

AMNESIA & DEMENTIA

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Amnesia

Memory disturbance is a common symptom. many persons will prove to have benign memory dysfunction related to

- Age
- mood
- psychiatric disorders

Temporary loss of memory may be due to

- Transient global amnesia
- Delirium
- Seizure
 - temporal lobe Seizure
 - post-ictal period after seizure

Transient global amnesia

predominantly affects middle-aged people with an abrupt isolated loss of anterograde memory function lasting up to a few hours.

- amnesia mostly due to a benign process similar to migraine, occurring in the hippocampus.
- TGA requires a witness which provided there is a typical history
- No abnormal physical signs

During the episode

- patients are unable to record new memories, resulting in repetitive questioning
- retrograde amnesia for the events of the past is preserved.
- After 4–6 hours, memory function and behavior return to normal but the patient has persistent, complete amnesia for the duration of the attack itself.
- There are no seizure markers

Transient global amnesia

Precipitants of TGA

- physical exertion
- overwhelming emotional stress
- Pain
- cold-water exposure
- sexual intercourse
- Valsalva maneuver
- sedative-hypnotic medications
- Excessive alcohol

Investigation is necessary to rule out stroke

- CBC count with differential
- Electrolyte panel
- ECG
- EEG
- CT scan

Medical Care

Once transient global amnesia (TGA) is diagnosed, provide reassurance to the patient

Persistent amnesia

Disturbance of working memory
(previously called ‘short-term
memory’)

- Episodic memory impairment
 - Korsakoff’s syndrome (often secondary to alcohol)
 - bilateral temporal lobe damage
- Progressive deterioration over months suggests an underlying dementia (particularly of Alzheimer’s type)

Depression may present as a ‘pseudo-dementia’, with concentration and memory impairment

poor concentration (cognitive deterioration), it is more likely to be due to an underlying mood disorder.

Dementia

Common causes of dementia

Dementia is a clinical syndrome characterized by a loss of previously acquired intellectual function in the absence of impairment of arousal.

It is typically progressive and non-reversible.

affects

5% of those over 65

20% of those over 85

- **Vascular**
 - Diffuse small-vessel disease
 - Amyloid angiopathy
- **Inherited** - Alzheimer's disease
- **Neoplastic**
 - Secondary deposits
 - Primary cerebral tumour
 - Paraneoplastic syndrome (limbic encephalitis)
- **Inflammatory** – Multiple sclerosis
- **Traumatic** - Chronic subdural haematoma
- **Hydrocephalus** – normal pressure hydrocephalus
- **Toxic/nutritional**
 - Alcohol
 - Thiamin & B12 deficiency
- **Infective**
 - Syphilis
 - HIV

