

become debilitated, needing help with washing, eating and dressing. With proper treatment, life expectancy for people with Parkinson's disease can be normal.

Further information

The Parkinson's Disease Society

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Parkinson's disease

Parkinson's disease is a condition affecting the nervous system. It causes muscle tremor, stiffness and slowness of movement that becomes progressively worse over time. The condition was first described by Dr James Parkinson in 1817.

It affects approximately one in 100 people over 65 years old, and one in 10 people over 80. The symptoms of Parkinson's disease often begin around the age of 55.

What causes Parkinson's disease?

In Parkinson's disease, production of a substance called dopamine in the brain is reduced. Dopamine is a neurotransmitter involved in passing messages within the brain and from the brain to the muscles. The part of the brain affected is called the substantia nigra, which co-ordinates muscle movement.

No one knows exactly what causes Parkinson's disease, but studies with identical twins suggest that genetic factors play a part. Also, some patients with generalised brain disease get Parkinson-like symptoms, which suggests that earlier damage to the brain might have a role in causing

the disease. Parkinson's disease is not contagious.

The symptoms

The main symptoms of Parkinson's disease are:

- Shaking (muscle tremor) - though not always present, this is often the first sign of Parkinson's disease. It often starts in the arms and may spread to the face, jaw and legs.
- Stiffness (rigidity) - this makes the limbs feel weak and difficult to move. This may be intermittent or continuous. People with advanced Parkinson's disease may lose use of the limb altogether.

This factsheet is based on reputable sources of medical evidence and has been reviewed by BUPA doctors. For more details of references and sources, please see our website. The content is intended for general information only and does not replace the need for personal advice from a qualified health professional.

- Slowness - bradykinesia (slow movement) and akinesia (inability to move) are common in people with Parkinson's disease. Walking may start with a hesitant step, followed by a shuffle without swinging the arms.

As the disease progresses, other symptoms that develop include:

- Problems with posture and balance - people with Parkinson's disease often stoop, fall forwards and lean to one side when sitting.
- Bowel and bladder problems - constipation is very common and there may be a frequent urge to urinate.
- Speech changes - the voice becomes weak, and weakness of the swallowing muscles may cause drooling.
- Loss of facial expression - a mask-like appearance with loss of emotional expression gradually develops. Blinking and smiling are reduced.
- Small writing - this commonly develops over time.
- Anxiety and depression - this occurs in about a third of people with Parkinson's disease.
- Intellect - slowness of thought and memory problems can develop in the later stages.

Diagnosis

There is no single test for Parkinson's disease. Diagnosis is usually based on symptoms, and by ruling out other conditions that cause similar symptoms.

This can often be done with an X-ray examination called computerised tomography (a CT scan), which is useful in detecting diseases that affect large areas of the brain. Then, if the symptoms are reduced by treatments given for Parkinson's disease, this confirms the diagnosis.

Symptoms similar to Parkinson's disease - known as Parkinsonism - can be a side-effect of some medications, such as anti-sickness drugs and drugs used in the treatment of mental illness. If this is the case, changing the medication should reduce symptoms.

Treatment

Treatment with medication is aimed at restoring the levels of dopamine in the brain and controlling symptoms.

There are six main groups of drugs:

- Drugs which replace dopamine - these are the most commonly used treatments. They are combinations of levodopa - a drug which breaks down in the body to form dopamine, plus a chemical which ensures the optimum dopamine concentration in the brain. They are effective at treating symptoms, although there are some side-effects. These include nausea, dizziness and constipation. Also, they can cause long term problems such as unwanted movements of the face and limbs (dyskinesia) and they may become less effective over time.

- Drugs which mimic the action of dopamine - eg. bromocriptine. Using these early on in the course of Parkinson's disease may delay the long-term problems of the dopamine replacement drugs. Side-effects can include nausea and hallucinations.
- Drugs which block the action of the brain chemical acetylcholine - eg benzhexol. These help to correct the balance between dopamine and acetylcholine. Side-effects can include dry mouth and blurred vision. They are not usually used in people aged over 70 as they can cause memory loss, and urine retention in men.
- Drugs which prevent the breakdown of dopamine - eg selegiline. This gives a little relief from symptoms and is also a mild antidepressant. Low blood pressure and irregular heartbeat are the most significant side effects.
- Amantadine - acts like a dopamine replacement drug but works on different sites in the brain. It can cause side-effects such as sedation at high doses.
- COMT (catechol O-methyl transferase) inhibitors - eg tolcapone. This is a new class of drugs that stops the breakdown of dopamine. They are usually given when dopamine replacement drugs start to lose their effectiveness. They can affect liver function, so blood tests are needed for the first few months.

Surgery

This is currently used as a last resort when drugs no longer give benefits. Electrodes guided by X-rays (stereotactic surgery) are used to destroy the tiny areas of the brain responsible for tremor and abnormal movements.

A device called a deep brain stimulator can also be used to give the same effect as stereotactic surgery, without destroying brain tissue.

Radiosurgery is a new technique currently available at only a few specialist centres. It uses high energy radiation to focus on very precise areas of the brain.

A new treatment, where brain cells from human fetuses are transplanted into diseased areas of the brain, is at the experimental stage.

Other therapies

Other therapies that have a crucial role in managing and coping with Parkinson's disease include physiotherapy, speech therapy, and occupational therapy. Staying active will help to maintain muscle tone and function. A doctor or physiotherapist can recommend an appropriate range of exercises and activities.

Living with Parkinson's disease

A diagnosis of Parkinson's disease can be very upsetting. However, most people remain reasonably active, and symptoms may progress no further than slight tremor. However, some people do