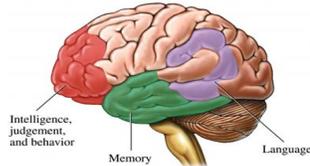
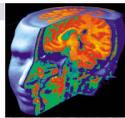


Intellectual Impairment Confusional States



- Though shalt not think, let alone state that all confused old people are suffering from dementia and people with dementia are suffering from Alzheimer's disease.

Anatomical Changes

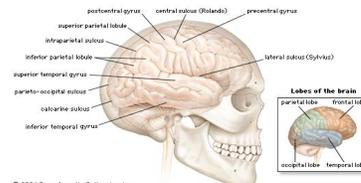


- The ageing brain gradually loses neurons and some of the supporting neuroglial cells. It has been estimated that brain mass drops by around 10% between the ages of 20 and 90 years.
- Aged neural tissue shows increasing pigmentation, largely due to the deposition of a brown pigment called lipofuscin and a black pigment called melanin.

Anatomical Changes

Loss of neurons is most apparent within the cerebral cortex. The grooves (sulci) that mark the surface convolutions (gyri) of the cerebral cortex are visibly deeper in brains taken from older people

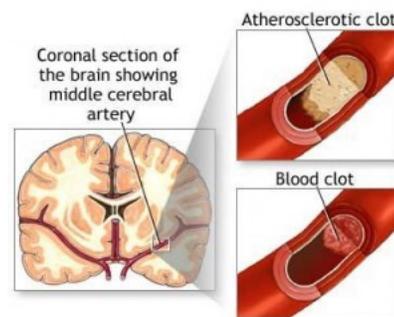
There is a gradual increase in the size of the fluid-filled chambers (ventricles) within the brain because of a progressive loss of the cells lining the ventricles. These expand and fill with more cerebrospinal fluid.



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CHANGES IN CEREBRAL BLOOD FLOW

- In old age, cerebral blood flow will have decreased by around 20% (Joynt, 2000), primarily due to the loss of elasticity and lumen diameter in aged blood vessels. These changes are often far worse in people who have underlying vascular disease and metabolic disorders such as diabetes. In those with atherosclerosis, blood flow through smaller vessels in the brain may become so slow that it may lead to transient ischaemic attacks (mini strokes) which, if recurrent, can lead to vascular dementia.



CHANGES IN THE LEVELS OF NEUROTRANSMITTERS

- There is an age-related decline in the synthesis of many neurotransmitters and their receptors. These include the catecholamines (adrenaline and noradrenalin), dopamine and serotonin. These reductions can slow reaction, impair the processing of information and, sometimes, increase the risk of depression.

Types of Brain Failure

■ Acute Confusional State:

Delirium: Acute brain failure

■ Chronic Confusional State:

Dementia: Chronic brain failure

Delirium

- **Definition: A confusional state, usually of acute onset, characterised by disturbances of memory and orientation, which can be accompanied by abnormal movements, hallucinations, illusions and change in affect confabulation.**

- Acute confusional state is a geriatric problem especially in the Frail Elderly.
- Can be a non specific sign of illness
- Any illness in the elderly can give rise to an acute confusional state.

Precipitating Factors

- Infections – chest, urinary
- Medications – precipitated by prescribing and withdrawing
- Blood sugar levels – too low; too high
- Hypotension – heart attacks, haemorrhage
- Stroke
- Alcohol – too much intake or withdrawal
- Pain
- Change in environment
- Urinary retention
- Faecal impaction
- Trauma
- Anaesthetic

Predisposing Factors

- Advance age
- Frailty
- Dementia
- Psychiatric illness
- Malnutrition
- Sensory impairment
- Chronic anticholinergic drug use such as anti-depressants

Assessing

- **History:** Whether confused. Sudden onset
- Any other symptoms (especially acute illness)
- Any medication (recently started, stopped)

- **Examination:** Neurological – Dehydrated?
- Cardiovascular – Malnourished?
- Respiratory – Any infection?

