessive daytime sleepiness in Parkinson's?

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 drugs (such as sedatives, antidepressants, hypnotics).
- Current evidence suggests that some dopamine agonists and levodopa may lead to sleepiness in people with Parkinson's. This may be due to a combination of lack of dopamine in the sleep related centres of the brain and the effects of the drugs. If this occurs or 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, drugs which promote wakefulness, such as selegiline (Eldepryl), amantadine (Symmetrel) or a specific drug called modafinil (Provigil) may be used, but only after specialist approval.

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

Daytime sleepiness can also occur as a result of high dose levodopa therapy and stimulant drugs such as amantadine. These drugs can have a stimulant effect that can cause interruption of sleep at night.

How are night-time problems in Parkinson's treated?

This will depend upon the cause of the problem. It is therefore, important to discuss difficulties related to sleeping with your doctor or Parkinson's Disease Nurse Specialist (PDNS) if you have one. Use of the Parkinson's disease sleep scale[1], developed in the UK, is helpful to determine the cause of sleep disruption.

1 Ray Chaudhuri K, Pal S, DiMarco A, Whately-Smith C, Bridgman K, Mathew R, Pezzela FR, Hogl B, Trenkwalder C. 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.

If insomnia is the underlying cause, then:

a) It is important to make sure this is not due to anti-parkinson drugs such as amantadine or selegiline taken late in the evening, as these can act as stimulants and keep you awake.

b) Simple measures to help with sleep can be employed, such as:
- Ensuring you have regular sleep hours
- Increasing your 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.

c) Insomnia and other sleep disorders are more common in people with Parkinson's who have depression. Therefore, your doctor may 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 drug to be taken at night before bedtime. These include controlled release preparations of levodopa (Sinemet or Madopar) or the longest acting dopamine agonist, cabergoline (Cabaser), which is effective given once a day.

Occasionally, these measures may not be successful and in such cases you may be referred to a specialist hospital centre where an apomorphine infusion, given via a waist-held pump with a needle inserted under the skin, may be extremely effective. Apomorphine (APO-go) is a dopamine agonist drug without any morphine-like properties.

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, you may consider using a long acting dopamine agonist such as cabergoline in the evening so that the effects last through the night.

Pain often accompanies night-time akinesia (lack of movement) and you may need to take standard painkillers at night. See the PDS information sheet *Pain in Parkinson's*.

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. You will need to discuss these issues with your doctor and PDNS. A physiotherapist or occupational therapist might also be able to help

If sleep disability occurs because of an increased urge to pass urine at night (nocturia) then:

a) You 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.

b) Avoid drinks such as coffee, tea or beer before bedtime.

c) You may require 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.

d) A bedside commode or portable urinal is useful. Occasionally a condom catheter can be used to prevent the soiling of bedclothes with urine.

e) A continence nurse, PDNS or district nurse

can offer advice. Ask your doctor how to contact one of these nurses. See also the PDS publication *Looking After Your Bladder and Bowels in Parkinsonism*

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:

a) you may be prescribed with desmopressin spray (Desmospray) to be nasally inhaled before bedtime. This spray reduces the urine output at night.

b) It is best to avoid drugs which promote urination at night, for example, blood pressure lowering pills, antidepressants or water tablets. However, do consult your doctor before making changes to any medication you are taking.

c) You must take care before getting up from a lying position in the morning and attempt to do so slowly.

See the PDS information sheet *Low Blood Pressure and Parkinson's*.

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:

a) The dose of levodopa that you take at night-time may need to be altered (although, paradoxically, levodopa is used to treat restless legs syndrome in other conditions).

b) You may need a long acting dopamine agonist such as cabergoline at night-time.

c) Occasionally, a sleep-producing drug such as clonazepam (Rivotril) or zopiclone (Zimovane) may be useful.

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 is advised (to a neurologist or geriatrician who has a specialist interest in Parkinson's. 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 drugs taken at night-time or other factors such as infections. See the PDS information sheet *Hallucinations and Parkinsons*. Sleep disorders, such as sleep apnoea, may need expert treatment from a sleep specialist.

Do night-time panic attacks occur in Parkinson's?

"Off" period panic attacks can occur in up to 40 percent of people and they can occur at night. If you experience them you might feel panicky, hyperventilate, sweat and become agitated during "off" periods. Your blood pressure and heart rate may rise and palpitations may occur. Effective treatment of "off" periods by using dopaminergic (working with dopamine) drugs such as apomorphine or controlled release levodopa often proves effective. Some people may need treatment with drugs that reduce anxiety.

Where can I obtain help for sleep problems?

Often symptoms of poor sleep are not recognised or adequately treated. For this reason, if you or the person you are caring for are experiencing poor sleep then you need to discuss this with your GP or PDNS if you have one. In most cases, the simple measures as discussed above will help. However, it is likely that you would need referral to a neurologist or

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geriatrician with a special interest in Parkinson's for specific therapy.

Acknowledgement
Our thanks to Dr KR Chaudhuri for reviewing this fact sheet.

Bibliography
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Revised May 2006