

Alzheimer's Disease (AD)

What is AD?

Alzheimer's disease is a progressive neurodegenerative dementia that emerges as a result of the destruction of nerve cells in the brain. This slow progressive loss of nerve cells first occurs in an area of the brain heavily involved in memory, which explains why memory loss is typically the first symptom of AD. As the disease progresses, individuals begin having difficulty with daily orientation, visual perception, complex attention, and language. They may start to repeat themselves, and may ask the same questions over and over. Later in the disease process behavior and personality are impacted, and the individual may begin to exhibit signs of depression, anxiety, paranoia, agitation, and hallucinations.

What are the causes of AD?

Most causes of AD are sporadic, meaning that they are somewhat unpredictable. However, certain risk factors have been found to increase the likelihood that someone will develop AD. The primary risk factor for developing AD is advancing age. Most cases occur after the age of sixty, with the total number of cases doubling every 5 years thereafter. Research has found that upwards of 40% of people over the age of 85 may in fact have AD. Other risk factors for developing AD include a history of head injury, low levels of education, and female gender.

Genetics is also considered to be a risk factor for AD. Having a first-degree relative (parent or sibling) doubles one's risk of developing the disease. Familial forms of AD have been identified and localized to certain genes on chromosome 14 (presenilin-1), chromosome 1 (presenilin-2), and chromosome 21 (amyloid precursor protein). One of the most widely studied genes for AD is perhaps the apolipoprotein ϵ (ApoE), for which the $\epsilon 4$ allele has been associated with a significantly increased risk of developing AD. However, with the exception of very unique cases, genetic testing is only used for research purposes, as it is not a guarantee that a person will develop or currently has AD.

How is AD diagnosed?

There is currently not a single marker or set of markers for reliable positive identification of Alzheimer's disease in living individuals. To date, the most accurate method of diagnosing dementia includes use of a multi-disciplinary team comprised of experts in various fields of dementia and senior health. A multi-disciplinary team evaluation includes a geriatric medical assessment, medication review, social history, and comprehensive memory evaluation. In addition, laboratory findings and neuroimaging are often ordered to rule-out other potential causes for memory loss.

What treatment is available for AD?

Unfortunately, there is currently not a cure for Alzheimer's disease. However, there are four FDA approved medications commonly used to help slow the progression of AD. The first line of defense against AD involves 3 medications referred to as cholinesterase inhibitors. This class of medication helps by preventing the breakdown of acetylcholine, which is very important for cognition and memory. The three medications commonly used include: donepezil hydrochloride (Aricept), galantamine (Razadyne), and rivastigmine (Exelon). These medications have been shown to be quite helpful in slowing cognitive decline, while also helping to preserve one's independence and assist with behavior. Another medication called memantine (Namenda) is available for individuals with moderate and severe AD. It attacks the disease in a different manner, but offers similar temporary cognitive benefit. Some research has supported that combining these two classes of medication with individuals with moderate and severe AD, likely is more effective than using just one type of medication.

What does the future hold for treating AD?

Since 2000, scientists have been working on an immunization study for AD. The initial trial, which took place in 2000, was discontinued after 18 subjects developed swelling in the brain. A new immunization study is currently underway and initial safety results have been promising. Another promising area of ongoing research involves the potential benefit of nerve growth factor, yet much research is still needed in this area of study.

For further information, or if you would like to schedule an appointment with The Memory Center, please feel free to contact us at the address and phone number listed below.

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