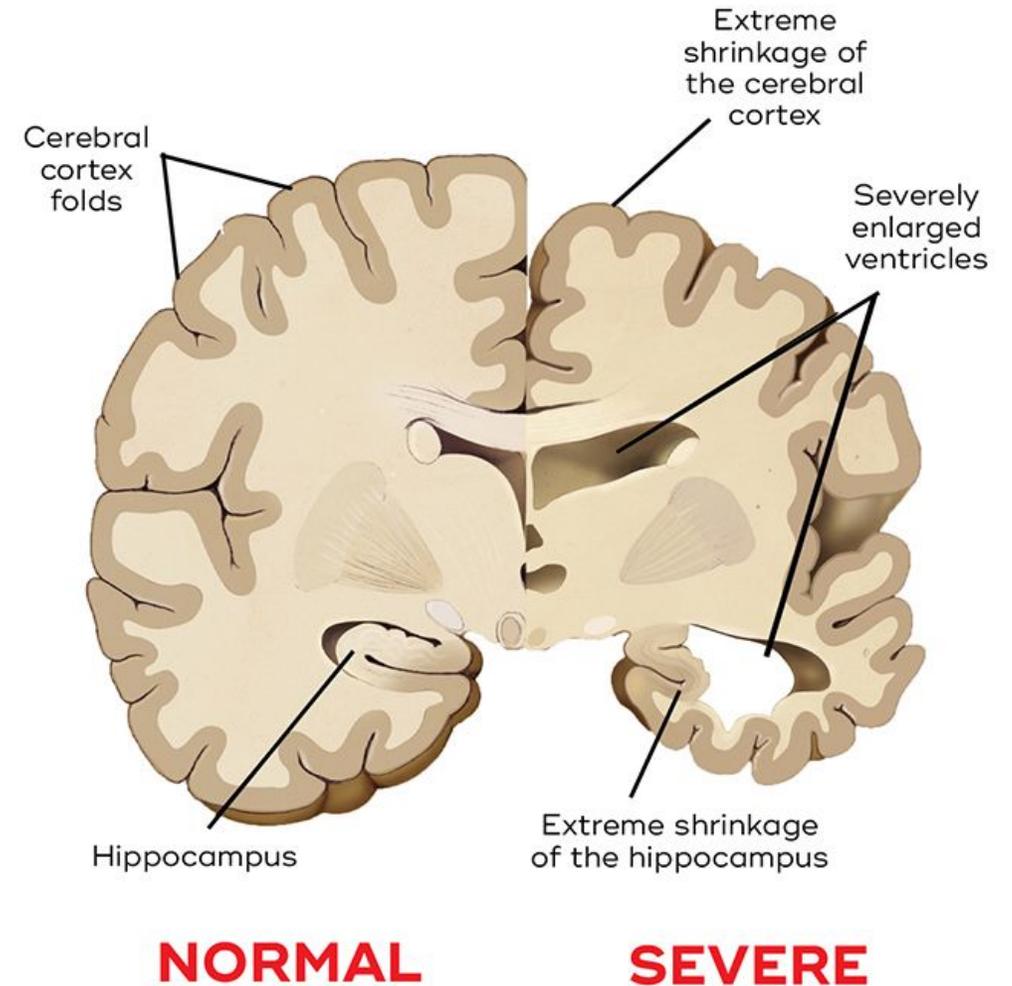
Alzheimer's disease

Alzheimer's disease is the most common form of dementia. The brain in Alzheimer's disease is macroscopically atrophic

It increases in prevalence with age and is rare in people under 45 years.

Genetic factors play an important role and about 15% of cases

- early-onset disease with autosomal dominant inheritance
- later-onset group where the inheritance is polygenic



