

ALZHEIMER'S DISEASE

Alzheimer's disease is relentlessly destroying the brains and lives of our nation's older adults, robbing them of memory, the ability to reason, and affecting their emotions and behavior. Alzheimer's disease is a degenerative disorder of the brain. The longer we live the greater the risk: one out of every two Americans aged 85 and older and one out of every 10 aged 65 and older are afflicted with the disease. It affects two groups of people: those with the disease and the loved ones who care for them. By the year 2050, an estimated 14 million Americans will be in its grip. (Medina xi, 2)

Alzheimer's disease (AD) is a progressive disease of the brain, which is characterized by a gradual loss of memory and other mental functions. Alzheimer's is the most common form of dementia -- a general term referring to loss of memory and the ability to think, reason, function, and behave appropriately. (Medina 4) The word dementia is derived from two Latin words, which mean away and mind, respectively. (Goldmann 2) It's different from the mild forgetfulness normally observed in older people. Over the course of the disease, people with AD no longer recognize themselves or much about the world around them. (Medina 4)

Alzheimer's is marked by abnormal clumps, called senile plaques, and irregular knots, called neurofibrillary tangles, of brain cells. The plaque is an accumulation of an abnormal protein, amyloid. One theory regarding the cause of Alzheimer's disease suggests that this plaque forms because the processes that normally operate to clear away this protein have become defective. Neurofibrillary tangles are skeins of another abnormal protein, but the tangle is found inside the nerve cells. The reason why the tangles develop is not known, but the normal processing of protein by the cell seems to be disrupted. These tangles choke the nerve cells and prevent them from working properly. For reasons not well understood, these plaques and tangles take over healthy brain tissue, which devastates the areas of the brain associated with intellectual function. (Goldmann 6)

There are a number of behaviors which may signal that a person might be in the beginning stages of Alzheimer's disease. Here is a list of warning signs: (1) difficulty with familiar tasks, (2) slipping job performance, (3) language difficulties, (4) confusion of place and time, (5) lack of judgment, (6) problems in abstract thinking, (7) misplacing objects, (8) mood fluctuations, (9) changes in personality, and (10) lack of initiative. (Cutler and Sramek 14)

The first signs of Alzheimer's disease include difficulty in remembering recent events and performing familiar everyday tasks. As the disease progresses, the affected person may experience confusion, personality and behavior changes, impaired judgment, and difficulty finding words, finishing thoughts, or following directions. (Cutler and Sramek 16) In the early and middle stages of AD, people with the illness may be painfully aware of their intellectual failings and what is yet to come. These changes occur at widely varying speeds in different people, and not all changes occur in everyone, but the outcome is always the same. Eventually, people with Alzheimer's disease completely lose the ability to care for themselves and must be confined to bed with constant care. In the latest stages of disease the brain can no longer regulate body functions, and victims die of malnutrition, dehydration, infection, heart failure, or other complications. Alzheimer's disease progresses slowly, taking between three to eighteen

years to advance from the earliest symptoms to death; the average duration of the disease is eight years. (Goldmann 1) Unfortunately, science has not yet found a cure.

Dr. Alois Alzheimer, who discovered Alzheimer's disease, was a gifted German scientist who was born in the mid-nineteenth century. Though he will be forever linked to the disease that bears his name, Dr. Alzheimer actually did his landmark work in other areas of research. The sole reason his name became a household word for Alzheimer's disease was because of a brief talk he gave in 1906 to a small group of researchers. (Medina 12)

Research indicates that there may be certain factors that seem to be more common in people with Alzheimer's disease than in the general population. There is major research into the origin of Alzheimer's disease, and explanations include genetic and environmental causes. (Goldmann 66) There are two types of Alzheimer's disease - familial AD, which is found in families and follows certain inheritance patterns, and sporadic AD, where no obvious pattern of inheritance exists. Family history is a consistent risk factor. People who have a relative with Alzheimer's disease are more likely to develop the disease themselves. (Doraswamy 50)

Over four million people in the United States are living with Alzheimer's disease. Experts predict that as baby boomers age, Alzheimer's may affect as many as 14 million people nationwide. Alzheimer's is widespread, affecting 10% or more of those over age 65 and nearly half of those over age 85. Slightly more women than men have Alzheimer's disease. Its increasing prevalence has led epidemiologists to call Alzheimer's "the disease of the century". (Doraswamy 22)

The risk of Alzheimer's disease increases with age. While Alzheimer's usually affects those over age 65, a rare and aggressive form of Alzheimer's can happen in some people in their 40s and 50s. Family history or traumatic head injuries suffered earlier in life may increase the likelihood of developing Alzheimer's disease.

Since normal aging may also cause a decline in the ability to remember names, places, and objects, as can strokes and heart disease, it is important to be examined by a doctor for a proper diagnosis. Even though Alzheimer's disease is responsible for more dementia than all other causes combined, more than 60 other diseases are capable of causing Alzheimer's-like dementias, that is why AD can be so hard to detect. There is no well-accepted specific test to identify AD during a patient's lifetime. Therefore, doctors can diagnose Alzheimer's disease only after they have ruled out all other possible causes of dementia. No one test can determine whether Alzheimer's actually exists, which is also the reason why a physician must administer an exhausting battery of tests before making an Alzheimer's diagnosis. A detailed patient and family history will be taken; a physical exam will be conducted; mental status test will be administered; neurological exam will be completed; laboratory tests will be performed; and an extensive psychiatric exam conducted before a diagnosis can be made. Some doctors may order brain scans to rule out strokes or tumors that could be causing symptoms of dementia. Memory and task-related tests used to diagnose AD measure the level of impairment or stage of the disease. Alzheimer's disease is usually characterized as mild, moderate, or severe, depending upon the severity of symptoms. (Medina 50)

