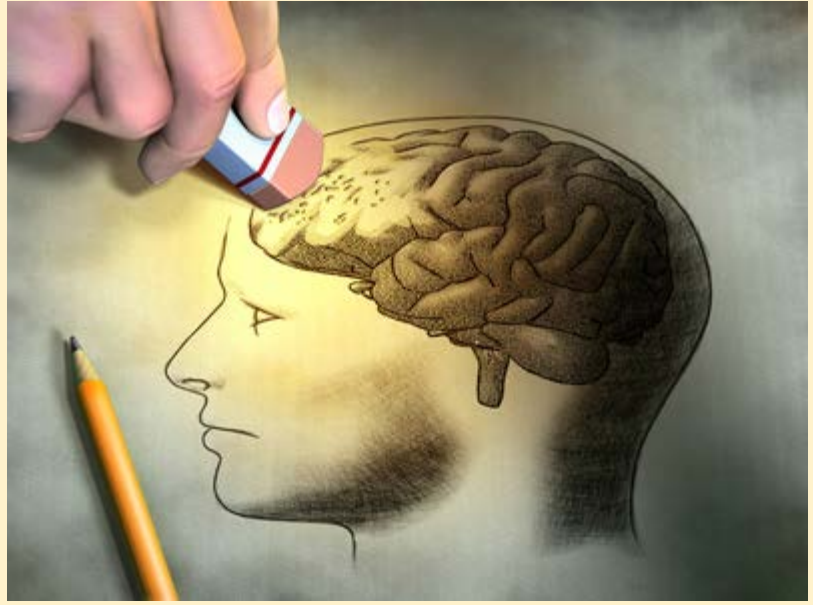

Dementia: reversible or irreversible?

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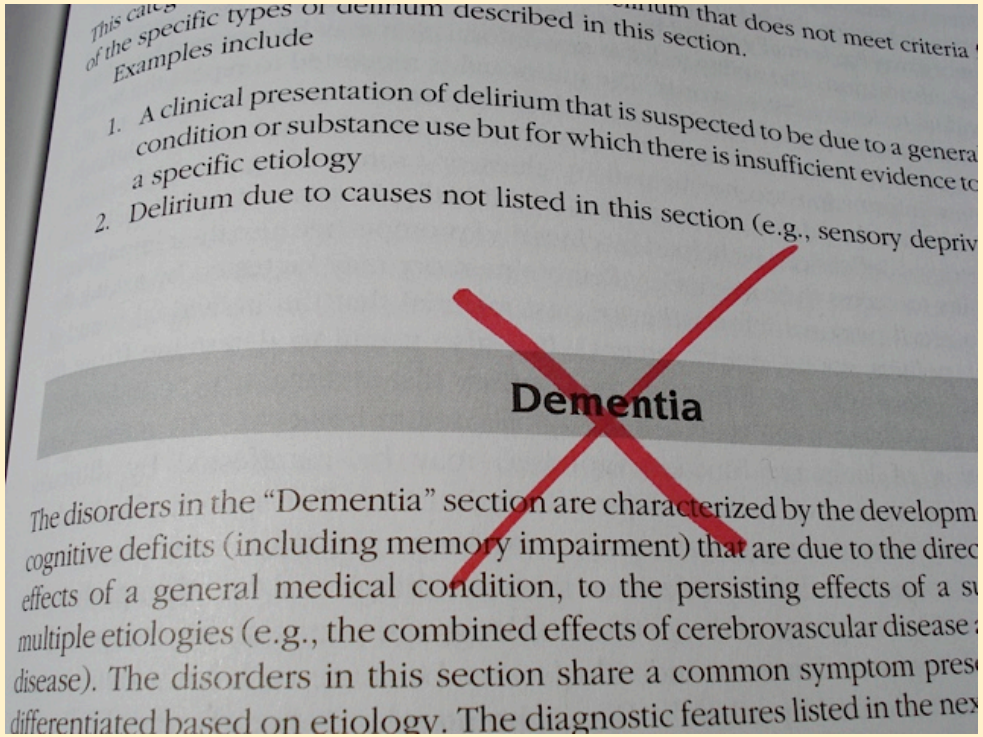


of the specific types of delirium described in this section. ...lirium that does not meet criteria ...
Examples include

1. A clinical presentation of delirium that is suspected to be due to a genera... condition or substance use but for which there is insufficient evidence to... a specific etiology
2. Delirium due to causes not listed in this section (e.g., sensory depriv...

Dementia

The disorders in the "Dementia" section are characterized by the developm... cognitive deficits (including memory impairment) that are due to the direc... effects of a general medical condition, to the persisting effects of a su... multiple etiologies (e.g., the combined effects of cerebrovascular disease ... disease). The disorders in this section share a common symptom pres... differentiated based on etiology. The diagnostic features listed in the nex...

