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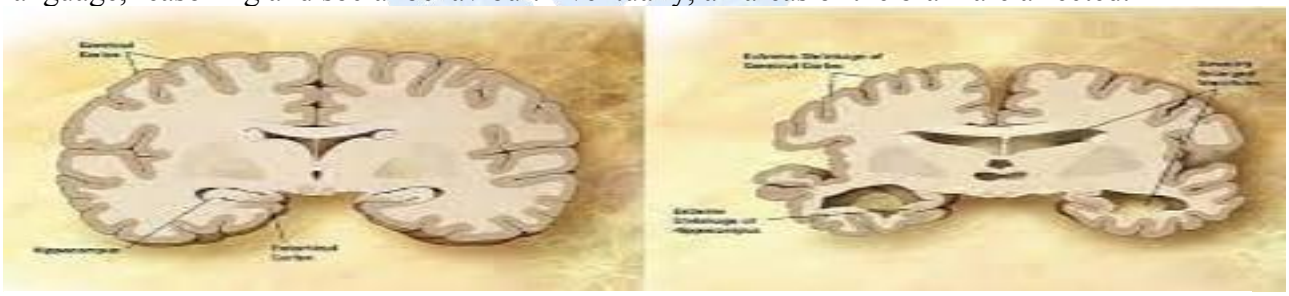
ETIOLOGICAL FACTORS THAT CAUSE ALZHEIMER'S DISEASE

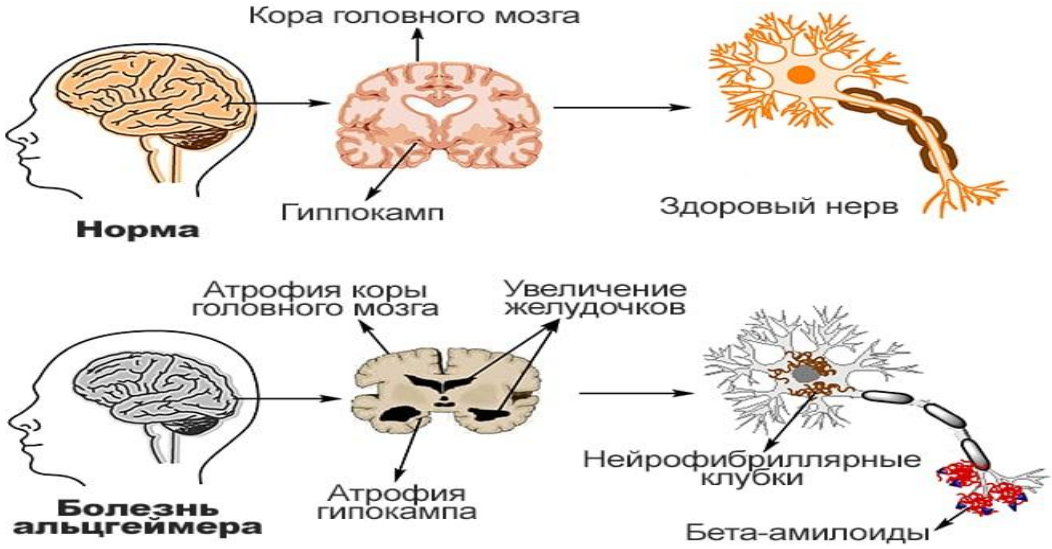
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Annotation: Alzheimer's dementia is the most common form of dementia, thought to account for over 50% of cases. Like all other types of dementia, Alzheimer's dementia is progressive, with symptoms worsening over time. Alzheimer's dementia is caused by Alzheimer's disease, which was first described by Alois Alzheimer in 1906.
Key words : Alzheimer's dementia , diseas, brain, cell .

Alzheimer's dementia is linked to the build-up of harmful proteins in and around brain cells. These proteins - called amyloid and tau - form plaques and tangles, disrupting connections between brain cells. The production of important brain chemicals, such as the neurotransmitter acetylcholine, is also diminished. Together, this results in a loss of brain cell function and cell death, initially in areas of the brain responsible for memory, and later in areas that control language, reasoning and social behaviour. Eventually, all areas of the brain are affected.





