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Review on Alzheimer's Diseases

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Abstract

Alzheimer's Diseases are one of the most serious brain condition affecting senior peoples. Improved cognitive disorders therapy, better behaviour and clinical diagnostic standard are recent breakthrough. Placebocontrolled, double —blind, Randomised, parallel group studies evaluating performance -based assessment of cognitive function, activities of daily living and behaviour have been used to clinically evaluate symptomatic treatment that focuses on cholinergic therapy. Patient of Alzheimer's disease are advised to use cholinesterase inhibitors,such as ntamine and tacrine ,to address cognitive impairment. Antipsychotics, anxiolytics, antidepressants, mood stabilizer and hypnotics are used in treatment of behavioural disturbance. Evaluation in research and treatment of patients of Alzheimer's disease includes: Applying functional brain imaging techniques and evaluation of treatment efficacy.

Development of new classes of medications works on different neurotransmitter systems, for the treatment of cognitive deficits and behavioural disturbance.

Key words: Alzheimer's Diseases , cholinesterase inhibitors , behavioural disturbance , etiology , epidemiology, antioxidant , anti- inflammatory agents , estrogen replacement therapy.

Introduction

Alzheimer's disease (AD) is the root cause of 60-70% of dementia cases . It is a neurological conditions that develops gradually and getworse overtime. Troubles in recalling recent events is the most prevalent initial sign.

As this illness worsen, symptoms may includes : Disorientation , mood swings , lack of desire , language problem , behavioural problems and self- neglect. It is unclear what causes the Alzheimer's Diseases and it's development are connected to numerous genetic and environmental risk factors. Most potent genetic risk element are high blood pressure and inward despair. Disease process are substantially linked to: Amyloid plaques, neurofibrillary tangles and the loss of neuronal connection in the brain . A diagnosis is based on the patient's medication history, cognitive assessment , medical imaging , and blood tests. To reduce the risk of cognitive decline and Alzheimer's include: good nutrition, physical activity , and social interaction that are to be beneficial for ageing. Psychological, social , physical , and economical factors can play a role in stress .

Loss of thinking , remembering , and reasoning skills that interferes with a person's daily life and activities is a dementia or causes of dementia. Other causes of dementia includes : (1) blood vessels disease in brain called vascular dementia ; (2) Parkinson's diseases ; (3) frontotemporal dementia ; (4) Lewy body dementia.

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Sign and Symptoms

Frequently wrongly attributed to stress or ageing are sign of Alzheimer's and dementia.

Symptoms of Alzheimer's Diseases includes: (1)MEMORY LOSS : - A person may have difficulty to take a new information and remembering information. This can leads to:

- Repeating conservations.
- Forgetting about appointment or events .
- Losing object or things. • Getting lost .

(2) COGNITIVE DEFICITS: - A person may experience difficulty in complex tasks , reasoning and judgment. This can lead to: • Difficulty in paying bills or money.

• Difficulty in taking decisions.

A reduced understanding of safety and risks.

(3) PROBLEM IN RECOGNITION:-A person may become less able to use basic tools or to recognise faces or object. These issues are not due to problem in eyesight.

(4) PROBLEMS IN SPATIAL AWARENESS:- A person may have difficulty in their balance and orienting clothes to their body when getting dressed.

(5) PROBLEMS IN SPEAKING, READING AND WRITING :- A person may develop difficulty in thinking of common words , or they may make more errors in speech , spelling and writing .

(6) PERSONALITY OR BEHAVIOUR CHANGES : -A person may experience changes in personality and behaviour that includes:

- Becoming angry , worried and upset more often than before.
- Loss of interest
- Motivation for activities they usually enjoyed.
- Loss of empathy.
- Obsessive , compulsive or socially inappropriate behaviour.

Causes

According to the current theories , Amyloid beta (A) build up abnormally in the brain , either intracellularly as neurofibrillary tangles or extracellularly as tau and amyloid plaques affecting neuronal connectivity and functioning and causing a progressive loss of brain function.

The protein amyloid beta ia a piece of bigger protein.

Neurofibrillary tangles are made up of tau protein that develops abnormal shapes due to

Alzheimer's Diseases. Tau protein are incharge of carrying nutrients and other necessary elements in neuron for their internal support and transport mechanism.

Plaques develop between dying brain cells they are made from a protein called beta - amyloid.and the tangles occurs within the nerve cells they made from another protein known as tau.

Risk factors

Risk factors for Alzheimer's diseases includes : -

- Have a family history of Alzheimer's disease .
- Carry certain genes .
- Ageing

Factors that increases the risk of

Alzheimer's includes:-

- Repeated traumatic brain injuries • Have exposure to some environmental contamination, such as pesticides, toxic metals, and industrial chemicals.

