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## Parkinson's disease dementia

A topic in the Alzheimer's Association® series on understanding dementia.

### About dementia

Dementia is a condition in which a person has significant difficulty with daily functioning because of problems with thinking and memory. Dementia is not a single disease; it's an overall term — like heart disease — that covers a wide range of specific medical conditions, including Alzheimer's disease. Disorders grouped under the general term dementia are caused by abnormal brain changes. These changes trigger a decline in thinking skills, also known as cognitive abilities, severe enough to impair daily life and independent function. They also affect behavior, feelings and relationships.

Brain changes that cause dementia may be temporary, but they are most often permanent and worsen over time, leading to increasing disability and a shortened life span. Survival can vary widely, depending on such factors as the cause of the dementia, age at diagnosis and coexisting health conditions.

### Parkinson's disease dementia

Parkinson's disease dementia is a decline in thinking and reasoning that develops in many people living with Parkinson's at least a year after diagnosis. The brain changes caused by Parkinson's disease begin in a region that plays a key role in movement, leading to early symptoms that include tremors and shakiness, muscle stiffness, a shuffling step, stooped posture, difficulty initiating movement and lack of facial expression. As brain changes caused by Parkinson's gradually spread, they often begin to affect mental functions, including memory and the ability to pay attention, make sound judgments and plan the steps needed to complete a task.

The key brain changes linked to Parkinson's disease and Parkinson's disease dementia are abnormal microscopic deposits composed chiefly of alpha-synuclein, a protein found widely in the brain with a normal function not yet known. The deposits are called "Lewy bodies" after Frederick H. Lewy, M.D., the neurologist who discovered them while working in Dr. Alois Alzheimer's laboratory during the early 1900s.

Lewy bodies are also found in several other brain disorders, including dementia with Lewy bodies (DLB). Evidence suggests that DLB, Parkinson's disease and Parkinson's disease dementia may be linked to the same underlying abnormalities in the brain processing of alpha-synuclein. Another complicating factor is that many

people with both DLB and Parkinson's disease dementia also have plaques and tangles — hallmark brain changes linked to Alzheimer's disease.

### **Prevalence**

Parkinson's disease is a fairly common neurological disorder in older adults, estimated to affect nearly 2 percent of those over age 65. The National Parkinson Foundation estimates that one million Americans have Parkinson's disease. Recent studies following people with Parkinson's over the entire course of their illness estimate that 50 to 80 percent of those with the disease may experience dementia.

### **Symptoms**

Commonly reported symptoms include changes in memory, concentration and judgment; trouble interpreting visual information; muffled speech; visual hallucinations; delusions, especially paranoid ideas; depression, irritability and anxiety; and sleep disturbances, including excessive daytime drowsiness and rapid eye movement (REM) sleep disorder.

### **Diagnosis**

There is no single test — or combination of tests — that conclusively determines that a person has Parkinson's disease dementia. Guidelines for diagnosing Parkinson's disease dementia and DLB are:

- **The diagnosis is Parkinson's disease dementia when** a person is originally diagnosed with Parkinson's disease based on symptoms related to movement and dementia symptoms don't appear until a year later or more.
- **The diagnosis is DLB when** dementia symptoms consistent with DLB either develop first; are present along with symptoms related to movement; or appear within one year after movement symptoms.

### **Causes and risk factors**

An estimated 50 to 80 percent of those with Parkinson's eventually experience dementia as their disease progresses. Some studies have reported that the average time from onset of Parkinson's to developing dementia is about 10 years.

Certain factors at the time of Parkinson's diagnosis may increase future dementia risk, including advanced age, greater severity of motor symptoms and mild cognitive impairment (MCI). Additional risk factors may include the presence of hallucinations in a person who doesn't yet have other dementia symptoms; excessive daytime sleepiness; and a Parkinson's symptom pattern known as postural instability and gait disturbance (PIGD), which includes “freezing” in mid-step, difficulty initiating movement, shuffling, problems with balancing and falling.

## Outcomes

Because Parkinson's disease and Parkinson's disease dementia damage and destroy brain cells, both disorders worsen over time. Their speed of progression can vary widely.

## Treatment

There are no treatments to slow or stop the brain cell damage caused by Parkinson's disease dementia. Current strategies focus on improving symptoms. If your treatment plan includes medications, it's important to work closely with your physician to identify the drugs that work best for you and the most effective doses.

- **Cholinesterase inhibitors** — drugs that are the current mainstay for treating cognitive changes in Alzheimer's — may help Parkinson's disease dementia symptoms, including visual hallucinations, sleep disturbances and changes in thinking and behavior.
- **Antipsychotics** — a drug category sometimes prescribed for behavioral symptoms of Alzheimer's — should be used with extreme caution because they may cause serious side effects in up to 50 percent of those with Parkinson's disease dementia or DLB. Side effects may include sudden changes in consciousness, impaired swallowing, acute confusion, episodes of delusions or hallucinations, or appearance or worsening of Parkinson's symptoms.

Treating movement symptoms in those with Parkinson's dementia can be challenging, because carbidopa-levodopa— the chief treatment for Parkinson's movement symptoms — can sometimes aggravate hallucinations and confusion in those with Parkinson's dementia or DLB. Although deep brain stimulation (DBS) is currently contraindicated for Parkinson's disease dementia, a small clinical trial conducted by University College London scientists and published in the February 2018 issue of *JAMA*, showed that DBS was safe and well-tolerated in participants with Parkinson's disease dementia.

Deep brain stimulation (DBS) may be safe for Parkinson's disease patients who have dementia, according to a small clinical trial by University College London scientists.

Depression is common in individuals with Parkinson's disease dementia and DLB, and may be treated with a type of antidepressant called selective serotonin reuptake inhibitors (SSRIs). REM disorder may be treated with clonazepam.

**Additional resources**

**National Parkinson Foundation, Inc.**

parkinson.org

800.473.4636

**Michael J. Fox Foundation for Parkinson's Research**

michaeljfox.org

800.708.7644

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