Pathogenesis

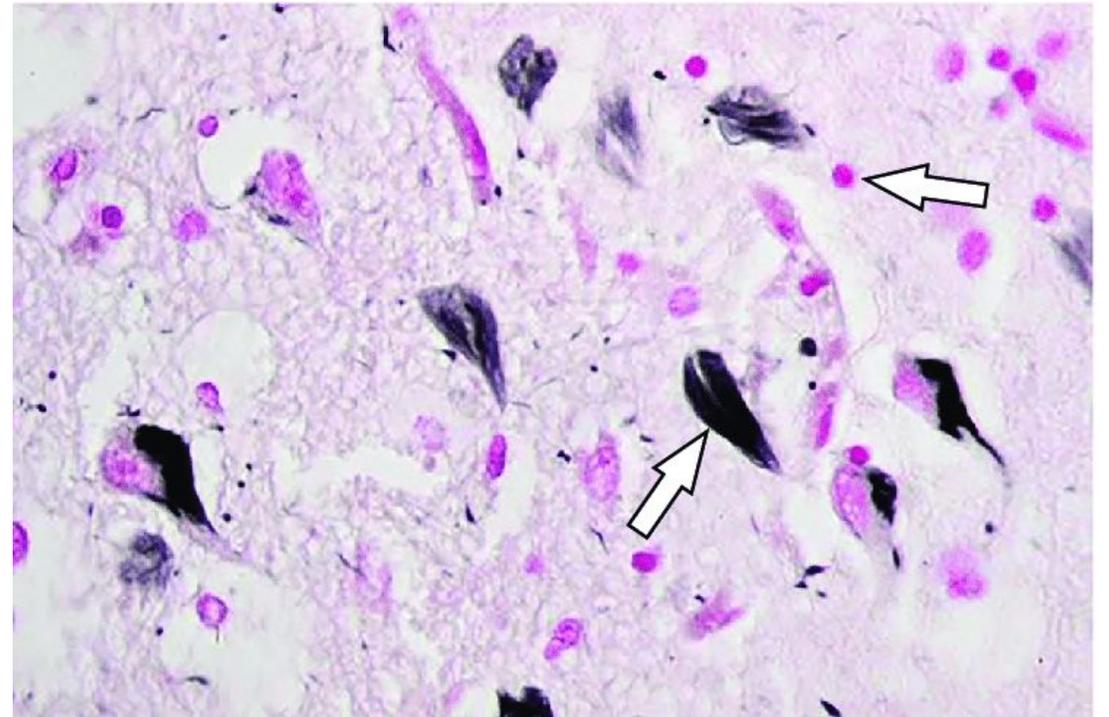
Histologically

is characterized by the presence of senile plaques and neurofibrillary tangles in the cerebral cortex.

Histochemical staining

demonstrates significant quantities of amyloid in the plaques (ubiquitin protein)

it proposed that the disease may be due to defects in the ability of neuronal cells to degrade unwanted proteins



Clinical features

The key feature is gradual impairment of the ability to remember new information. usually associated with disturbance of other cortical functions.

□ Early difficulty

- remembering recent events or activities
- recognizing familiar people or things (not just forgetting a name)
- solve simple arithmetic problems
- finding the right word for a familiar thing

□ Later

- unable to recognize even close relatives and friends
- disorientation even in familiar surroundings (visuo-spatial impairment)
- Apraxia (Difficulty performing familiar tasks)
- aphasia.

age-related benign forgetfulness

- can't find their eyeglasses
- remember someone's name
- These very common problems are most often due to slowing of mental processes with age.
- do not significantly impair a person's ability to
 - learn new information
 - solve problems
 - carry out daily activities

