CONDITION

Parkinson disease

Parkinson disease is a progressive nervous system condition that affects movement and many other body functions.

WHAT IT IS
Progressive condition affecting movement and other nervous system functions

BODY SYSTEM
Nervous system

MAIN SYMPTOMS
Slowed movement, stiffness, tremor, balance problems

WHAT CAUSES IT
Dopamine-producing brain cell loss, usually for unknown reasons

HOW IT IS DIAGNOSED
Medical history and neurological examination

MAIN TREATMENT
Medicines, exercise, rehabilitation, and sometimes surgery

CAN IT BE CURED?
No - treatments manage symptoms, not cell loss

IS IT AN EMERGENCY?
Sometimes - choking or sudden severe symptoms

LONG-TERM OUTLOOK
Gradual progression, often manageable for many years

Overview

Parkinson disease is a long-term condition affecting the brain and nervous system. It is also commonly called Parkinson's disease.

The condition develops when brain cells that make dopamine become damaged and die. Dopamine is a chemical messenger that helps control smooth, purposeful movement. Falling dopamine levels can cause slowed movement, muscle stiffness, shaking and problems with balance.

Parkinson disease is more than a movement condition. It can also affect sleep, mood, thinking, digestion, blood pressure, speech and the sense of smell. Some of these non-movement symptoms may begin before movement changes become clear.

Symptoms usually develop gradually. They often start on one side of the body and remain worse on that side. Parkinson disease is progressive, meaning it changes over time, but the speed and pattern are different for each person.

Treatment cannot currently replace the lost brain cells or cure the condition. However, medicines, physical activity, rehabilitation and selected procedures can reduce symptoms and help you remain independent.

Symptoms

The main movement symptoms are:

Not everyone has a noticeable tremor. A lack of tremor does not rule out Parkinson disease.

You may find that your handwriting becomes smaller, your face shows less expression or your voice becomes quieter. An arm may stop swinging normally when you walk. Some people freeze while walking, meaning their feet briefly feel stuck to the floor.

Non-movement symptoms are also common. They can include:

These symptoms can have many other causes. Having one or more does not mean that you have Parkinson disease.

- Slowed movement , called bradykinesia, which may make walking or daily tasks take longer
- Muscle stiffness , which can cause discomfort and reduce arm or leg movement
- Tremor , often beginning in one hand while it is resting
- Balance and walking problems , including shorter steps or difficulty turning
- Reduced sense of smell
- Constipation
- Fatigue or pain
- Depression, anxiety or loss of motivation
- Disturbed sleep or acting out dreams
- Dizziness when standing because blood pressure falls
- Urinary urgency
- Sexual difficulties
- Problems with concentration or memory

Causes and risk factors

Parkinson disease involves the loss of dopamine-producing cells in an area of the brain called the substantia nigra. Abnormal deposits of a protein called alpha-synuclein are also found in affected brain cells. Researchers do not yet fully understand why these changes begin.

For most people, there is no single identifiable cause. The condition probably results from a combination of age-related, genetic and environmental factors.

The chance of developing Parkinson disease increases with age, although younger adults can develop it. It is diagnosed more often in men than in women.

A small proportion of cases are strongly linked to inherited gene changes. Having a relative with Parkinson disease may increase your chance somewhat, but most people with an affected relative do not develop the condition.

Researchers have found associations with certain pesticide exposures and repeated head injuries. An association does not prove that one exposure caused a particular person's condition. Parkinson disease is not caused by something you did wrong, and it is not contagious.

Diagnosis

There is no single blood test or brain scan that confirms Parkinson disease in every person. Diagnosis is mainly based on your symptoms, medical history and a neurological examination.

During the examination, a clinician may assess your speed of movement, muscle tone, tremor, walking, balance, eye movements and reflexes. They will also review your medicines because some medicines can cause Parkinson-like symptoms.

You may be referred to a neurologist, particularly one who specialises in movement conditions. The diagnosis may become clearer over time as symptoms develop and the response to treatment is observed.

Blood tests or magnetic resonance imaging, known as an MRI scan, may be used to look for other causes. These tests do not usually show Parkinson disease itself.

A dopamine transporter scan, sometimes called a DaTscan, can show whether certain dopamine pathways are reduced. It may help when the diagnosis is uncertain, such as when distinguishing Parkinson-related tremor from essential tremor. It cannot reliably separate Parkinson disease from every other degenerative form of parkinsonism.

"Parkinsonism" describes slowed movement with symptoms such as stiffness or tremor.

Parkinson disease is the most common cause, but strokes, medicines and other neurological conditions can produce a similar pattern.

Treatment and management

Treatment is tailored to the symptoms that affect you, your daily activities and your treatment goals. Regular reviews are important because symptoms and medicine effects can change.

Levodopa is converted into dopamine in the brain. It is usually combined with carbidopa or benserazide, which helps more levodopa reach the brain and reduces some side effects. Levodopa is often the most effective medicine for movement symptoms.

Other medicines include dopamine agonists, which act like dopamine, and monoamine oxidase-B inhibitors, which slow dopamine breakdown. Different medicines have different risks. Possible effects include nausea, low blood pressure, sleepiness, hallucinations and involuntary movements.

Dopamine agonists can sometimes cause impulse-control problems, such as compulsive gambling, shopping, eating or sexual behaviour. These changes may be noticed first by someone close to you. Report them promptly rather than stopping treatment on your own.

Medicines may work for shorter periods as the condition progresses. Symptoms can then return before the next dose, known as an "off" period. Involuntary writhing or jerking movements, called dyskinesia, can also develop. Adjusting medicine timing or type may help.