Early signs of Alzheimer's dementia include short-term memory loss, feeling disoriented and misplacing items. Initially, people with Alzheimer's dementia can find complex tasks challenging, and may find it hard to organise and express their thoughts. It should, however, be borne in mind that some of the changes in mood and behaviour may be linked to communication difficulties and could also be natural responses to difficult situations, disabling structures, lack of appropriate support and unhelpful attitudes rather than to the condition itself.

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As Alzheimer's dementia develops, symptoms become more noticeable and can interfere more with day-to-day life. Memory loss and difficulties with language and communication become more severe. People may experience confusion, changes in personality and mood and difficulties with practical tasks such as dressing and washing. People with advanced Alzheimer's dementia often have, in addition, difficulty walking, sitting and, eventually, swallowing. Alzheimer's dementia is a terminal condition, although the rate of progression varies widely between individuals.

There is currently no cure for Alzheimer's dementia. However, there are medicines available in Europe that can help treat symptoms related to memory, behaviour and thinking, although they do not slow the progression of disease. The development of disease-modifying therapies, which can prevent or slow the progression of dementia, is a very active area of research, with many different drugs currently in development.

Currently-available treatments for the symptoms of Alzheimer's dementia fall into two main categories:

1) Cholinesterase inhibitors, and

2) NMDA receptor antagonists.

Cholinesterase inhibitors such as Donepezil, Rivastigmine and Galantamine are approved for treatment of symptoms associated with mild-to-moderate Alzheimer's dementia. They function by binding to an enyzme called acetylcholinesterase, which normally breaks down the neurotransmitter, acetylcholine. This means that there is more acetylcholine available to act on brain cells, which enhances the transmission of messages between brain cells and reduces memory-related symptoms of Alzheimer's dementia.

NMDA receptor antagonists such as Memantine are approved for treatment of symptoms associated with moderate-to-severe Alzheimer's dementia. They function in several ways, although the main mechanism of action is thought to be the blockade of electrical current through NMDA receptors on the surface of brain cells. This reduces abnormal brain cell activity, which can be damaging to brain cells, and helps relieve some of the behavioural and cognitive symptoms of Alzheimer's dementia.

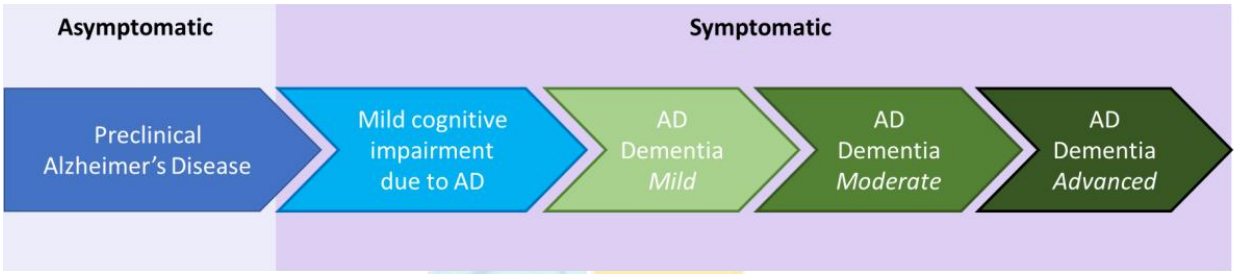
The Alzheimer's disease continuum

A few decades ago, the terms Alzheimer's disease and Alzheimer's dementia tended to be used interchangeably. Nowadays, Alzheimer's dementia is considered as a stage of Alzheimer's disease.

Alzheimer's disease begins many years before symptoms become apparent, and develops gradually over time. Progression along a continuum from presymptomatic Alzheimer's disease (in which there are abnormal changes in the brain) to symptomatic Alzheimer's dementia (marked in addition by changes in cognition and functioning) tends to be slow and subtle.

It is important to understand that progression along the Alzheimer's disease continuum varies widely from person to person, and that each person's experience of Alzheimer's disease will be unique to them.

