

From Under the Microscope

Alzheimer's Disease

The term 'dementia' is a general word that describes the decline in mental ability severe enough to interfere with daily life. Loss of memory loss is just one such example. There are many forms of dementia. Alzheimer's disease is the most common type of dementia. Alzheimer's disease accounts for 60 to 80 percent of dementia cases.

Contrary to common opinion, Alzheimer's is not a normal part of aging, although the greatest known risk factor is increasing age. Despite the fact that the majority of people with Alzheimer's are over the age of 65, Alzheimer's is not just a disease of the elderly. Up to 5 percent of people with the disease have early onset Alzheimer's, which can appear as early as age 40.

In addition to aging, one of the biggest risk factors is family history. Those who have a parent or sibling with Alzheimer's are more likely to develop the disease. The risk increases if more than one family member has the illness. Scientists know genes are involved in Alzheimer's. There are two types of genes that can play a role in affecting whether a person develops a disease—risk genes and deterministic genes.

Risk genes increase the likelihood of developing a disease, but do not guarantee it will happen. Scientists have so far identified several risk genes implicated in Alzheimer's disease. The risk gene with the strongest influence is called apolipoprotein E-e4 (APOE-e4). Scientists estimate that APOE-e4 may be a factor in 20 to 25 percent of Alzheimer's cases. Genetic tests are available for both APOE-e4 and the rare genes that directly cause Alzheimer's. However, health professionals do not currently recommend routine genetic testing for Alzheimer's disease. Testing for APOE-e4 is sometimes included as a part of research studies. Deterministic genes directly cause a disease, guaranteeing that anyone who inherits them will develop the disorder. Scientists have discovered variations that directly cause Alzheimer's disease in the genes coding three proteins: amyloid precursor protein (APP), presenilin-1 (PS-1) and presenilin-2 (PS-2).



Under the Microscope Cont'd

Alzheimer's Disease



Healthy Brain



Mild Alzheimer's Disease

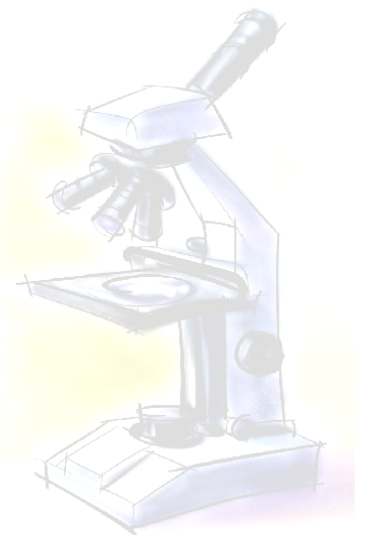


Severe Alzheimer's Disease

When Alzheimer's disease is caused by these deterministic variations, it is called "autosomal dominant Alzheimer's disease (ADAD)" or "familial Alzheimer's disease," and many family members in multiple generations are affected. Symptoms nearly always develop before age 60, and may appear as early as a person's 30s or 40s. Deterministic Alzheimer's variations have been found in only a few hundred extended families worldwide. True familial Alzheimer's accounts for less than 5 percent of cases.

Alzheimer's naturally worsens over time. In its early stages, memory loss is mild, but with late-stage Alzheimer's, individuals lose the ability to carry on a conversation and respond to their environment. Alzheimer's is the sixth leading cause of death in the United States. Those with Alzheimer's live an average of eight years after their symptoms become noticeable to others, but survival can range from four to 20 years, depending on age and other health conditions.

Sadly, there is little that can be done to treat Alzheimer's. Alzheimer's has no current cure, but treatments for symptoms are available and research continues. Although current Alzheimer's treatments cannot stop Alzheimer's from progressing, they can temporarily slow the worsening of dementia symptoms and improve quality of life for those with Alzheimer's. Today, there is a worldwide effort under way to find better ways to treat the disease, delay its onset, and prevent it from developing.



Submitted by: Dr. Chad El Zayaty