Major Neurocognitive Disorder/Major NCD (DSM 5)
Minor Neurocognitive Disorder/Minor NCD

Dementia

- Acquired
- Symptom complex
- Significant cognitive decline from a previous level of performance in one or more of the cognitive domains
- Sufficient to interfere with independence in activities of daily living
- Must not be attributable to another mental disorder

Cognitive domains

- Complex attention
- Executive function
- Learning & memory
- Language
- Perceptual motor function
- Social recognition

Reversible versus Irreversible
What's the BIG DEAL??

- Potentially reversible causes varies from 0 to 23%
- Reversible dementias can be identified & labelled
- They often reverse completely
- Identification releases the stress from patient & caregivers
- Prompt diagnosis let prompt treatment of aetiologies

When to lose hope?

- All dementias are treatable through nursing, social work, and palliative medical interventions
- Early recognition of a progressive degenerative dementia gives patients
  - the opportunity to express or clarify end-of-life plans while judgment and personality are largely intact, and
  - enables the family to plan for the financial aspects of caring for the affected person

Irreversible DOES’NT mean untreatable

We don’t give up early

Irreversible/Degenerative Dementias

- Alzheimar’s Disease
- Vascular dementia
- Frontotemporal dementia
- Huntington’s Disease
- Dementia with Lewy bodies
- Leukoencephalopathies
- Parkinson’s Disease

Potentially reversible dementia

- Depression
- Alcoholism
- Drugs
- Vitamin deficiency
- Endocrine disorder
- Organ failure
- Chronic infections

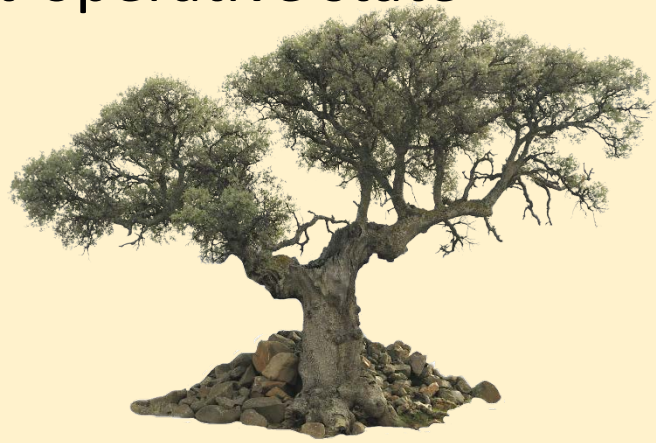
- Head trauma
- Normal pressure hydrocephalus
- Brain tumour
- Sarcoidosis
- Vasculitis
- Acute intermittent porphyria

An approach

- Exclude reversible causes first
- Careful history taking and physical examination
- Psychometric tests
- Often brain imaging
- Newer markers??

Mnemonic for reversible dementia

- **D**rugs Especially anticholinergics, narcotics and antiparkinsonian drugs
- **E**motional illness Depressive pseudodementia
- **M**etabolic disorders
- **E**ye/Ear/Environment Sensory impairment
- **N**utrition Vitamin B12 or severe B1 deficiency
- **T**umours/trauma Structural lesions in the brain, shock, post-operative state
- **I**nfection HIV, meningitis, sepsis, pneumonia, UTIs
- **A**lcoholism



Irreversible dementias

Alzheimer's Disease

- elderly patient with slowly progressive memory loss
- most common form

Frontotemporal dementia

- Personality change, disinhibition, and weight gain or compulsive eating

Dementia with Lewy bodies

- Early visual hallucinations; parkinsonism; proneness to delirium or sensitivity to psychoactive medications;
- rapid eye movement (REM) behavior disorder (RBD; or Capgras syndrome, the delusion that a familiar person has been replaced by an impostor