Investigations

Investigation is aimed to excluding treatable causes of dementia

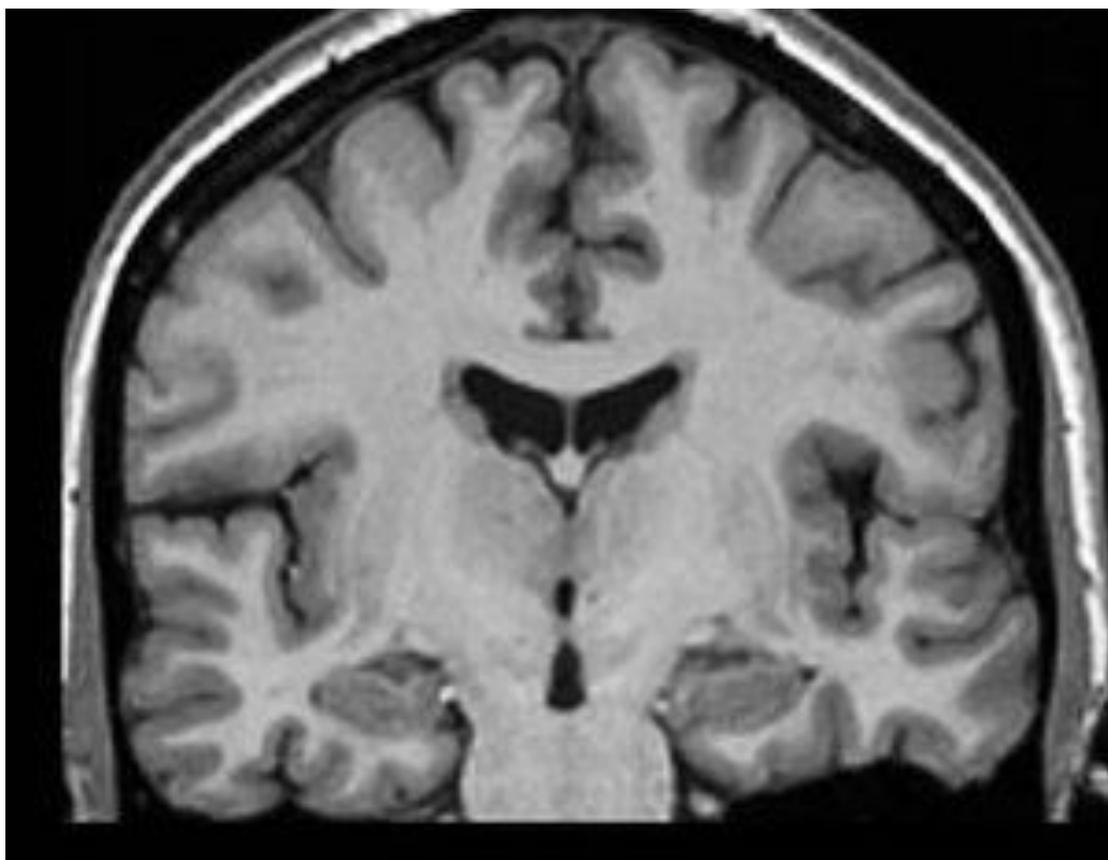
Blood tests

- CBC & ESR
- Urea and electrolytes, glucose, Calcium
- liver function tests
- Thyroid function tests
- Vitamin B12
- Syphilis serology
- ANA, anti-dsDNA

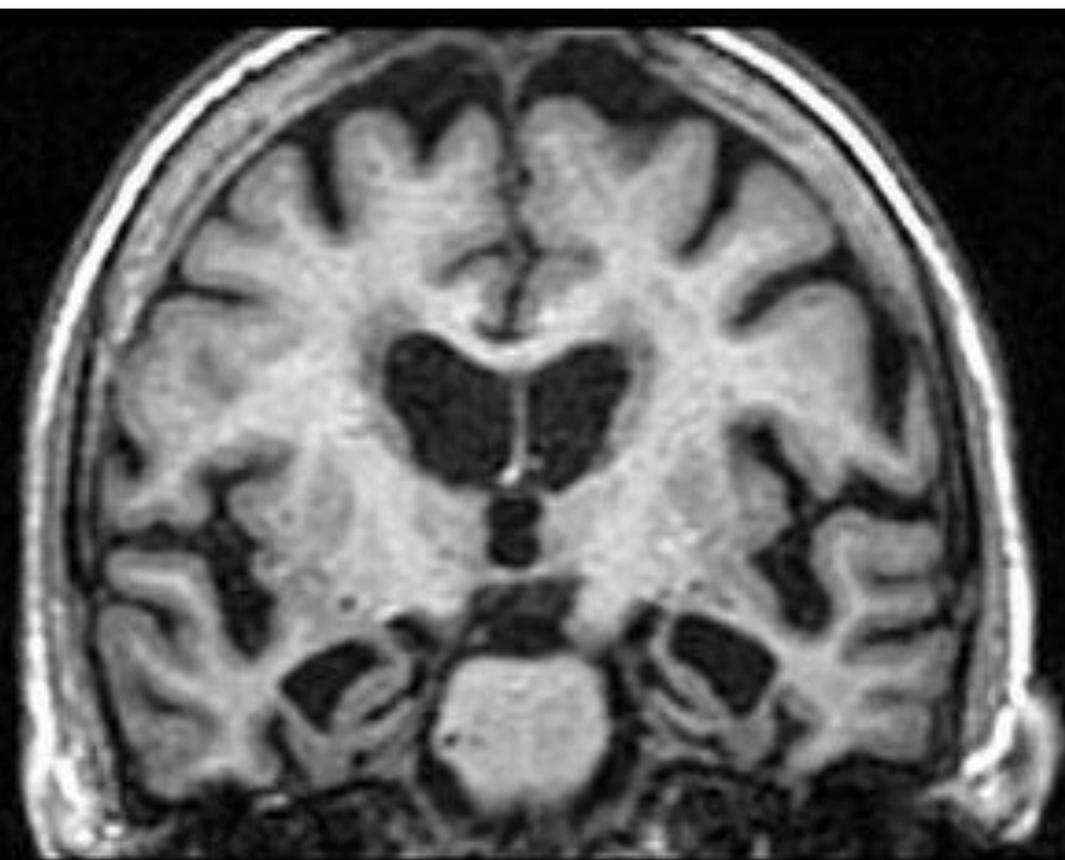
- Imaging of head
 - CT scan
 - MRI
- Chest X-ray
- Electroencephalography
- In selected patients
 - Lumbar puncture
 - HIV serology
 - Brain biopsy

