Alzheimer's Disease

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Key points

- Introduction
- Symptoms and causes
- Current treatment of AD
- Future treatment of AD

Alzheimer's disease (AD) is a priority health problem in developed societies and in many emerging and developing countries, with high costs for public health services, economic burden on families, and consumption of medical and health resources.

Among the different forms of dementia, AD is the most common (50-60%). Vascular dementia (30-40%), other forms of degenerative dementia (10-1 5%) and mixed dementia (> 70% in patients older than 75 years) are also relevant. AD is more common in women than in men (average prevalence: 1-2% in age 60 years; > 35% in those older than 80 years). Epidemiological predictions suggest an increase in the prevalence of dementia of approximately 1-2% per year in parallel with the increase in population life expectancy. AD results from premature neuronal death caused by a variety of factors, including genomic, epigenetic, cerebrovascular, and multiple environmental conditions.1

Symptoms of Alzheimer's

Behavioral and psychological symptoms of dementia (BPSD) are highly prevalent and represent a significant burden for patients and their caregivers. Early recognition and management of these symptoms is crucial because they are associated with an increased risk of institutionalization, impairment of daily functioning, reduced quality of life, and faster progression to severe dementia.2

Causes of Alzheimer's

It is now clear that genetic factors play a major role in the risk of developing Alzheimer's disease (AD). Rare mutations in at least 3 genes are responsible for early onset familial AD. A common polymorphism in the Apolipoprotein E gene is a major determinant of risk in families with late-onset AD, as well as in the general population. However, advanced age remains the main established risk factor for AD. Some pathogenic factors directly associated with aging include oxidative damage and mutations in messenger RNA. Older theories, such as aluminum playing a role in the pathogenesis of AD, have mostly been discarded as our understanding of the pathogenic mechanisms of AD has advanced.3

Current Treatment of AD

The current paradigm of AD treatment is based on multifaceted symptom management aimed at maintaining quality of life, alleviating disease burden, and reducing long-term clinical decline. Successful long-term pharmacotherapy with FDA-approved anti-AD drugs, initially involving cholinesterase inhibitor (ChiII) monotherapy and ultimately involving adjunctive dual combination therapy with Chill and meantime, requires the development, implementation, and maintenance of a strong foundation of psychoeducation. No pharmacological and behavioral care strategies and clarity of care goals and expectations; this is based on a strong therapeutic alliance between the clinician and the patient-caregiver pair.4

Future treatments for AD

Even though no new treatments have been approved for AD since 2002, and more than 200 research programs have failed or been abandoned since then, the AD drug system remains moderately crowded with putative disease-modifying and symptomatic agents with different mechanisms of action (MOA) for phase I interventional clinical trials that are "recruiting" or "active but not recruiting" for AD show more than 1 50 outcomes. A recent Annual Report on AD Drug Development identified 1 12 agents: 26 agents in 35 phase III trials, 63 agents in 75 phase II trials, and 23 agents in 25 phase I trials. The putative MOAs of agents in development were classified as disease modifying therapies (DMTs) in 63%, symptomatic cognitive enhancers in 22%, and symptomatic agents targeting BPSD in 12%.4

References

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