Factors that helps to prevent Alzheimer's include : -

- Follow the varied and healthy diet. • Maintained a healthy cardiovascular system.
- Keeps the brain active throughout life.
- Getting regular exercise. • Manage the risk of cardiovascular disease , obesity , diabetes , and High blood pressure .

Diseases mechanism

The pathophysiology of Alzheimer's disease is result of abnormalities in the generation and aggregation of the beta amyloid peptide.

According to the amyloid hypothesis , contribution to neuronal degeneration is build up of beta amyloid peptides is the primary factor.

Programmed cell death (apoptosis) are thought to be the toxic form of the protein that disturbed the calcium ion balance of the cell.

Accumulation in the mitochondria of Alzheimer's disease- affected brain cells and inhibit several enzymes activities as well as the uptake of glucose by neurons.

Diagnosis

A conclusive diagnosis of Alzheimer's disease may provides by the result of an autopsy. In the absence of an autopsy, a clinical diagnosis of (1) Alzheimer's diseases is considered "probable" or " possible" based on the other symptoms.

The diagnosis is supported by presence of distinctive cognitive and neurological characteristics and the absence of other diagnoses. Alzheimer's diseases is clinically diagnosed based on the patient's medical history , family history , and behavioural observations.

The FDA approved radio- pharmaceutical (2) diagnostic agents that are used in PET for Alzheimer's Diseases are florbetapir (2012) , flutemetamol (2013) ,florbetaben (2014) , and flortaucipir (2020) . To further define the condition of patients, assessment of intellectual functioning and memory tests can be used.

To standardise and facilitate the diagnostic process for medical organisation and practising (3) physicians have developed diagnostic criteria.

Only post — mortem examinations use brain tissue that can be histologically evaluated for neurofibrillary tangles and senile plaques can provide a definitive diagnosis.

(4)

Techniques

The identification of cognitive impairment in Alzheimer's Diseases (AD) is aid by neuropsychological tests Which included cognitive tests: - Minu mental state examination (MMSE) , the mini cog , and the Montreal cognitive Assessment (MoCA) .

They lack sensitive to minor impairment and they may not always be accurate.

Interviews with patient's family members are conducted as the assessment process ; and they can provide crucial information about the patient's daily life skills and decline in their mental function.

Many times , patient of Alzheimer's Diseases is unaware of their deficiencies and their family frequently strugglingto recognise the early signs of dementia and may not provide a doctor with the appropriate information about the patient. Common supplemental examination including blood tests , thyroid function tests , tests to measure vitamin Bl 2 levels , rule out neurosyphilis , tests for renal function , electrolytes levels , and diabet

SYMPTOMS : -

PHYSICAL EXAMINATION:- Patient's of Alzheimer's Diseases appear disorganised and disoriented.diagnosis is further supported by cognitive tests and behavioural assessment followed by brain scan if available. Diagnostic tools for the examination of the patient included instruments of activities of daily living (IADL) ,mini- mental status examination (MMSE) , Montreal cognitive Assessment (MoCA) .

LABORATORY FINDINGS : -There is no specific diagnostic laboratory finding associate with Alzheimer's Diseases. These included 14-3-3 Protein ,CSF analysis of A beta-2 and tau protein, vitamin Bl 2 levels , electrolytes , HIV serology , thyroid hormones , blood glucose ,liverfunction test , renal function tests , and urine screen for drug abuse.

ELECTROCARDIOGRAMS: - It play a role in diagnosing concurrent conduction abnormalities and monitoring side effects of medications.electrocardiograms of a patient of Alzheimer's disease may show QT dispersion and heart rate variability abnormalities.

X-RAY: - ultrasound is a non- invasive , therapeutic technology aim to improve the quality of life at lower cost for patients of Alzheimer's Diseases.

5. CT SCAN : - CT scan of the brain helpful in the diagnosis of Alzheimer's Diseases. Included loss of gyral volume , enlargement of cerebralsulci , and mild dilation of the ventricular system.

6. MRI : - structural MRI of the brain helpful in diagnosis of Alzheimer's Diseases. Characteristics on MRI suggestive of Alzheimer's disease included reduce hippocampal volume and medial temporal lobe atrophy.

7. OTHER IMAGING FINDING : - Other imaging finding in Alzheimer's disease included single photon emission computed tomography (SPECT) and positron emission tomography (PET) .

Conclusion

The prevalence of Alzheimer's Diseases is rises globally and make it most prevalent cause of dementia. Testing on the brain imaging , spinal

fluid and neuropsychological processes can accurately established the diagnosis .

Awareness and kindness of the people of dementia can still enjoy life should be shown to them . Physical and chemical restriction should be employed as a last resort. The Pilar of physical and chemical constraints , individualized care have a wide range of effective substitutes .

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