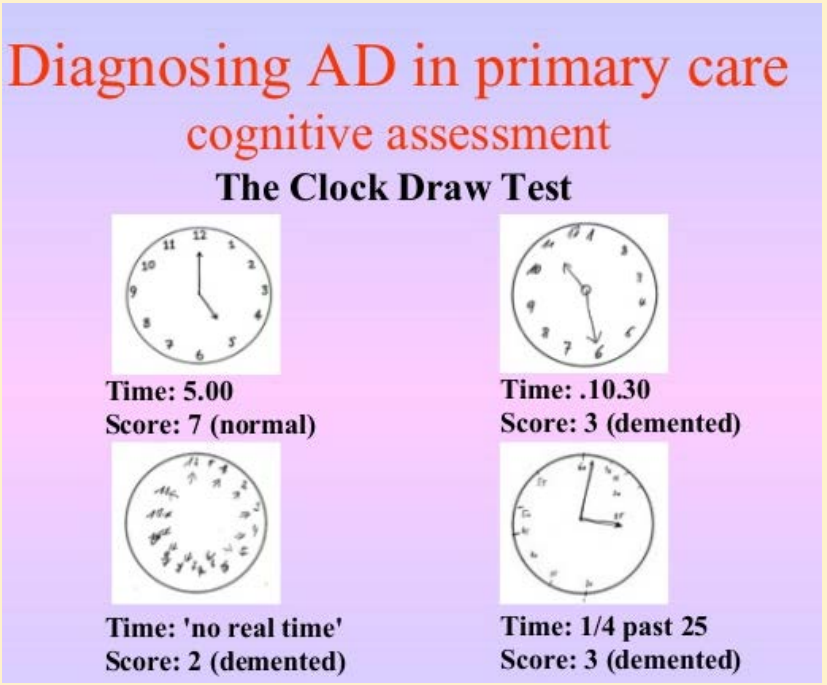
- Vascular dementia
  - A histary of stroke with irregular stepwise progression suggests
  - hypertension,
  - atrial fibrillation,
  - peripheral vascular disease, and
  - diabetes.
- Seizures may indicate strokes or brain tumour

- A history of high-risk sexual behaviours or intravenous drug use
  - central nervous system (CNS) infection, especially HIV or syphilis
- Recurrent head trauma- chronic subdural hematoma
- Alcohol abuse creates risk for malnutrition and thiamine deficiency
- Chronic antihistamine therapy for dyspepsia or gastroesophageal reflux predispose to B12 deficiency
- Stress, anxiety, familial disharmony in depressive illness
- Occupational toxin exposure
- Medication intake, especially for sedatives and analgesics

- Complete general and systemic examination
- Neurologic examination
  - Focal deficit
  - meningitis
  - Neuropathy
  - supraneuclear gaze palsy
  - signs of parkinsonism
- Features of hypothyroidism
- Major system failure

Neuropsychiatric examination

- Mini-Mental State Examination (MMSE)
- Montreal Cognitive Assessment (MOCA)
- Executive control
- Language
- Visuospatial function
- Clock drawing test



Lab investigations

For every patients

- Complete blood count
- Electrolytes
- Renal function
- Thyroid function
- Vitamin B12 level
- Neuroimaging study-CT or MRI

For selective patients

To rule out infections -

- Lumbar puncture
- HIV screening
- Viral PCRs and cultures
- Bacterial, fungal, AFB stains and cultures;
- Whipple's PCR

To rule out autoimmune-

- Autoimmune panel

To rule out malignancy-

- CT scan body with and without contrast
- Whole body PET scan
- CSF Cytology and Flow cytometry
- Serum LDH, tumor markers (PSA, CEA, etc.)
- Mammogram

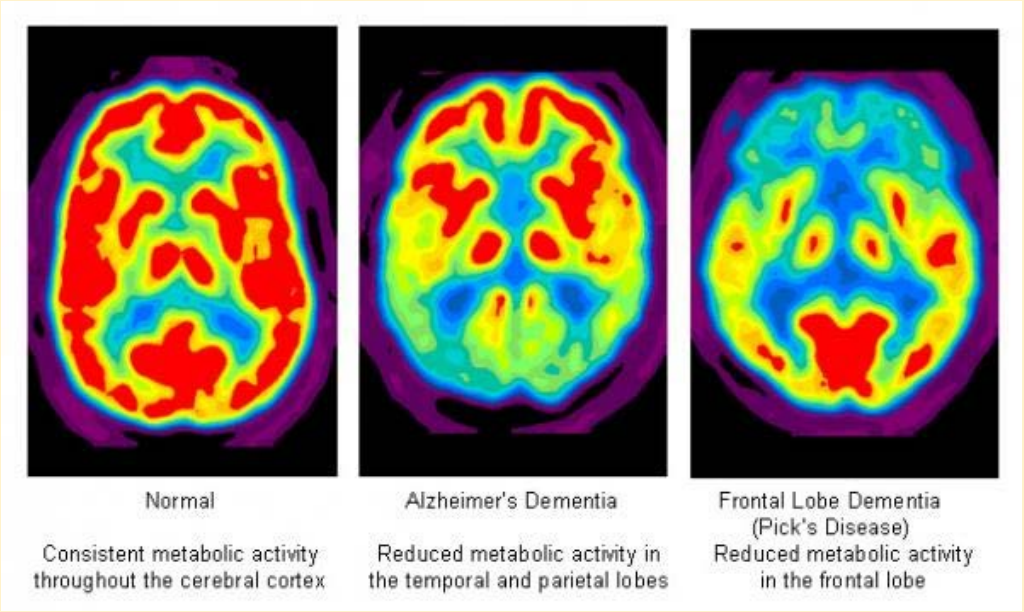
To rule out vascular causes-

- Hypercoagulability testing; coagulation profile
- Echocardiogram; carotid ultrasound
- Cerebral angiogram
- Meningeal biopsy