Investigations

- Full blood count
- Urea and electrolytes
- Blood glucose
- Blood cultures
- Chest X-ray
- E.C.G.
- Urine for culture and sensitivity

Managing a Patient

- Identify cause
- Treat cause
- Reassure (patient, carers, staff)
- Fluids
- Sedation if agitation cannot be controlled by other means
- Consider physical restraint only to prevent further injuries.

Dementia

- **Definition:** An acquired impairment of memory and intellectual function, caused by disease of the brain which is not associated with disturbances in the level of consciousness.

Common Causes in the Elderly

- Alzheimer's Disease
- Vascular Dementia
- Lewy Body Dementia
- Associated with Parkinson's Disease

Potentially Treatable Dementia

- Hypothyroidism
- Vitamin B12 deficiency
- Depression (pseudo – dementia)

- Pseudodementia incorporates worrying symptoms, frequently leading to great anxiety

Prevalence of Different Types of dementia

TYPE

■ Alzheimer's	60%
■ Vascular	20%
■ Lewy Body	20%
■ Treatable	5% to 10%

Prevalence varies between countries

HOWEVER

We have to remember that old persons could have more than one type of dementia.

Alzheimer's Disease

- Memory loss could be first symptom. Most marked abnormality.

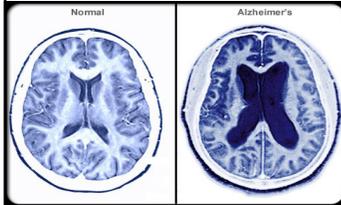
Impairment of:

- Attention
- Language (word finding)
- Visual and spatial (note, drawing)
- Learned activities
- Calculation
- Problem solving
- Judgement
- Visual, auditory perception

Pathology

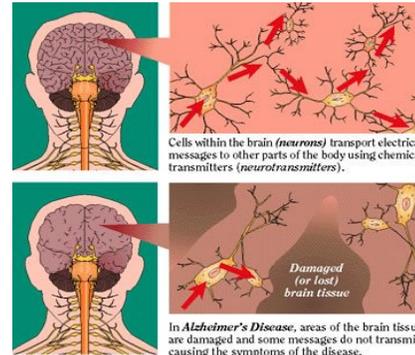
- Alzheimer's Disease is due to loss of neurones caused by Neuro – chemical deficiency (acetyl choline neuro transmitter).
- This chemical is involved with the transmission of messages within the brain.

PATHOLOGY



Alzheimer's disease leads to nerve cell death and tissue loss throughout the brain. As the disease progresses, brain tissue shrinks and the ventricles (chambers within the brain that contain cerebrospinal fluid) become larger.

The damage disrupts communication between brain cells, crippling memory, speech, and comprehension



Cells within the brain (*neurons*) transport electrical messages to other parts of the body using chemical transmitters (*neurotransmitters*).

In *Alzheimer's Disease*, areas of the brain tissue are damaged and some messages do not transmit, causing the symptoms of the disease.

Alzheimer's Disease

- Gradual Onset
- Course is usually progressive
- Course and problems vary from patient to patient
- Disease entered in medical history in 1907 (Dr. Alois Alzheimer)



Alzheimer's Disease

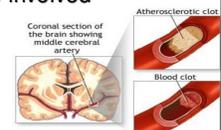
No treatment has been proven to stop AD. The U.S. Food and Drug Administration has approved four drugs to treat AD. For people with mild or moderate AD, donepezil (Aricept®), rivastigmine (Exelon®), or galantamine (Razadyne®) may help maintain cognitive abilities and help control certain behavioral symptoms for a few months to a few years. Donepezil can be used for severe AD, too. Another drug, memantine (Namenda®), is used to treat moderate to severe AD. However, these drugs don't stop or reverse AD and appear to help patients only for months to a few years.

