

Alzheimer's Disease: A Neurological Disorder and its Role of in Scientists and Helathcare Professionals

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Description

Alzheimer's disease is a progressive and debilitating neurological disorder that affects millions of people worldwide. First identified over a century ago, this enigmatic disease continues to baffle scientists and healthcare professionals alike. In this article, we will discuss about the intricacies of Alzheimer's disease, exploring its causes, symptoms, diagnosis, and potential treatment options. Alzheimer's disease, often abbreviated as AD, is a neurodegenerative disorder primarily characterized by cognitive decline and memory impairment. Named after Dr. Alois Alzheimer, who first described the condition in 1906, the disease affects the brain's structure and function, leading to a gradual deterioration of cognitive abilities. While the exact causes of Alzheimer's disease remain unclear, extensive research suggests a multifactorial origin involving a combination of genetic, environmental, and lifestyle factors. Key contributors includes family history of Alzheimer's disease increases an individual's risk. Specific genes, such as APOE (apolipoprotein E), are associated with a higher susceptibility to the disease. Alzheimer's risk rises with age, with most cases occurring in individuals aged 65 and older. Abnormal protein deposits, such as amyloid plaques and tau tangles, accumulate in the brains of Alzheimer's patients, disrupting cell communication and causing cell death. Cardiovascular health, diet, physical activity, and social engagement may influence Alzheimer's risk. Managing these factors can potentially reduce the risk of developing the disease. Alzheimer's disease progresses through distinct stages, each marked by varying symptoms. The common stages are that includes are:

Preclinical stage

In this early phase, individuals may not exhibit noticeable symptoms, but biomarker changes in the brain can be detected through advanced imaging and tests.

Mild Cognitive Impairment (MCI)

Individuals in this stage may experience mild memory problems and cognitive difficulties but can generally carry out daily activities independently.

Mild alzheimer's disease

Symptoms become more apparent, including memory loss, confusion, trouble with language, and difficulty managing daily tasks.

Moderate alzheimer's disease

Cognitive decline worsens, leading to increased dependency on

caregivers. Behavioral and psychological symptoms, such as agitation and anxiety, may emerge.

Severe alzheimer's disease

This final stage is marked by profound memory loss, the inability to communicate, and a need for round-the-clock care. Patients often lose awareness of their surroundings

Diagnosis and treatment

Diagnosing Alzheimer's disease is complex and often involves a combination of medical history assessment, cognitive tests, imaging scans, and blood tests. Early diagnosis is crucial, as it allows for better management and planning. Currently, there is no cure for Alzheimer's disease. However, several treatment approaches aim to alleviate symptoms and improve quality of life for affected individuals.

Medications: Cholinesterase inhibitors (for example Donepezil) and N-Methyl-D-Aspartate (NMDA) receptor antagonists (for example Memantine) can help manage cognitive symptoms.

Non-pharmacological interventions: Cognitive stimulation, physical exercise, and social engagement may slow the progression of the disease and improve well-being.

Supportive care: Caregiver support and resources are essential to assist both individuals with Alzheimer's and their families in coping with the challenges of the disease.

Clinical trials: Ongoing research explores potential disease-modifying therapies, including drugs targeting amyloid and tau proteins.

Conclusion

Alzheimer's disease remains a formidable challenge in the field of neuroscience and healthcare. As our understanding of its underlying causes and mechanisms continues to grow, so too does our hope for better diagnostic tools and more effective treatments. While there is currently no cure, early detection, a healthy lifestyle, and a supportive network of caregivers can significantly improve the quality of life for those living with Alzheimer's disease. Research efforts worldwide are focused on unraveling the mysteries of this devastating condition, offering hope for a future where Alzheimer's may be effectively treated or even prevented.