

Sporadic alzheimer's disease: the disease of the century



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Sporadic Alzheimer's disease: The Disease of the Century Estimated about fifteen million people worldwide have been diagnosed with Alzheimer's disease. Some scientists believe that almost ninety percent of all Alzheimer's disease is sporadic. Sporadic Alzheimer's is a type of Alzheimer's that either men or women of all ages can be affected, although most cases occur in people over 65 years of age. Alzheimer's disease (AD) is a fatal disease of the brain that affects brain functions such as memory, ability to think, communicate and their speech. The disease changes a person's personality and judgments and very quickly disables the person to perform basic tasks. It is said to be sporadic because there is no clear genetic cause for the illness. The disease was first discovered by a German physician named Alois Alzheimer in 1906. Dr. Alois Alzheimer, noticed changes in the brain of a 55 year old woman who has died from a mental illness. The autopsy revealed dense deposits of plaques and tangles of disintegrating nerve endings. From his analysis he believed that it was a psychological disease. Scientists today are able to find the cause and the reason why people get AD. The Alzheimer Association defines the disease as an "irreversible, progressive, brain disease that slowly destroys memory and thinking skills, eventually even the ability to carry out the simplest task" (Smith, et. al. 10). Alzheimer's disease is a form of dementia ("a progressive brain dysfunction, that leads to a gradually increasing restriction of daily activities" (www. dementia. com), although all AD patients have dementia, but not all dementia patients have Alzheimer's disease. The two forms of Alzheimer disease are Sporadic and Familial. People with AD experience the disease in different ways. The difference depends on factors such as age, personality, physical health, family history, and cultural and ethnic background. The rate in which the <https://assignbuster.com/sporadic-alzheimers-disease-the-disease-of-the-century/>

disease progresses also depends on what stage you are in. The early signs or symptoms of AD are often noticeable although, most people with AD share common early symptoms such as forgetfulness. Some other early stage symptoms, depending on the affected brain areas are memory lapses; AD patients intend to forget simple tasks and are unable to remember recent events. Language or speech is also affected with the disease. The symptoms affect and damage both left and right part of the brain depending what stage they are in. They have difficulty with word findings and carrying a conversation. People with AD also have poor judgments making them incapable in making decisions and are confused with their surroundings. Their behavior soon shows agitation and irritation. A person with AD can go through at least three stages. The first stage or Mild stage is when patients show few signs of behavioral and mental problems. In this stage a person might not be completely aware of the symptoms of Alzheimer's, but still manage to do everyday tasks and function normally. However, a person with mild AD is more forgetful, they intend to stick with daily routines and avoid entering new situations. Depression is also common at this stage and the affect of memory loss may lead to feelings and emotions such as anger, frustration, and helplessness which are feelings not usual to take out on others. These conditions should be evaluated and treated as soon as possible. In the Moderate or second stage, the indication of Alzheimer's disease is more noticeable. This stage is more of a behavioral and mental problems as well as going through more emotional changes. A person with AD behavior becomes more agitated, restless and stubborn and develops incontinence or is unable to be "incontinent of urine and feces". Mental changes are more obvious and worse. It causes changes in memory, <https://assignbuster.com/sporadic-alzheimers-disease-the-disease-of-the-century/>

orientation, comprehension, judgments, concentration, general information and forms hallucination making the person to feel delirious. The person also goes through emotional changes, with emotions of fear, anger, frustration, sadness and depression. Since the person can no longer perform daily tasks they require attention and assistance with activities of daily living. Patients with mental illness need help with daily problems along with bathing, feeding, and dressing themselves. In the last severe stage of Alzheimer's disease the person comes to the point of not being able to think or do everyday tasks. They cannot communicate or recognize family members or themselves. A person in this final stage may eventually become bedridden. The person also has difficulty swallowing or chewing food which leads to the reason why they lose weight. As a result, a person could develop series of health problems; death itself is rarely Alzheimer's cause. The cause of Alzheimer's disease is unknown, but researchers believe several factors that may contribute to someone developing the disease. Scientists have begun to create theories that the causes of AD are because of Chemical, Genetic, Autoimmune or immune system and Slow viruses. Certain enzymes or chemicals called neurotransmitters acetylcholine carry impulses or messages through synapse from one cell to another with which brain cells (neurons) are able to communicate. This specific neurotransmitter is found in the part of the brain that controls intellectual emotion. For this to act effectively an enzyme is produced by neurons in the brain. An enzyme is a type of protein that speeds up the reaction. Acetylcholine is one of the major messengers in the body which controls muscles contraction, hormone and probably memory skills. Alzheimer's disease results because of lack of neurons which the brain is unable to produce. The effects of the shortage of neurons are the delays of <https://assignbuster.com/sporadic-alzheimers-disease-the-disease-of-the-century/>