To rule out toxic and metabolic causes -

- 24 h urine heavy metal for lead, arsenic, and mercury, bismuth, aluminum, lithium

Brain imaging



Structural brain imaging

- CT/MRI
- Shape, position or volume of brain tissue

Functional brain imaging

- PET and functional MRI (fMRI).Fluorodeoxyglucose (FDG)-PET, which measures the use of glucose by the brain

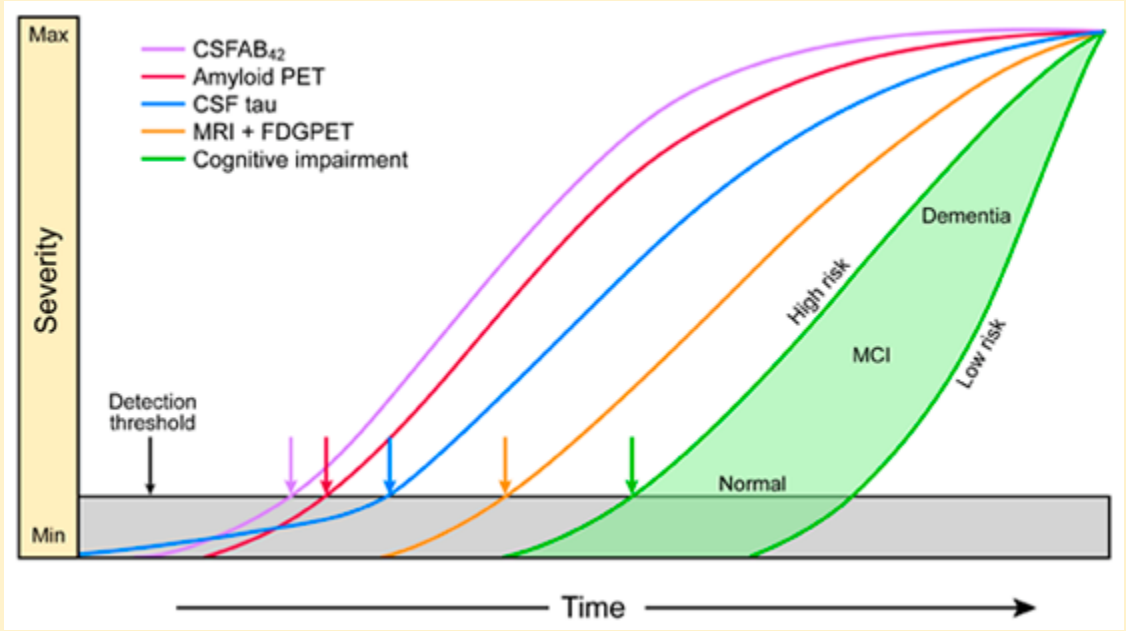
Molecular brain imaging

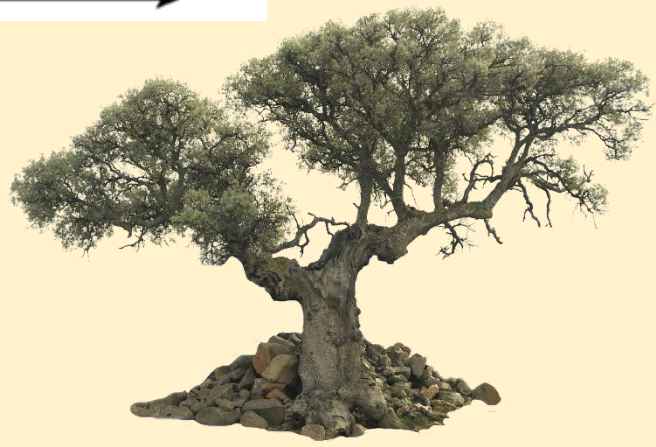
- Radiotracers that bind to beta-amyloid in the brain have been developed for use with PET scans

Cerebrospinal fluid proteins

Changes in CSF levels of

- tau protein and
- beta-amyloid
- $CSFAB_{42}$





Blood biomarkers

- Blood level of tau protein and beta-amyloid
- Under research
- Initial findings are promising

Summery

- A significant part of dementias are reversible
- Good clinical judgment is all we need to differentiate reversible dementias from irreversible ones
- First approach should be to exclude the reversible components
- Routine investigations are helpful
- Markers for degenerative dementias can help in specific cases
- Irreversible is not synonymous with untreatable

Just remember that I need you,
That the best of me is gone,
Please don't fail to stand beside me,
Love me 'til my life is done.
-Owen Darnell (An Alzheimer's Poem)

Thank You