Do not suddenly stop Parkinson medicines unless an appropriate clinician tells you to do so. Abrupt withdrawal can cause serious illness. If you are admitted to hospital, staff need an accurate list of your medicines and usual dose times.

Exercise is an important part of management. Aerobic, strength, flexibility and balance activities can support mobility, fitness and confidence. A physiotherapist can help choose safe activities and address freezing or falls.

Occupational therapy can make dressing, bathing, work and household tasks easier. Speech and language therapy can help with a quiet voice, unclear speech or swallowing problems. A dietitian may help with constipation, weight changes or interactions between meals and levodopa absorption.

For selected people whose symptoms no longer respond consistently to tablets, options may include deep brain stimulation or medicine delivered continuously by a pump. Deep brain stimulation uses implanted electrodes to influence movement circuits. It can improve certain movement symptoms but does not stop progression or treat every symptom.

Mood, sleep, blood pressure, bladder problems and memory changes may each need specific treatment.

Complications

As Parkinson disease progresses, walking and balance may become harder. Freezing, falls and fractures can occur. Mobility aids and a home safety assessment may reduce these risks.

Swallowing can become slow or poorly coordinated. This may lead to weight loss, dehydration or food and liquid entering the lungs. Material entering the lungs is called aspiration and can cause pneumonia.

Speech may become quieter and less clear. Some people develop excessive saliva because they swallow less often, rather than because they produce more saliva.

Thinking and memory problems become more common later in the condition, but they do not affect everyone in the same way. Hallucinations may be related to the condition, medicines, infection or another illness. Sudden confusion is not a routine change and needs prompt assessment.

Other possible complications include persistent constipation, urinary problems, low blood pressure on standing, depression, anxiety and sleep disorders. These problems can be treated or managed and should not be dismissed as unavoidable.

Prevention

There is no proven way to prevent Parkinson disease. Its exact cause is usually unknown, and inherited susceptibility cannot be changed.

Regular physical activity, a balanced diet, avoiding smoking and protecting your head are sensible for general health, but they have not been proven to prevent Parkinson disease. Supplements, special diets and "detox" products should not be presented as cures or reliable prevention.

If your family has several people with Parkinson disease, especially with younger-onset symptoms, genetic counselling may help you understand whether testing is relevant. A genetic result does not always predict whether or when symptoms will develop.

Living with it and what to expect

Parkinson disease usually changes slowly over years. Early symptoms may be mild and limited to one side. Many people continue working, driving, exercising and managing their usual activities after diagnosis.

Medicines often provide substantial symptom relief, particularly for stiffness and slowed movement. Their effects may become less steady over time. Treatment can be adjusted as "off" periods, dyskinesia or new symptoms appear.

Balance, speech, swallowing and thinking problems may respond less strongly to dopamine medicines. Rehabilitation, equipment and practical changes can become more important. Some people eventually need help with personal care, while others remain largely independent for many years.

Keep an up-to-date medicine list and take medicines at the agreed times. A symptom diary can help identify links between doses, meals, "off" periods, sleep and involuntary movements.

Staying active and socially connected can support physical function and emotional health. Planning may also include reviewing driving, reducing fall hazards, discussing work adjustments and arranging future care preferences before they become urgent.

Parkinson disease itself is not usually an immediate threat to life. Some people have a life expectancy close to that of people without the condition, while others develop serious complications such as falls, dementia or aspiration pneumonia. No single timeline can predict an individual course.

When to get medical help

Arrange a routine appointment if you develop gradually worsening slowness, stiffness, tremor or changes in walking. These symptoms require assessment but are not usually an emergency.

If you already have Parkinson disease, seek a timely review for increasing falls, more frequent "off" periods, new involuntary movements, hallucinations, impulse-control changes, persistent low mood, weight loss or swallowing difficulty. These may signal a need to adjust treatment or investigate another cause.

Seek urgent medical care for:

Call emergency services for severe breathing difficulty, ongoing choking, loss of consciousness, or sudden facial weakness, arm weakness or speech trouble. Sudden one-sided symptoms may be a stroke and are not typical of the gradual onset of Parkinson disease.

- Sudden or rapidly worsening confusion

- Repeated choking or new difficulty swallowing liquids
- Hallucinations with severe agitation or unsafe behaviour
- A significant fall, head injury or suspected broken bone
- High fever, marked stiffness or reduced consciousness, especially after missed or stopped medicine
- Thoughts of suicide or immediate risk of self-harm

Common questions

Is Parkinson disease fatal?

It is not usually considered directly fatal. However, later complications such as falls, aspiration pneumonia and severe frailty can affect health and life expectancy. The course differs widely between people.

Does everyone with Parkinson disease shake?

No. Tremor is common, but some people mainly have slowed movement, stiffness or balance problems. Tremor can also have many causes other than Parkinson disease.

Can Parkinson disease cause dementia?

It can. Changes in attention, planning, memory or visual processing are more likely after someone has lived with the condition for years. Not everyone develops dementia, and sudden confusion usually suggests another problem that needs assessment.

Can I still drive with Parkinson disease?

Some people can drive safely, particularly in the earlier stages. Slowed reactions, sleepiness, movement problems, vision changes or thinking difficulties may affect safety. Follow local licensing rules and discuss any concerns about driving ability with the relevant healthcare team.

Does exercise slow Parkinson disease?

Exercise can improve mobility, balance, strength, fitness and quality of life. Research is examining whether it also changes the underlying progression, but this has not been established. Choose activities that match your ability and fall risk.

Is Parkinson disease inherited?

Usually not in a simple parent-to-child pattern. Genes can contribute, and rare gene changes have a stronger effect in some families. Most people with Parkinson disease do not have a clear inherited cause.

Sources

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