Alzheimer's Disease

These drugs work by regulating neurotransmitters, the chemicals that transmit messages between neurons. They may help maintain thinking, memory, and speaking skills and may help with certain behavioral problems.

Vascular Dementia

- Usually caused by several brain infarcts (multi – infarct)
- Can arise from a single large infarct
- All sizes of blood vessels can be involved



Characteristics

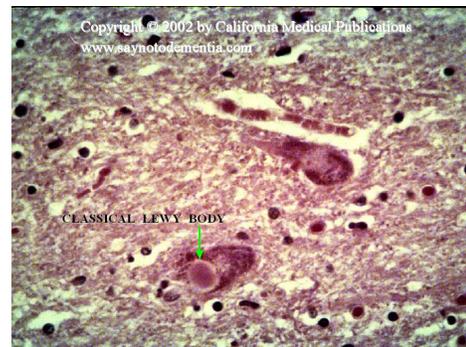
- Typical sudden onset and stepwise decline
- Cognitive impairment
- There may be emotional lability
- History of strokes and/or Transient Ischaemic Attacks
- Focal neurological signs on examination
- Presence of hypertension +/- generalized atherosclerosis
- Presence of source of thrombo – embolism (atrial fibrillation)
- Neuro – imaging evidence of cerebrovascular disease

Lewy Body Dementia

- Lewy body dementia is associated with deposits of the protein [alpha-synuclein](#) inside nerve cells in the brain. People with Lewy body dementia experience impairment in their perception, thinking, and [behavior](#). They also experience visual [hallucinations](#), Parkinson's-like symptoms, and fluctuating alertness.
- The deposits are called [Lewy bodies](#), named after Friederich H. Lewy, the researcher who first described the deposits in the early 1900s. Interestingly, [Lewy bodies](#) are also found in the brains of those with Parkinson's disease and -- sometimes -- even [Alzheimer's disease](#), making diagnosis much more complicated

Lewy Body Dementia

- Fluctuating cognition with pronounced variations in attention and alertness
- Cognitive slowing, impaired problem solving and reduced visuo- spatial abilities
- Visual hallucinations (people, animals)
- Mild Parkinson's
- Repeated falls
- Delusions



Evaluation

- History: Especially from carers
- Memory and cognitive decline
- Onset and progression
- Medication
- Past medical history such as strokes

Examination

- Neurological
- Cardiovascular
- Cognitive function

Investigations

Blood tests:

- Thyroid function test
- Vit.B12 and folate level
- Calcium levels
- Blood count
- ESR
- Electrolytes
- Liver function test
- C.T. Brain
- M.R.I.

Management

- Treat 'treatable dementias' i.e. problem of permanent damages
- No treatment yet available to reverse the effects of:
 - Alzheimer's
 - Vascular
 - Lewy Body
- Medication exists to:
 - Slow down the disease process and to prevent further damage.
 - To improve memory, cognition and activities of daily living
 - To treat behaviour problems such as: Agitation
 - Sleep disturbance
 - Depression

Medication to prevent further vascular damage:

Antihypertensive drugs
Aspirin
Warfarin if atrial fibrillation
Avoid anticholinergics
Reality orientation
User friendly environment: safety, labelling
Respite
Dementia Associations
Long term institutionalization such as psycho geriatric units and mentally infirm units.

REDUCING THE EFFECTS OF AGEING

- There is strong evidence that keeping mentally active can reduce some of the age associated problems described in this article (Mahncke et al, 2006).
- Older people should be encouraged to engage in stimulating activities such as socialising, reading and participating in games, which are thought to improve cognitive function and memory as well as reducing the risk of depression.

REDUCING THE EFFECTS OF AGEING

- It is a common misconception that ageing naturally leads to conditions such as confusion, dementia and delirium. The human brain has so many neurons that it has a natural built-in redundancy that allows it to adequately cope with the physical changes that are associated with ageing. Indeed, in the absence of disease, it is possible for adequate mental function to be retained throughout life.

INTELLECTUALLY THANK YOU