

## Alzheimer's Disease Overview

**Dementia** is a loss of brain function that occurs with certain diseases. Alzheimer's disease (AD), is one form of dementia that gradually gets worse over time. It affects memory, thinking, and behavior.

Memory impairment, as well as problems with language, decision-making ability, judgment, and personality, are necessary features for the diagnosis.

Reference from A.D.A.M.

### ALTERNATIVE NAMES

Senile dementia - Alzheimer's type (SDAT); SDAT

### CAUSES »

Age and family history are risk factors for AD.

- As you get older, your risk of developing AD goes up. However, developing Alzheimer's disease is not a part of normal aging.
- Having a close blood relative, such as a brother, sister, or parent who developed AD increases your risk.
- Having certain combination of genes for proteins that appear to be abnormal in Alzheimer's disease also increases your risk.

Other risk factors that are not as well proven include:

- Longstanding high blood pressure
- History of head trauma
- Female gender

There are two types of AD -- early onset and late onset.

- In early onset AD, symptoms first appear before age 60. Early onset AD is much less common than late onset. However, it tends to progress rapidly. Early onset disease can run in families. Several genes have been identified.
- Late onset AD, the most common form of the disease, develops in people age 60 and older. Late onset AD may run in some families, but the role of genes is less clear.

The cause of AD is not entirely known, but is thought to include both genetic and environmental factors. A diagnosis of AD is made when certain symptoms are present, and by making sure other causes of dementia are not present.

The only way to know for certain that someone has AD is to examine a sample of their brain tissue after death. The following changes are more common in the brain tissue of people with AD:

- "Neurofibrillary tangles" (twisted fragments of protein within nerve cells that clog up the cell)
- "Neuritic plaques" (abnormal clusters of dead and dying nerve cells, other brain cells, and protein)

- "Senile plaques" (areas where products of dying nerve cells have accumulated around protein).

When nerve cells (neurons) are destroyed, there is a decrease in the chemicals that help nerve cells send messages to one another (called neurotransmitters). As a result, areas of the brain that normally work together become disconnected.

The buildup of aluminum, lead, mercury, and other substances in the brain is no longer believed to be a cause of AD.

### **SYMPTOMS »**

Dementia symptoms include difficulty with many areas of mental function, including:

- Language
- Memory
- Perception
- Emotional behavior or personality
- Cognitive skills (such as calculation, abstract thinking, or judgment)

Dementia usually first appears as forgetfulness.

Mild cognitive impairment is the stage between normal forgetfulness due to aging, and the development of AD. People with MCI have mild problems with thinking and memory that do not interfere with everyday activities. They are often aware of the forgetfulness. Not everyone with MCI develops AD.

Symptoms of MCI include:

- Forgetting recent events or conversations
- Difficulty performing more than one task at a time
- Difficulty solving problems
- Taking longer to perform more difficult activities

The early symptoms of AD can include:

- Language problems, such as trouble finding the name of familiar objects
- Misplacing items
- Getting lost on familiar routes
- Personality changes and loss of social skills
- Losing interest in things previously enjoyed, flat mood
- Difficulty performing tasks that take some thought, but used to come easily, such as balancing a checkbook, playing complex games (such as bridge), and learning new information or routines

As the AD becomes worse, symptoms are more obvious and interfere with your ability to take care of yourself. Symptoms can include:

- Forgetting details about current events
- Forgetting events in your own life history, losing awareness of who you are
- Change in sleep patterns, often waking up at night
- Difficulty reading or writing

- Poor judgment and loss of ability to recognize danger
- Using the wrong word, mispronouncing words, speaking in confusing sentences
- Withdrawing from social contact
- Having **hallucinations**, arguments, striking out, and violent behavior
- Having delusions, depression, agitation
- Difficulty doing basic tasks, such as preparing meals, choosing proper clothing, and driving

People with severe AD can no longer:

- Understand language
- Recognize family members
- Perform basic activities of daily living, such as eating, dressing, and bathing

Other symptoms that may occur with AD:

- **Incontinence**
- Swallowing problems

#### **EXAMS AND TESTS »**

AD can often be diagnosed through a history and physical exam by a skilled doctor or nurse. A health care provider will take a history, do a physical exam (including a neurological exam), and perform a mental status examination.

Tests may be ordered to help determine whether other medical problems could be causing dementia or making it worse. These conditions include:

- Thyroid disease
- Vitamin deficiency
- **Brain tumor**
- **Stroke**
- Intoxication from medication
- Chronic infection
- **Anemia**
- Severe depression

**Computed tomography (CT)** or **magnetic resonance imaging (MRI)** of the brain may be done to look for other causes of dementia, such as a brain tumor or stroke.

