

# What is *Alzheimer's* *disease?*

Alzheimer's disease (AD) is a brain disease in which the nerve cells responsible for thinking are slowly damaged over time. AD is the most common cause of dementia, which is a decline in thinking that interferes with one's everyday functions. It is believed that more than 5 million Americans over the age of 65 and at least 200,000 people in America under the age of 65 have AD.

## What are the causes of *Alzheimer's disease?*

In AD, the brain contains abnormal protein deposits called plaques (made up of amyloid protein) and tangles (composed of tau protein). These deposits begin 10-20 years before a person develops symptoms of the disease. Rarely, AD is caused by a genetic mutation that leads to excess amyloid protein in the brain. In most cases, though, the cause of AD is not known. However, scientists have learned a great deal about what factors may increase a person's risk of developing AD.

The single most important risk factor for developing AD is age. The likelihood of developing AD doubles every 5 years after age 65. Additional factors that appear to increase the risk of developing AD include:

- Family history of AD
- Other health conditions, such as diabetes and high blood pressure
- Lack of physical activity
- Obesity and/or a poor diet
- Smoking
- Limited education

## What are the symptoms *of Alzheimer's disease?*

AD is often described in "stages." Each stage has typical symptoms, though these may vary from person to person. Progression from one stage to the next is gradual.

## Early stage

AD begins gradually and may, at first, be difficult to recognize. Common early difficulties include trouble with the following tasks:

- Remembering recent events
- Keeping track of time
- Naming familiar people or things
- Solving problems
- Planning
- Learning new things

## Late stage

A person with advanced AD is often unable to:

- Communicate
- Recognize people, places, or objects
- Walk

They may sleep much of the time and usually need full-time care.

## Middle stage

Memory loss progresses and people find it more difficult to:

- Read
- Write
- Speak
- Perform household tasks
- Choose and/or put on clothing
- Bathe without reminders

## Other symptoms

Other symptoms that can occur at any stage include changes in:

- Mood, such as anxiety or depression
- Personality
- Behavior, including agitation

## How is Alzheimer's disease diagnosed?

No single test leads to a diagnosis of AD. Rather, a diagnosis is made after a complete evaluation that includes:

- A detailed history and physical exam, including information from family or others who know the person well
- Tests to evaluate memory and thinking
- Blood tests, brain scans, and in some cases genetic tests or spinal fluid testing

## What are the prognosis and options for treatment?

There is no known cure for AD. The duration of the disease can vary from a few years to more than 20, though most people live 8-10 years after being diagnosed.

There are six different prescription drugs used to slow the symptoms of AD:

- Donepezil (Aricept®)
- Galantamine (Razadyne®)
- Rivastigmine (Exelon®)
- Memantine (Namenda®)
- A drug containing both donepezil and memantine, called Namzaric®
- Aducanumab (Aduhelm®)\*

\*Aducanumab is different from the above drugs as it is given by intravenous infusion (through a vein in the arm). It has been studied in persons with very early AD symptoms. Its use is controversial, and it is not available at Michigan Medicine.