

Overview of the Alzheimer's Condition

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Abstract

Alzheimer's disease is a neurological condition that worsens over time despite having a slow progression. It is believed to be the root of 60-70% of cases of dementia. The most typical initial sign is trouble remembering recent events. Language problems, disorientation (including getting lost easily), mood swings, loss of desire, self-neglect, and behavioral disorders are all potential signs of illness progression. When a person's health starts to deteriorate, they frequently isolate themselves from friends and relatives. Over time, the body's abilities decline, ultimately resulting in death. Despite the fact that the rate of advancement varies, the typical life expectancy after diagnosis is three to nine years.

Keywords: Alzheimer • Neurological condition • Behavioural disorders

Introduction

Alzheimer's disease is a condition that has no known aetiology. A number of environmental and genetic factors affect its growth. The APOE gene allele is the most potent genetic risk factor. Brain injury history, severe depression, and high blood pressure are risk factors. The illness process is linked to amyloid plaques, neurofibrillary tangles, and loss of neural connections in the brain. Based on the patient's medical history, cognitive testing, imaging studies, and blood tests to rule out other potential reasons, a probable diagnosis is made. Sometimes early symptoms are misinterpreted as signs of ageing that occur naturally [1]. For a definitive diagnosis, brain tissue must be examined, but this can only be done after death.

Description

The validity of these hypotheses was being tested by scientific research in 2019. In addition to being proven to slow down ageing, a balanced diet, exercise, and social engagement may also reduce the risk of cognitive decline and Alzheimer's disease. There is no evidence from studies that particular medications or dietary supplements can reduce risk.

While certain treatments can momentarily reduce symptoms, none will halt or reverse the course of the disease. People who are impacted depend more on others for help, which puts stress on caregivers. Stresses on the physical, mental, social, and economical levels may exist. Exercise regimens could be advantageous for daily tasks and could possibly lead to better results. Antipsychotics are frequently used to address behavioral issues or psychoses brought on by dementia, but they are rarely helpful and raise the risk of early mortality [2].

The three stages of Alzheimer's disease are distinguished by a steady decline in cognitive and functional abilities. Early or mild, middle or moderate, and late or severe are the three stages. It is known that the disease affects the hippocampus, which is connected to memory and the cause of the initial symptoms of memory loss.

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Alzheimer's disease is assumed to be brought on by excessive levels of amyloid beta, which forms extracellular amyloid plaques, and tau proteins, which form intracellular neurofibrillary tangles, which impair neuronal communication and cause progressive loss of brain function [3-5]. Age, brain cholesterol, and other neurodegenerative illnesses have all been linked to this weakened capacity to remove proteins.

Alzheimer's disease is frequently diagnosed using a patient's medical history, family history, and behavioural observations. The absence of other illnesses and the presence of particular neurological and cognitive characteristics both lend weight to the diagnosis. Advanced medical imaging techniques, like as computed tomography (CT), magnetic resonance imaging (MRI), single-photon emission computed tomography (SPECT), and positron emission tomography (PET), can be utilised to rule out additional dementia categories or subtypes. Additionally, it can forecast the development of Alzheimer's disease from the prodromal stages (mild cognitive impairment). For patients with Alzheimer's disease, the FDA has approved the radiopharmaceutical diagnostic agents florbetapir (2012), flumetamol (2013), florbetaben (2014), and flortaucipir for use in PET scans (2020). Due to the fact that many insurance companies in the United States do not cover this surgery, as of 2018, its usage in clinical practise is primarily restricted to clinical studies [6,7].

Cognitive tests like the Mini-Mental State Examination (MMSE), the Montreal Cognitive Assessment (MoCA) [6], and the Mini-Cog are frequently used to help in the diagnosis of cognitive issues in Alzheimer's disease. More extensive test arrays are needed, especially in the early stages of the disease, for high findings reliability because these tests lack sensitivity to minor cognitive impairment and can be biased by language or focus issues. The results of a neurological examination in the early stages of Alzheimer's disease are often normal, with the possible exception of apparent cognitive impairment, which may be similar to that seen in other disease processes, such as different types of dementia [8,9].

One well-known aspect of Alzheimer's disease is a reduction in the activity of cholinergic cells. ACh concentration in the brain is increased by acetyl cholinesterase inhibitors, which also prevent ACh loss brought on by the death of cholinergic neurons. With some data indicating they are also efficacious in advanced stages, these drugs seem to be helpful in mild to moderate Alzheimer's disease. These medications have not been shown to decrease the progression of Alzheimer's disease in patients with mild cognitive impairment. The most frequent adverse effects are nausea and vomiting, both of which are brought on by an excess of cholinergic activity [10].

Conclusion

Alzheimer's research tries to identify the illness before symptoms appear. A number of biochemical assays have been developed to help with early

diagnosis. The CSF fluid can be tested for beta-amyloid, total tau protein, and phosphorylated tau181P protein, among other things. CSF draws are frequently avoided because they are uncomfortable. Another indication could be a blood test for circulating miRNA and inflammatory biomarkers.

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Not applicable.

Conflict of Interest

There is no conflict of interest by the author.

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