

# Alzheimer's Disease & Related Dementia

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## WHAT IS DEMENTIA?

Dementia is a loss of cognitive abilities in two or more areas such as memory, language, visual and spatial abilities, or judgment, severe enough to interfere with daily life. Dementia itself is not a disease but a broader set of symptoms that accompanies certain diseases or physical conditions. Well-known diseases that cause dementia include Alzheimer's disease, vascular dementia, Parkinson's disease, Creutzfeldt-Jakob disease, Pick's disease, and Lewy body dementia. Other physical conditions may cause or mimic dementia, such as depression, brain tumors, head injuries, nutritional deficiencies, hydrocephalus, infections (AIDS, meningitis, syphilis), drug reactions, and thyroid problems. Individuals experiencing dementia-like symptoms should undergo diagnostic testing as soon as possible. An early and accurate diagnosis helps to identify reversible conditions, gives patients a greater chance of benefiting from existing treatments, and allows both patients and their families more time to plan for the future.

## ALZHEIMER'S DISEASE

Alzheimer's disease (AD) is the most common cause of dementia, affecting as many as 4 million Americans. AD is a degenerative disease that attacks the brain, begins gradually, and progresses at a variable rate. In the last stage of AD, patients are unable to take care of themselves. AD results in impaired memory, thinking, judgment and behavior and can last 8 to 20 years from the time of onset of symptoms. Warning signs of AD are memory loss that affects job/home skills, difficulty performing familiar tasks, problems finding the right words, disorientation as to time and place, poor or decreased judgment, difficulty with learning and abstract thinking, placing things in inappropriate places, changes in mood and personality, and marked loss of initiative. Recent research has shown links between particular genes and Alzheimer's disease, but in about 90% of AD cases, there is no clear genetic link. With the help of standardized diagnostic criteria, physicians can now diagnose AD with an accuracy of 85-90% once symptoms occur. However, a definitive diagnosis of Alzheimer's disease is possible through the examination of brain tissue at autopsy.

## VASCULAR DEMENTIA

Vascular dementia or multi-infarct dementia (MID), is a deterioration of mental capacity caused by multiple strokes (infarcts) in the brain. These events may be described as ministrokes, where small blood vessels in the brain become blocked by blood clots, causing the destruction of brain tissue. The onset may seem relatively sudden, as it may take several strokes for symptoms to appear. These strokes may damage areas of the brain responsible for a specific function as well as produce general symptoms of dementia. As a result, vascular dementia is sometimes misdiagnosed as Alzheimer's disease. Vascular dementia is not reversible or curable, but detection of high blood pressure and other vascular risk factors can lead to a specific treatment that may modify its progression. Vascular dementia is usually diagnosed through neurological examination and brain scanning techniques, such as a computerized tomography (CT) scan or magnetic resonance imaging (MRI).

## **PARKINSON'S DISEASE**

Parkinson's disease (PD) is a progressive disorder of the central nervous system that affects over one million Americans. In PD certain brain cells deteriorate for reasons not yet known. These cells produce a substance called dopamine, which helps control muscle activity. PD is often characterized by tremors, stiffness in limbs and joints, speech difficulties, and difficulty initiating physical movement. Late in the course of the disease, some patients develop dementia and eventually Alzheimer's disease. Conversely, some Alzheimer patients develop symptoms of Parkinson's disease. Medications such as levodopa, which converts to dopamine inside the brain, and deprenyl, which prevents degeneration of dopamine-containing brain cells, are used to improve diminished or reduced motor symptoms in PD patients but do not correct the mental changes that occur.

## **CREUTZFELDT-JAKOB DISEASE**

Creutzfeldt-Jakob disease (CJD) is a rare, fatal brain disorder that causes rapid, progressive dementia and other neuromuscular disturbances. CJD is caused by a transmissible agent. Research suggests that the agent differs significantly from viruses and other conventional agents. This newly discovered pathogen is called a "prion," short for "protienaceous infectious particle," because it consists of protein and transforms normal protein molecules into infectious ones. The disease can be inherited, but the majority of cases are not. Early symptoms of CJD include failing memory, changes in behavior, and lack of coordination. As the disease advances, usually very rapidly, mental deterioration becomes pronounced, involuntary movements (especially muscle jerks) appear, and the patient experiences severe difficulty with sight, muscular energy, and coordination. Like Alzheimer's disease, a definitive diagnosis of CJD can be obtained only through examination of brain tissue at autopsy.

## **PICK'S DISEASE**

Pick's disease is also a rare brain disorder, characterized by shrinkage of the tissues of the frontal and temporal lobes of the brain and by the presence of abnormal bodies (Pick's bodies) in the nerve cells of the affected areas of the brain. Pick's disease usually begins between the ages of 40 and 60. The symptoms are similar to Alzheimer's disease, with a loss of language abilities, skilled movement, and the ability to recognize objects or people. Initial diagnosis is based on family history (Pick's disease may be inherited), symptoms, tests, and ruling out other causes of dementia. A definitive diagnosis of Pick's disease is usually obtained at autopsy.

## **LEWY BODY DEMENTIA**

Lewy body dementia (LBD) is an irreversible form of dementia associated with abnormal protein deposits in the brain called Lewy bodies. Symptoms of LBD are similar to Alzheimer symptoms and include memory loss, confusion, and difficulty communicating. Hallucinations and paranoia also may become apparent in the earlier stages of the disease and often last throughout the disease process. Although initial symptoms of LBD may be mild, affected individuals eventually develop severe cognitive impairment. At this time, there is no treatment available for Lewy body dementia.