messages transmitted to each cell. This is why memory loss is the outcome and one of the symptoms of AD in all stages. It has been proven that the more severe the symptoms of AD, the greater the loss of these enzymes activity. Another chemical theory that scientists made is that AD is caused from toxic chemicals in systems. The toxic cause for AD is focused mainly on aluminum because of the dialysis of dementia patients; in both blood cleansing fluid and antacid used for dialysis patients, there is high concentration of aluminum in the blood. Scientists today do not know whether aluminum is the cause of cell damage or if it is the residue after the cell damage has occurred. The most active research done today about AD is in genetics. A person with the history of Alzheimer's disease has 50% chance of developing it. In these cases it is called Familial Alzheimer's disease (FAD). Yet, even without FAD, there is chance that a close relative of a patient with AD could eventually get it. According to Mayo Clinic certain mutations — unexpected changes in single genes or in sections of chromosomes- are known to cause a small number of early-onset forms of AD. Researchers have evidence that undiscovered genes and genetic mutations may influence Alzheimer's whether directly or indirectly. The genes that are associated with Alzheimer's and their chromosomes producers are: ¼ Amyloid precursor protein (APP) also sometimes called a membrane protein. It is produced by chromosome 21. Studies show that this plays a role in growth and survival of neurons. ¼ Presenilin 1 protein (PS1) and Presenilin 2 (PS2) are located on chromosome 14 and 1. These are the two different mutations of two different presenilin proteins that could produce the waxy and sticky substance in the brain called amyloid plaques. Apo lipoprotein E (APOE ¼) genes are known to carry blood cholesterol through the body and <https://assignbuster.com/sporadic-alzheimers-disease-the-disease-of-the-century/>

it is produced by the chromosome 1. It is said that it increases the amount of plaques but the reason on why it happens is still argued. Through some genetic error the immune system is thought to destroy the body's own healthy cells that cause a type of brain cell damage. This results to the body thinking they are foreign invaders. Dr. Zhi-Qui Xioung and Dr. James McNamara of Duke University believe that AD is an: "autoimmune response" to some outside provocation that causes the body to attack itself (Smith et. al. 27). Researchers propose that AD is caused by the death of brain cells as a result of viral infection. Disease such as kuru and Creutzfeldt-Jacob is a viral infection which is an excess of aluminum and other toxins, and possibly the breakdown of the immune system. However the viruses that causes kuru and Creutzfeldt-Jacob takes a long period of time to give symptoms. This is now what is called a "slow virus" The brain seen in victims of AD is a destruction of neurons that leave scars, which have been described as plaques and tangles. The two main characteristic of AD are amyloid plaques and neurofibrillary tangles. Amyloid plaques are formed in areas of the brain that are used for memory and other thinking function. They are mainly consisted of beta-amyloid — a protein that is called amyloid precursor protein (APP) — linked with portion of neurons and with cells such as micrgrcolia (cells that surround and digest damage cells or foreign substances that cause inflammation (Alzheimer's online). The plaques are found between two spaces of the brains nerve cells. However scientists are not able to say whether plaques are formed during or after the disease. Another main characteristic of AD are the neurofibrillary tangles.

Neurofibrillary tangles are unusual neurofibrils, which are normal structural elements of nerve cells. These tangles are caused by tau proteins inside the <https://assignbuster.com/sporadic-alzheimers-disease-the-disease-of-the-century/>

nerve cells. But scientists believe that they are the results of physical or chemical damage of the brain. The tangles are found within the bodies of nerve cells in the cerebral cortex. Tau proteins serve as a useful function working to support the structure of a neuron, but if a protein starts to twist, they form neurofibrillary tangles. Lacking sufficient support the structure of the cell collapses. There is no definite test for Alzheimer's. That is why diagnosing is difficult. It is necessary to cure any occurrence of other conditions before the diagnosis of AD can be done. Diagnosing AD also means evaluating medical history, physical and neurological I examinations, blood and urine test (dementia screening) and neuropsychological AD psychiatric assessments. The Doctor might need medical history to trace the disease and identify the symptoms. Physical and neurological examination is a step to figure out the current health status. A blood and urine test also called " dementia screen" can also point out infections and medication level. Neuropsychological and psychiatric tests are done to evaluate memory and thinking ability. They also help differentiate Alzheimer's in other conditions. Brain scan such as X-ray's and CT scans or MRI are done so doctors can have a clear picture of the infected area of the brain. This process can help doctors determine what stage they are in. There is no such medicine to cure or to prevent Alzheimer's diseases. Although researchers are working to develop therapies and finding medication to ease the symptoms that might prolong the life of an AD infected person. The so called treatment is a combination of drug therapies and personal social contact. There are some drugs and inhibitors that are known to control or treat specific AD symptoms. Some drugs enhance the competence of damaged neurons and others are able to help the body to produce more of it. The inhibitors such as

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cholinesterase inhibitors are known to work on different brain chemicals. The currently approved and available cholinesterase inhibitors are donepezil (Aricept), rivastigmine (Exelon) and galantamine (Reminyl). Doctors also give antidepressant pills. These medications are able to improve both thinking and behavior. In some cases a person with AD can recover or delay the progression of the disease with certain diets and exercises. The diet should consist of food rich with Vitamin E which is believed to slow down the development of AD. Vitamin E is an anti-oxidant which neutralizes free radicals and damaged cells in DNA. Since AD patients have the feeling that they cannot relate and communicate with other people, this results with a feeling of being depressed and developing irrational behavior and delusion. That is why it is important for them to get socially active and receive more attention so they can have an intellectual stimulation. Scientists today are still trying to solve the mystery behind Alzheimer's disease. They are relying to the latest technology and research skills in medical field to find the source, treatment and the cure of AD. Until the mystery is solved there are still numerous people living with the fear that there is a possibility of being diagnosed with AD. Works Cited National Institute on Aging Home Page.

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