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Alzheimer's disease (AD) continuum, based on the 2011 NIA-AA diagnostic guidelines

Preclinical Alzheimer's disease

In the preclinical stage of Alzheimer's disease, amyloid plaques and tau tangles start accumulating in the brain. However, there are no outward signs of disease, and these changes can only be detected using brain imaging scans or biomarker tests, which are not yet routinely used in clinical practice. The preclinical stage of Alzheimer's disease can last many years, or even decades.

Mild cognitive impairment due to Alzheimer's disease

Mild Cognitive Impairment is often considered as the stage between the expected cognitive decline of normal ageing and the more significant decline of dementia. It may increase a person's risk of later developing dementia but some people with mild cognitive impairment don't deteriorate further and some eventually get better.

Mild cognitive impairment (MCI) due to Alzheimer's disease, on the other hand, is considered to be the earliest symptomatic stage of Alzheimer's disease. It is sometimes referred to as prodromal AD or pre-dementia Alzheimer's disease. People with MCI due to Alzheimer's disease often experience very mild changes in their cognitive abilities, such as difficulties with memory, keeping track of conversations, orientation, planning and decision making. These changes may cause concern but do not significantly impact on people's daily lives.

Alzheimer's Dementia

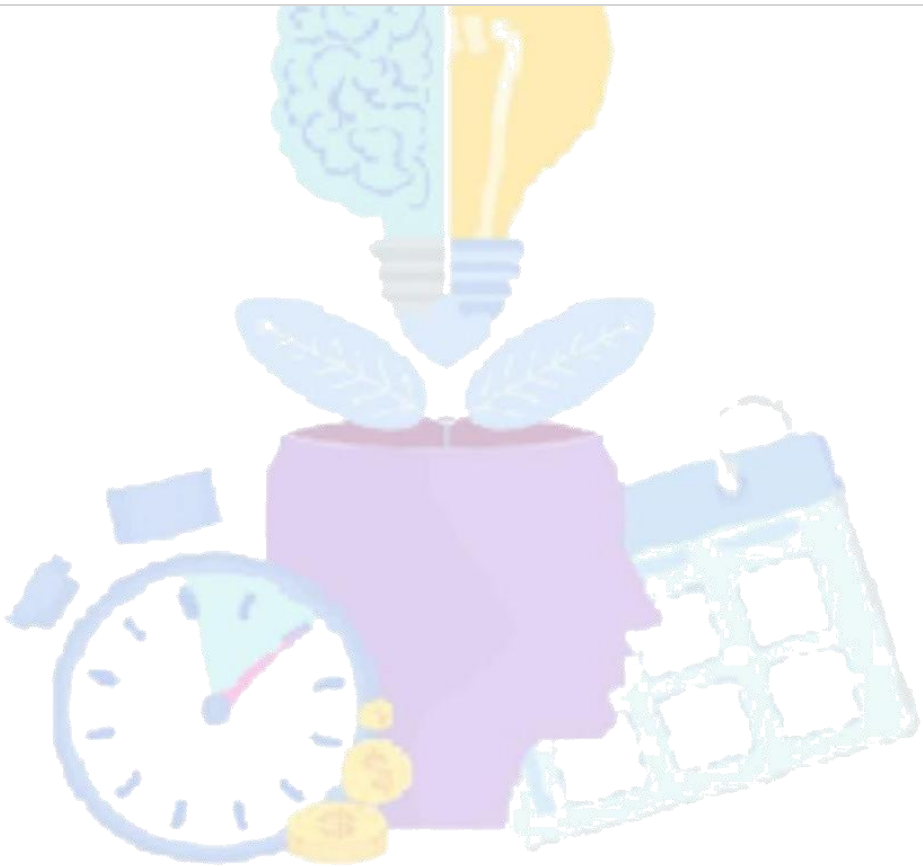
Alzheimer's disease is most frequently diagnosed when people already have dementia, and are experiencing noticeable problems with memory loss and thinking ability. As people progress along the Alzheimer's disease continuum from mild to advanced Alzheimer's dementia, cognitive and functional impairments become gradually more severe, with an eventual loss of independence and death.

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