



Parkinson's disease Fact Sheet

Key Facts

- Around 6.3 million people worldwide have PD, with no differentiation for race or culture.
- Parkinson's disease (PD) is a chronic and progressive neurological disorder.
- Individuals with PD experience difficulties with movement including shaking, stiffness, slow movements and problems with balance.
- There is no cure for PD, and at present, no disease modifying therapies – current treatment focuses on symptom management.

What is Parkinson's disease?

Parkinson's disease (PD) is a chronic and progressive neurological disorder which at present has no known cure. The main symptoms are tremor, rigidity (stiffness), slow movements (bradykinesia) and balance difficulties (postural instability). In most cases the cause is unknown and is therefore referred to as 'sporadic' or 'idiopathic' PD. There are other neurodegenerative disorders sometimes referred to as Parkinson plus or atypical parkinsonian syndromes.¹

The scale of the problem

Worldwide, it is estimated that **6.3 million** people have PD with no differentiation for race and culture. The age of onset is usually over 60, but it is estimated that one in ten are diagnosed before the age of 50, and it can affect people in their 40's and younger.²

According to available statistics, 1.2 million people in Europe have Parkinson's, which approximates to:

- ▲ 260,000 in Germany
- ▲ 200,000 in Italy
- ▲ 150,000 in Spain
- ▲ 120,000 in UK
- ▲ 117,000 in France.

This equates to a rate of more than 1 per 1000 people in Europe, making it the second most common neurodegenerative disorder.²

How severe is Parkinson's disease?

Parkinson's disease is a degenerative disorder, the course of which ranges between 10 and 25 years. Clusters of a genetically-linked form of PD comprise around 5% of cases, and this type of the disease has an earlier age of onset (typically before 50 years) and a longer course than idiopathic PD.³

Causes of Parkinson's disease

The symptoms of idiopathic PD result from degeneration of the dopamine producing nerve cells in the substantia nigra in the brain. Dopamine is one of the chemicals which transmit messages between nerve cells. It plays a significant part in ensuring smooth controlled movement, and once 60- 80 % of the dopaminergic cells cease to function normally, issues with movement become evident.¹

Diagnosis

The diagnosis of PD is made clinically, usually based on the presence of two of the three cardinal signs:

- ▲ Tremor at rest
- ▲ Rigidity
- ▲ Bradykinesia.

Tremor is particularly important, as it is present in 85% of patients with true PD.³ Further evidence of a correct diagnosis is usually provided by a positive response to appropriate drugs. An absolute diagnosis can only be made at autopsy, with the presence of structures called Lewy bodies in the brain.⁴

- ▲ **A PET scan** (positron emission tomography) can be used to detect the loss of dopamine in the brain however, as there are only about 20 PET scanners in Europe, their scarcity and cost means they are generally reserved for research purposes.
- ▲ **DaTSCAN** uses a radioactive compound which once injected into the body, can be traced using a SPECT scanner (single photon tomographic imaging). This technique is used to differentiate the diagnosis of PD from essential tremor, another parkinsonian disorder.
- ▲ **CT and MRI** (Computerised Tomography and Magnetic Resonance Imaging) scans of the brain usually appear normal in uncomplicated PD.⁴

Main features of the disease

The main symptoms are concerned with movement and balance, although there are a wide range of additional symptoms which may also be evident.

- ⤴ **Tremor** usually begins in one hand and then spreads to the leg, before crossing to the other side, and is most noticeable at rest.
- ⤴ **Slowness of movement** is present in all people with PD, particularly walking slowly, with a tendency to shuffle. It may also manifest as reduced blinking of the eyes, lack of facial expression, or reduced arm swing when walking. Hesitancy on starting to walk or approaching doorways, and even freezing may occur later on. Everyday movements like dressing and handwriting become more difficult.
- ⤴ **Stiffness** or rigidity in the muscles may affect turning over in bed, getting out of a chair, fastening buttons and carrying out other everyday tasks.
- ⤴ **Poor balance and posture** leads to a tendency to stoop and falls.
- ⤴ **Other symptoms** include pain and discomfort in an arm or leg, anxiety and depression, slowness of thinking (cognitive impairment), memory problems, tiredness and disturbed sleep. Constipation is common and bladder problems may also occur. Sexual and swallowing problems tend to become more of a problem later in the illness.⁵

Treatments and therapies

Currently there is no cure for PD; however, a number of treatments are effective in improving the symptom. The medications that are most commonly used work by replacing or mimicking the effects of dopamine, with the aim of restoring the deficiency of dopamine in the brain and re-establishing normal function. Patients often need to take a combination of medications.¹

- ⤴ **L-Dopa** is a natural precursor of dopamine which is transformed in the brain into dopamine. It is the most effective available drug, although after long-term use, complications can occur including motor fluctuations (an 'on-off' effect) and dyskinesias (abnormal involuntary movements), especially if high doses are taken over many years.
- ⤴ **Dopamine agonists** trick the brain into thinking they are dopamine. When used alone, these drugs are much less likely to cause dyskinesias than L-Dopa, however, they are less effective.
- ⤴ **Anticholinergics** have a mild antiparkinsonian effect and are most useful in young patients with tremor and muscle spasms (dystonia).

- ▲ **Selegiline** and **COMT-inhibitors** can help to improve the efficacy of L-Dopa.
- ▲ **Amandatine** has a mild antiparkinsonian effect, which can also reduce involuntary movements provoked by L-Dopa.

Surgical treatment may be considered for patients whose PD symptoms cannot be adequately controlled with medical management, which involves implanting a type of pacemaker into the brain.¹

A number of other specialists are involved with symptom management, including Psychologists, Dieticians, Physiotherapists, Speech and Language Therapists, Occupational and Sex Therapists.⁶

Impact on the lives of those affected and carers

If untreated, PD can have an effect on a person's quality of life. Symptoms can be particularly hard to cope with when the person affected is young, as younger people will have to live with their symptoms for longer than an older person. In those of working age, PD may affect the person's ability to use a computer, operate machinery or drive. For some people, their symptoms may progress to the point that they are no longer able to work at all. Additionally, around 30 to 40% of those with Parkinson's have depression, which can be exacerbated by the person's symptoms, their self-esteem, the level of social support they have and feelings of social isolation. Lack of sleep can also affect a person's quality of life and ability to function.⁷

Unmet needs

Disease-modifying agents that can slow or halt the progression of the disease constitute the greatest unmet need. Such compounds could not only significantly improve patient and caregiver quality of life, but substantially reduce direct and indirect costs. Although several agents have been investigated, none have demonstrated irrefutable and enduring disease modifying qualities.⁸

Further information

- EuroPa - the European Cooperative Network for Research, Diagnosis and Therapy of Parkinson's Disease www.europarkinson.net
- European Parkinson's Disease Association www.parkinsonsawareness.eu.com
- Parkinson's UK www.parkinsons.org.uk



References

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