MRI

Normal

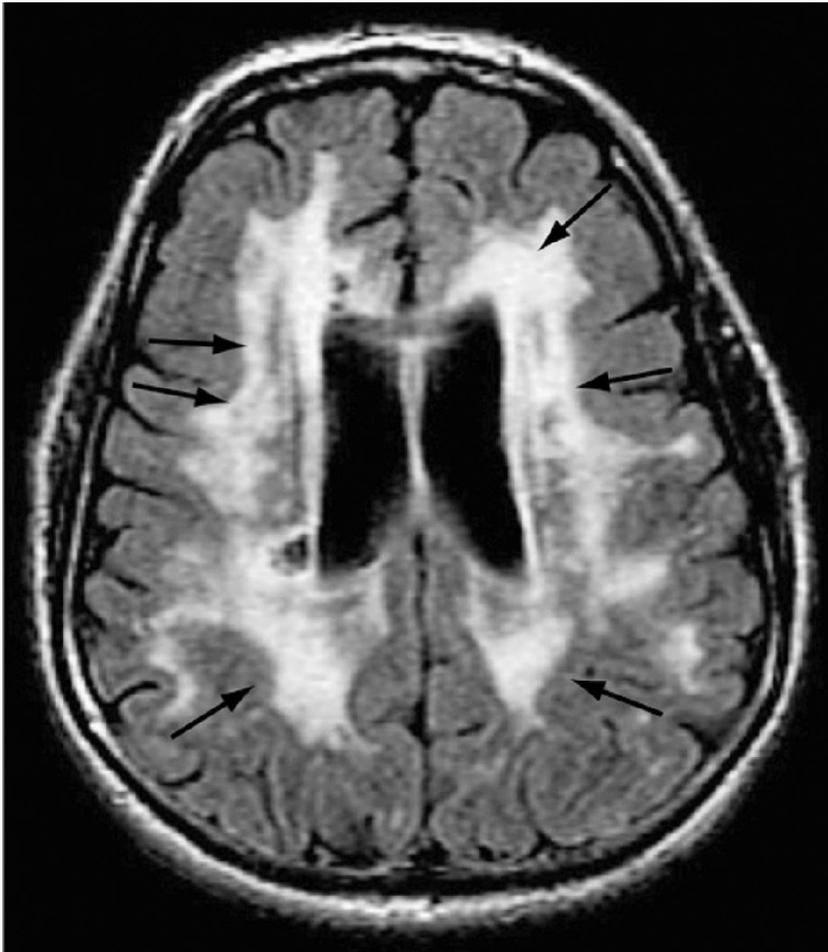


Alzheimer's

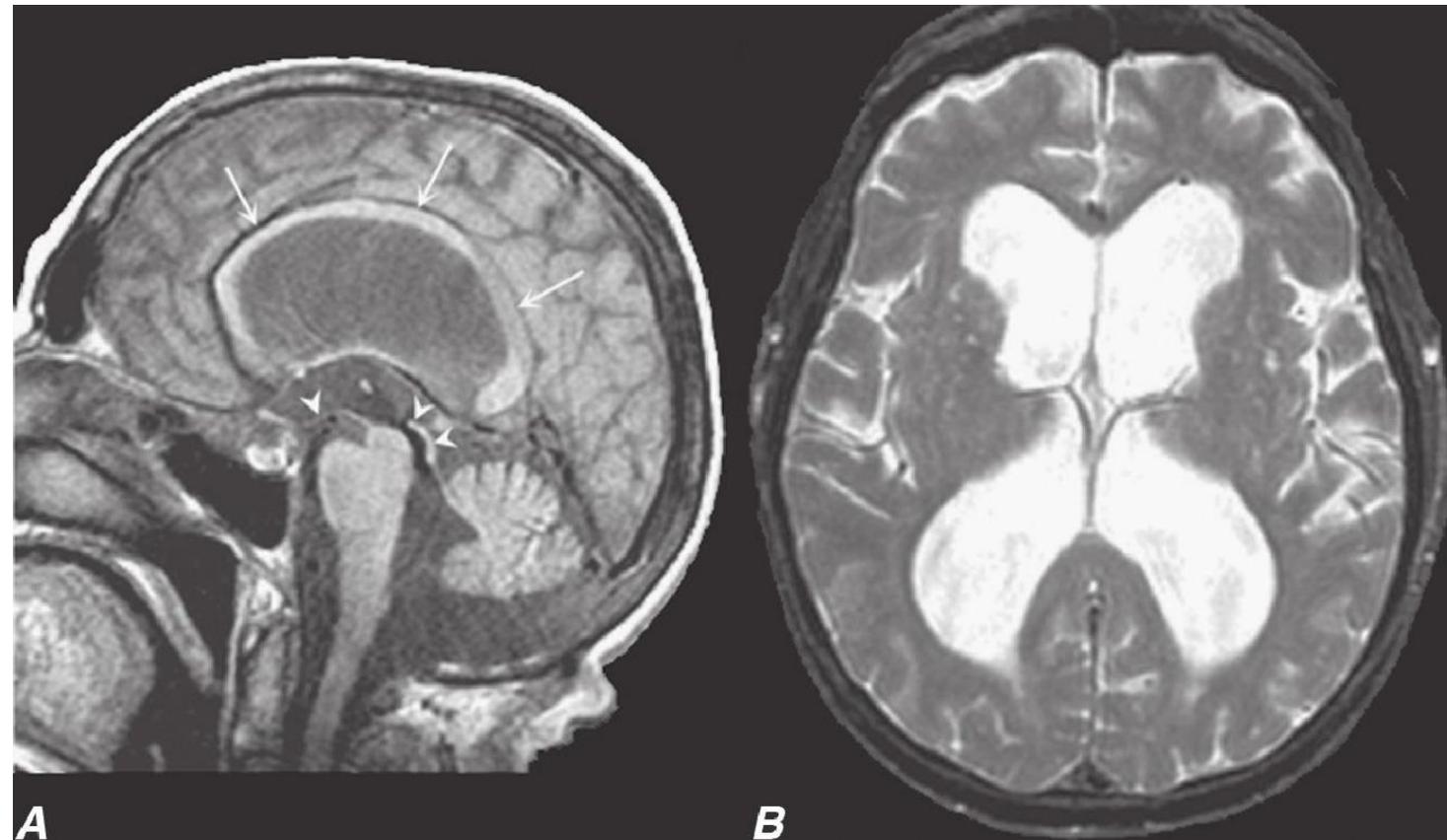


MRI

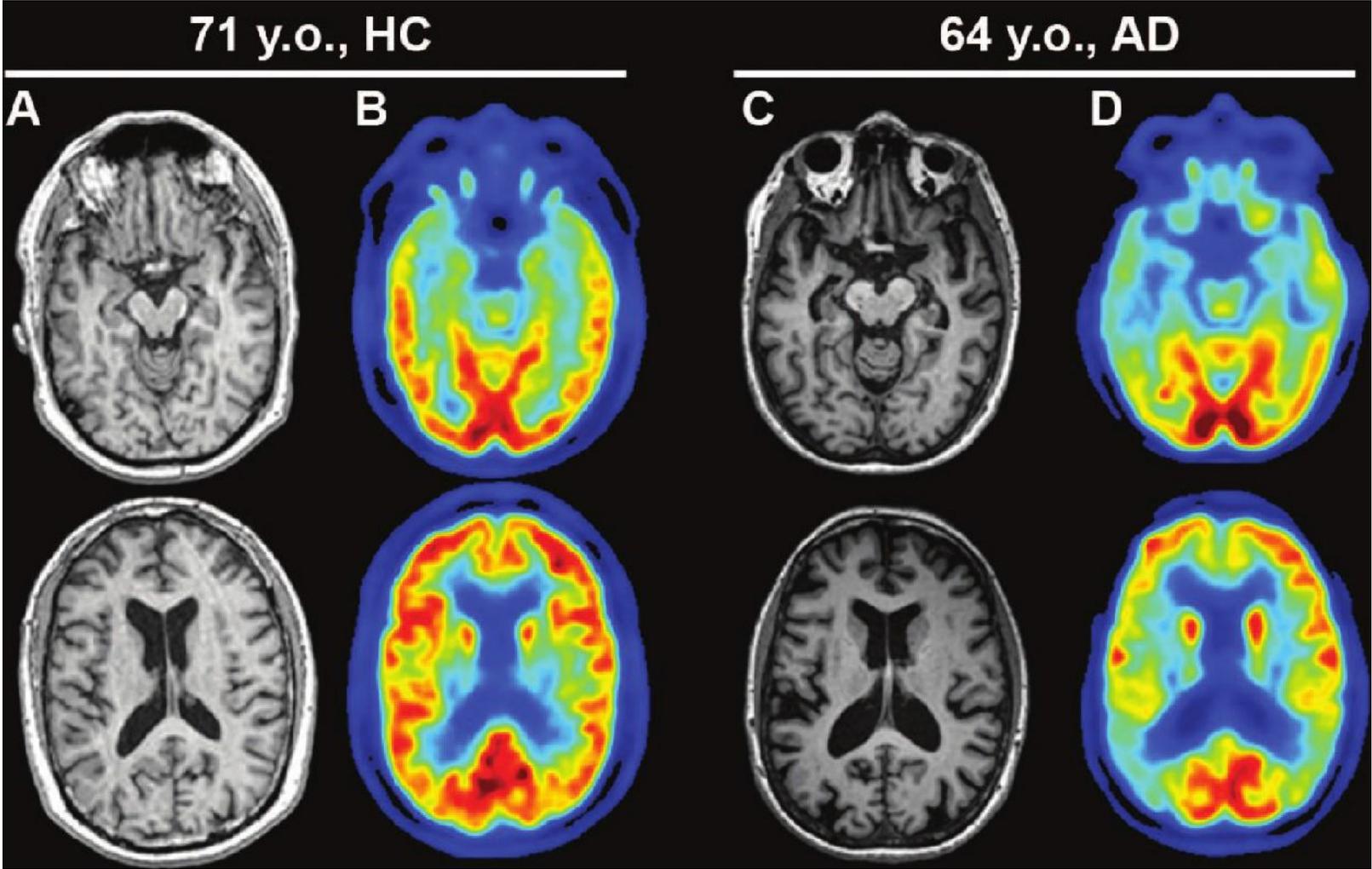
Vascular dementia



Normal-pressure hydrocephalus



Positron emission tomography



Management

There is no cure for Alzheimer's disease

Treatment focuses on relieving and slowing down the progress of the symptoms, behavior changes, and complications .

Anticholinesterases

improve cognitive functions & benefit in slowing progression of cognitive impairment in the early stages of the disease while post-synaptic cholinergic receptors are still available.

- Donepezil
- Rivastigmine
- Galantamine

Memantine

The N-methyl-D-aspartate (glutamate) receptor antagonist slightly enhances learning and memory in early disease

- The antioxidant tocopherol (vitamin E)
- Hormone replacement therapy has been given to some women who have been through menopause
- Mood-stabilizing or antipsychotic medication drugs for agitation, anger, and disruptive or psychotic behavior
- Novel treatments are under development to block amyloid plaque formation directly, by inhibiting the enzyme γ -secretase (Semagacestat and avagacestat)