- In the early stages of dementia, brain image scans may be normal. In later stages, an MRI may show a decrease in the size of different areas of the brain.
- While the scans do not confirm the diagnosis of AD, they do exclude other causes of dementia (such as stroke and tumor).

#### **TREATMENT »**

Unfortunately, there is no cure for AD. The goals in treating AD are to:

- Slow the progression of the disease (although this is difficult to do)
- Manage behavior problems, confusion, sleep problems, and agitation
- Modify the home environment
- Support family members and other caregivers

## DRUG TREATMENT

Most drugs used to treat Alzheimer's are aimed at slowing the rate at which symptoms become worse. The benefit from these drugs is often small, and patients and their families may not always notice much of a change.

Patients and caregivers should ask their doctors the following questions about whether and when to use these drugs:

- What are the potential side effects of the medicine and are they worth the risk, given that there will likely be only a small change in behavior or function?
- When is the best time, if any, to use these drugs in the course of Alzheimer's disease?

Two types of medicine are available:

- Donepezil (Aricept), rivastigmine (Exelon), and galantamine (Razadyne, formerly called Reminyl) affect the level of a chemical in the brain called acetylcholine. Side effects include indigestion, diarrhea, loss of appetite, nausea, vomiting, muscle cramps, and fatigue.
- Memantine (Namenda) is another type of drug approved for treating AD. Possible side effects include agitation or anxiety.

Other medicines may be needed to control aggressive, agitated, or dangerous behaviors. These are usually given in very low doses.

It may be necessary to stop any medications that make confusion worse. Such medicines may include painkillers, cimetidine, central nervous system depressants, antihistamines, sleeping pills, and others. Never change or stop taking any medicines without first talking to your doctor.

## SUPPLEMENTS

Many people take folate (vitamin B9), vitamin B12, and vitamin E. However, there is no strong evidence that taking these vitamins prevents AD or slows the disease once it occurs.

Some people believe that the herb ginkgo biloba prevents or slows the development of dementia. However, high-quality studies have failed to show that this herb lowers the chance of developing dementia. DO NOT use ginkgo if you take blood-thinning medications like warfarin (Coumadin) or a class of antidepressants called monoamine oxidase inhibitors (MAOIs).

If you are considering any drugs or supplements, you should talk to your doctor first. Remember that herbs and supplements available over the counter are NOT regulated by the FDA.

## **SUPPORT GROUPS**

For additional information and resources for people with Alzheimer's disease and their caregivers, see Alzheimer's disease support groups.

## **OUTLOOK (PROGNOSIS)**

How quickly AD gets worse is different for each person. If AD develops quickly, it is more likely to worsen quickly.

Patients with AD often die earlier than normal, although a patient may live anywhere from 3 - 20 years after diagnosis.

The final phase of the disease may last from a few months to several years. During that time, the patient becomes immobile and totally disabled.

Death usually occurs from an infection or a failure of other body systems.

## **POSSIBLE COMPLICATIONS**

- Loss of ability to function or care for self
- Bedsores, muscle contractures (loss of ability to move joints because of loss of muscle function), infection (particularly urinary tract infections and pneumonia), and other complications related to immobility during end stages of AD
- Falls and broken bones
- Loss of ability to interact
- Malnutrition and dehydration
- Failure of body systems
- Harmful or violent behavior toward self or others
- Abuse by an over-stressed caregiver

## **WHEN TO CONTACT A MEDICAL PROFESSIONAL**

Call your health care provider if someone close to you experiences symptoms of senile dementia/Alzheimer's type.

Call your health care provider if a person with this disorder experiences a sudden change in mental status. (A rapid change may indicate other illness.)

Discuss the situation with your health care provider if you are caring for a person with this disorder and the condition deteriorates to the point where you can no longer care for the person in your home.

## **PREVENTION**

Although there is no proven way to prevent AD, there are some practices that may be worth incorporating into your daily routine, particularly if you have a family history of dementia. Talk to your doctor about any of these approaches, especially those that involve taking a medication or supplement.

- Consume a low-fat diet.
- Eat cold-water fish (like tuna, salmon, and mackerel) rich in omega-3 fatty acids, at least 2 to 3 times per week.
- Reduce your intake of linoleic acid found in margarine, butter, and dairy products.

- Increase antioxidants like carotenoids, vitamin E, and vitamin C by eating plenty of darkly colored fruits and vegetables.
- Maintain a normal blood pressure.
- Stay mentally and socially active throughout your life.
- Consider taking nonsteroidal anti-inflammatory drugs (NSAIDs) like ibuprofen (Advil, Motrin), sulindac (Clinoril), or indomethacin (Indocin). Statin drugs, a class of medications normally used for high cholesterol, may help lower your risk of AD. Talk to your doctor about the pros and cons of using these medications for prevention.

In addition, early testing of a vaccine against AD is underway.

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