

Alzheimer's disease

Fact Sheet

What is Alzheimer's disease?

Alzheimer's disease is a degenerative brain disease and the most common form of dementia. **Dementia**, which is not a specific disease but an overall term that describes a group of symptoms¹, is characterized by a decline in memory, thinking, behavior and the ability to perform everyday activities. Ultimately, dementia leads to a loss of independence and an increasing need for support by others.²

Alzheimer's disease is a neurodegenerative disease that progresses in stages, beginning with a long silent phase before symptoms occur. With a rapidly ageing population, it is a growing public health concern worldwide.³

Key facts



Worldwide, **50 million people** are living with **Alzheimer's** and **other dementias**.⁴



In **Europe**, an estimated **10.5 million people have dementia**, and this number is expected to increase to 18.7 million in 2050.⁵



Alzheimer's disease is **the underlying cause in 70 % of people with dementia**.⁶

History

Alzheimer's disease is named after German neurologist Alois Alzheimer, who in 1906 first described the symptoms as well as the neuropathological features of the disease, such as amyloid plaques and tangles in the brain.⁷ He noticed changes in the brain tissue of a woman who had died of an unusual mental illness. Her symptoms included memory loss, language problems and unpredictable behavior. After she died, he examined her brain and found many abnormal clumps (now called amyloid plaques) and tangled bundles of fibers (now called neurofibrillary, or tau, tangles). These plaques and tangles in the brain are still considered some of the main features of Alzheimer's disease. Another feature is the loss of connections between nerve cells (neurons) in the brain. Neurons transmit messages between different parts of the brain and from the brain to muscles and organs in the body.⁸

Risk factors of Alzheimer's disease



Age

Age is the biggest risk factor for Alzheimer's. It mainly affects people over 65. Above this age, a person's risk of developing Alzheimer's disease doubles about every five years. One in six people over 80 have dementia – many of them have Alzheimer's disease.



Gender

There are about twice as many women as men over 65 with Alzheimer's disease. We don't know the exact reasons for this, but possible explanations could be that women on average live longer than men and Alzheimer's in women may be linked to loss of the hormone estrogen after the menopause.



Genetic inheritance

The majority of dementia is not inherited, but this depends very much on the particular cause of dementia. There are a very small number of families where it is clear that Alzheimer's is passed on through the genes from one generation to the next. This obvious pattern, however, is very rare. In the few families where it is clear, dementia tends to develop well before the age of 65.



Lifestyle

People who live a healthy lifestyle, especially from mid-life onwards, are less likely to develop Alzheimer's disease. This includes doing regular physical exercise and keeping to a healthy weight, not smoking and eating a healthy balanced diet. Keeping physically, mentally and socially active will help to reduce the risk of developing dementia.



Health problems

There are lots of health problems that increase a person's risk of developing Alzheimer's disease and vascular dementia. It's important to keep these under control and get professional support as early as possible. They include medical conditions such as diabetes, stroke and heart problems, other physical health problems such as high blood pressure, high cholesterol and obesity in mid-life and depression (although the evidence for this as a risk factor is not as strong).⁹

Diagnosis

Alzheimer's disease is a cause of dementia but is not necessarily caused by the same factors which cause other forms of dementia. However, despite a considerable amount of research, the actual cause of the disease remains unknown. There is no single test to determine whether someone has Alzheimer's dementia. It is diagnosed by a **process of elimination**, as well as a careful **examination** of a person's physical and mental state, rather than by finding actual evidence of the disease.

A number of tests may be carried out (e.g. blood and urine samples) in order to rule out the possibility of other illnesses which might explain the dementia syndrome or illnesses which might aggravate an already existing case of Alzheimer's disease. In addition to this, a few methods of brain imaging have been developed which produce images of the living brain, thereby revealing possible differences between the brains of people with Alzheimer's disease and those of non-affected individuals:



Magnetic Resonance Imaging permits an extremely detailed image of the brain's structure. When one image is placed over another, taken a few months' later, it is possible to see changes at an early stage in a certain part of the brain.



CT (Computed Tomography) Scanning measures the thickness of a part of the brain which becomes rapidly thinner in people with Alzheimer's disease.



SPECT (Single Photon Emission Computed Tomography) Scanning can be used to measure the flow of blood in the brain, which has been found to be reduced in people with Alzheimer's disease as a consequence of nerve cells not working properly.



PET (Positron Emission Tomography): The use of this scanning technique is often limited to research settings. It can detect changes in the way the brain of someone with Alzheimer's disease functions. It can, for example, detect abnormal patterns of glucose usage by the brain.¹⁰ PET can also detect abnormal brain accumulation of amyloid and tau protein in vivo. Lumbar puncture is another technique to collect cerebrospinal fluid and measure amyloid, tau and other diagnostic compounds.

Diagnosis is a critical stage for people with dementia and their families, as it may provide access to treatment and support. It has been estimated that around half of the people living with dementia in Europe have never been diagnosed and, for those diagnosed, it will most likely happen at a late moderate stage.¹¹

Symptoms

Alzheimer's disease is a **progressive condition**, which means the symptoms develop gradually over many years and eventually become more severe. It affects multiple brain functions.¹²

Memory loss is the key symptom of Alzheimer's disease. An early sign of the disease is usually difficulty remembering recent events or conversations. As the disease progresses, memory impairments worsen and other symptoms develop.¹³

As the condition develops, memory problems become more severe and further symptoms can develop, such as:



confusion, disorientation and getting lost in familiar places



difficulty planning or making decisions



problems with speech and language



problems moving around without assistance or performing self-care tasks



personality changes, such as becoming aggressive, demanding and suspicious of others



hallucinations (seeing or hearing things that are not there) and delusions (believing things that are untrue)



low mood or anxiety¹⁴

Treatment

Alzheimer's disease is complex and it is unlikely that any one drug or other intervention can successfully treat it. Current approaches focus on helping people maintain mental function, manage behavioral symptoms and slow down certain problems, such as memory loss. Researchers hope to develop therapies targeting specific genetic, molecular, and cellular mechanisms so that the actual underlying cause of the disease can be stopped or prevented.¹⁵



Acetylcholinesterase (AChE) inhibitors increase levels of acetylcholine, a substance in the brain that helps nerve cells communicate with each other. Donepezil, galantamine and rivastigmine can be prescribed for people with early- to mid-stage Alzheimer's disease. The latest guidelines recommend that these medicines should be continued in the later, severe, stages of the disease.



Memantine is not an AChE inhibitor and it works by blocking the effects of an excessive amount of a chemical in the brain called glutamate. Memantine is used for moderate or severe Alzheimer's disease. It's suitable for those who cannot take or are unable to tolerate AChE inhibitors. It's also suitable for people with severe Alzheimer's disease who are already taking an AChE inhibitor.



Cognitive stimulation therapy (CST) involves taking part in group activities and exercises designed to improve memory and problem-solving skills.



Cognitive rehabilitation involves working with a trained professional, such as an occupational therapist, and a relative or friend to achieve a personal goal, such as learning to use a mobile phone or other everyday tasks. Cognitive rehabilitation works by getting the patient to use the multiple abilities that are preserved to help those which are impaired.



Reminiscence and life story work involves talking about things and events from your past. It usually involves using props such as photos, favourite possessions or music. Life story work involves a compilation of photos, notes and keepsakes from your childhood to the present day. It can be either a physical book or a digital version. These approaches are sometimes combined. Evidence shows they can improve mood and wellbeing.¹⁶

Further information

Alzheimer Europe



www.alzheimer-europe.org

Alzheimer's Society



www.alzheimers.org.uk

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