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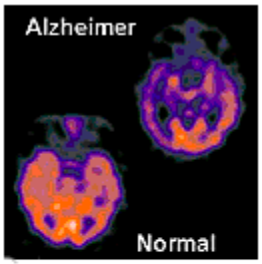
Alzheimer disease



Brain scans of a healthy elderly person and a patient with Alzheimer's disease. [Image supplied Keith Johnson, Bringham and Women's Hospital, Boston, MA, USA.]

Alzheimer disease (AD) is the fourth leading cause of death in adults. The incidence of the disease rises steeply with age. AD is twice as common in women than in men, although former president Ronald Reagan is a well known disease sufferer. Some of the most frequently observed symptoms of the disease include a progressive inability to remember facts and events and, later, to recognize friends and family.

AD tends to run in families; currently, mutations in four genes, situated on chromosomes 1, 14, 19, and 21, are believed to play a role in the disease. The best-characterized of these are PS1 (or AD3) on chromosome 14 and PS2 (or AD4) on chromosome 1. The formation of lesions made of fragmented brain cells surrounded by amyloid-family proteins are characteristic of the disease. Interestingly, these lesions and their associated proteins are closely related to similar structures found in Down Syndrome. Tangles of filaments largely made up of a protein associated with the cytoskeleton have also been observed in samples taken from Alzheimer brain tissue.

Currently, scientists are studying the interrelationship between the various gene loci (particularly the mutation on chromosome 21) and how environmental factors could effect a person's susceptibility to AD. Recently, use of a mouse model of the disease identified an enzyme that may be responsible for the increase in amyloid production characteristic of AD. If a way to regulate this enzyme could be found, then AD may be slowed or halted in some people.

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