It is difficult to place a patient with Alzheimer's disease in a specific stage. However, symptoms seem to progress in a recognizable pattern and these stages provide

a framework for understanding the disease. It is important to remember that they are not uniform in every patient and the stages often overlap. (Cutler and Sramek 75)

The First Stage, or mild dementia, lasts approximately 2 to 4 years, leading up to and including diagnosis. Symptoms of mild dementia including: recent memory loss which affects job performance, confusion about places (gets lost on way to work), loses spontaneity (the spark or zest for life), loses initiative (can not start anything), mood/personality changes (anxious about symptoms, avoids people), poor judgment, makes bad decisions, takes longer with routine chores, and trouble handling money. (Cutler and Sramek 75)

The Second Stage, or moderate dementia, lasts approximately 2 to 10 years after diagnosis. The second stage is usually the longest stage of the disease process. Symptoms of moderate dementia include: increasing memory loss with confusion, shorter attention span, problems recognizing close friends and family, repetitive statements and movements, restless (especially in late afternoon and at night), occasional muscle twitches/jerking, perceptual motor problems, difficulty organizing thoughts, cannot think logically, can not find right words (makes up words to fill in blanks), problems with reading/writing/numbers, may be suspicious/irritable/fidgety/teary/silly, loss of impulse control, trouble dressing, will not bathe or is afraid to bathe, and/or may see or hear things that are not there. A patient in the second stage, moderate dementia, often requires full-time supervision. (Cutler and Sramek 76)

Terminal Stage, severe dementia, lasts approximately 1 to 3 years. Usually the patient can no longer recognize family or own self image, loses weight even with a good diet, cannot care for self, cannot communicate with words, cannot control bowels or bladder, may have seizures, experience difficulty with swallowing and/or skin infections. (Cutler and Sramek 77)

Alzheimer's disease exacts a terrible price, both in human and monetary terms. Alzheimer's costs the United States between \$80 billion and \$100 billion a year. In 1996, the federal government spent \$325 million on research. Which means, Alzheimer's cost society \$308.00 for every federal dollar spent for research. Alzheimer's disease creates a financial burden not just on a nation but also on a family. Nineteen million people have a relative wi325 million on research. Which means, Alzheimer's cost society \$308.00 for every federal dollar spent for research. Alzheimer's disease creates a financial burden not just on a nation but also on a family. Nineteen million people have a relative wi325 million on research. Which means, Alzheimer'sost society \$308.00 for every federal dollar spent for research. Alzheimer's disease creates a financial burden not just on a nation but also on a family. Nineteen million people have a relative wi325 million on research. Which means, Alzheimer'sected by AD. One in particular, the Alzheimer's Association, has created local chapters in every state of the country.

There is nothing yet available that can stop the deterioration associated with the disease. Several research breakthroughs have helped to slow the progression of the disease process.

A series of experiments reported in 1997 has shown that Vitamin E can modestly change the course of AD. Vitamin E was able to delay the admission into nursing homes by almost seven months. While no one understands exactly why this positive result occurred, the logic for testing Vitamin E has a sound scientific basis. Vitamin E is in a class of molecules called antioxidants, such molecules have the ability to fight free

radicals. Some symptoms of Alzheimer's disease may be caused by an overabundance of free radicals. If so, then taking some kind of antioxidant may perhaps slow the age of onset of AD. (Medina 150)

Another result that shows promise as an effective treatment for Alzheimer's disease in postmenopausal women is the use of estrogen. This hormone has been shown to have many different effects on brain neurons. Estrogen may even be able to improve higher mental functions such as memory and learning. There are health risks associated with taking estrogen (for example, an increased risk for breast cancer). Nonetheless, the data with estrogen, as with Vitamin E, represents a milestone in Alzheimer's research. They provide the first hope the disease may be significantly slowed. (Medina 151)

Some researchers believe Alzheimer's is intimately associated with the immune system. Symptoms may appear because of an ongoing inflammatory response. If true, then anti-inflammatory medications might slow the effects of AD. Ibuprofen (Advil) is an example of a nonsteroidal anti-inflammatory drug (NSAID) that seems to provide protective effects in some cases. (Medina 151)

The Food and Drug Administration has given approval for certain medications for the treatment of Alzheimer's. One medicine is called tacrine (Cognex), another is called donepezil (Aricept). Unlike Vitamin E or estrogen, these medications work by inhibiting a molecule which normally breaks down the neurotransmitter acetylcholine. There can be some improvement of symptoms with these medications though the underlying deterioration of the brain continues. (McGuffey 5)

A new medication, Exelon is available for treatment of mild to moderate Alzheimer's disease. It has been tested in thousands of patients and has been proven to have a positive effect on the three main areas of overall functioning which includes: behavior, cognition, and activities of daily living (dressing, bathing, toileting, eating). Exelon may help patients maintain function longer than they would without therapy. (Doraswamy 82)

Currently, there is no known cure for Alzheimer's disease. The goal of physician and caregivers is to help maintain patient's abilities for as long as possible, and keep them safe and comfortable. (Coogle 1)

Alzheimer's disease, or any other form of dementia, is a personal tragedy for the patient and for those who love them and bear the burden of caring for them. It is a slow, progressive disease with no known cure. As our population ages, Alzheimer's is a tragedy that is affecting more and more people.

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