Fronto-temporal dementia

Its prevalence is 15 / 100 000
in the population aged between 45 and
65 years
Symptoms usually occur before the age
of 60
caused by mutations in several genes
trigger abnormal accumulation of tau
and other proteins in the cortical neuron

- The clinical presentation started with personality change due to frontal lobe involvement or language disturbance due to temporal lobe involvement.
- In contrast to Alzheimer's disease, memory is relatively preserved in the early stages.
- There is no specific treatment
- Disinhibition and compulsive behavior can be helped by selective serotonin re-uptake inhibitors

Lewy body dementia

- This neurodegenerative disorder is clinically characterized by dementia and signs of Parkinson's disease.
- It is caused by inherited mutations in the α -synuclein and β -synuclein genes result in accumulation of abnormal α -synuclein protein in neurons
- The cognitive state often fluctuates and there is a high incidence of visual hallucinations.
- Affected individuals are particularly sensitive to the side-effects of anti-parkinsonian medication and to antipsychotic drugs.
- There is no curative treatment but anticholinesterase drugs can be helpful in slowing progression of cognitive impairment.

Delirium

Delirium is an abrupt change in the brain that causes mental confusion and emotional disturbance.

It makes person distracted or disoriented & have difficult to

- attention
- Remember think
- Sleep

Delirium is a temporary state that begins suddenly & mostly affects a person's attention

- Dementia is chronic & affects memory

Types of delirium

- Hyperactive delirium: 75% The person becomes overactive (agitated or restless).
- Hypoactive delirium: The person is underactive (sleepy and slow to respond).

high-risk populations

- Over age 65
- Male sex
- Dehydration/malnutrition
- Surgery or burns
- On dialysis
- Alcohol or drug dependence
- Vision & hearing impairment
- Functional dependence (requiring assistance)

- Cognitive impairment
 - dementia
 - Parkinson's disease
- Physical comorbidity
 - biventricular failure
 - Cancer
 - cerebrovascular disease
 - chronic liver disease
- Psychiatric comorbidity (depression)

Precipitating factors & causes

- Overwhelming reaction to infections such as pneumonia, sepsis and urinary tract infections
- Emotional stress
- Changes in the environment
- Dehydration
- Medications (polypharmacy)
 - anticholinergic effects (including antihistamines)
 - Dopaminergic
 - Corticosteroids
 - psychoactive drugs
 - Sedatives (benzodiazepines & opioids)
- Sleep deprivation
- Pain

- Alcohol or drug overdose or withdrawal.
- Concurrent illness
 - Hypoxia, hypercapnia
 - anemia
 - electrolyte imbalances, hypoglycemia
 - Shock, heart attacks, heart failure
 - Metabolic derangements
 - Hormonal
 - hyperthyroidism
 - Hypothyroidism
- Hospitalization or surgery.
- Kidney or liver failure

Clinical feature

Symptoms tend to start suddenly and get worse over the next few hours or days. The main symptom is being unable to pay attention.

hyperactive delirium

- Disorientation
- Difficulty in concentrating
- Impaired visual and/or spatial ability
- Restlessness
- Anxiety
- Hallucinations



Clinical feature

hypoactive delirium

- Disorientation
- Difficulty in concentrating
- Impaired visual and/or spatial ability
- Apathy.
- Decreased responsiveness
- Withdrawal.



Investigations

- Complete blood cell count & ESR Helpful to diagnose infection and anemia
- Glucose (ketoacidosis, and hyperosmolar nonketotic states)
- Electrolytes
- Renal and liver function tests
- Urine analysis
- Thyroid function studies
- Thiamine and vitamin B-12 levels
- Tests for bacteriological and viral etiologies including syphilis
- Drug screen including alcohol level
- HIV tests

Treatment

- Treatments depends on the cause
- Antibiotics for infections.
- Fluids and electrolytes for dehydration.
- Antipsychotic for agitation and hallucinations
 - Haloperidol
 - Risperidone
 - Olanzapine
 - Quetiapine
- antidepressants to relieve depression
- dopamine blockers to help with drug poisoning
- thiamine to help prevent confusion
- Benzodiazepines for drug and alcohol withdrawal.