

#MADEEASY



NERUODEGENERATIVE DISEASES





What are Neurodegenerative Diseases?

- **As the name suggests, in neurodegenerative diseases, there is progressive degeneration of neurons and nervous tissue.**
- **Some common examples are:**
 - **Alzheimer's Disease**
 - **Parkinson's Disease**
 - **Huntington's Disease**



Can you please explain Alzheimer's Disease?



Etiology

- Increasing age
- Down's syndrome (as gene for beta amyloid present on chromosome 21)
- Deficiency of acetylcholine (neurotransmitter)

Pathophysiology:

- Misfolding of beta amyloid proteins, leads to their extracellular accumulation, forming beta amyloid plaques.
- Tau protein is hyperphosphorylated and starts accumulating, forming Neurofibrillary tangles.
- Hippocampus and cerebral cortex also exhibit loss of neurons, presenting as cerebral atrophy.

Clinical presentation:

- Progressive memory loss
- Decline in cognitive function

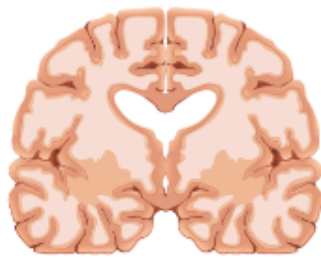
Imagine an old man forgetting everything, sometimes even his family members, and finds it difficult to carry out daily activities like putting on his shirt.

Can you please explain
its progression visually?

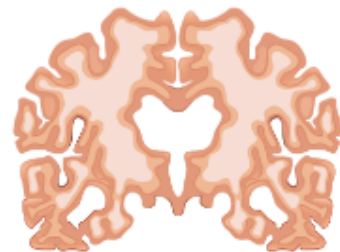


Sure, take a look at this :

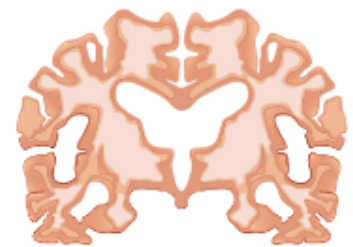
Progression of Alzheimer's Disease



Healthy Brain



Mild Alzheimer's Disease



Severe Alzheimer's Disease



Can you please explain Parkinson's Disease?



Etiology:

- Deficiency of dopamine
- Idiopathic
- Age-related

Drugs:

- Too much of antipsychotics cause Parkinson's
- Too much of anti-Parkinson's drugs cause psychosis
- Parkinson's (dopamine deficiency) and psychosis (dopamine excess) are two ends of the spectrum.

Pathophysiology

- Degeneration of dopaminergic neurons in substantia nigra
- Formation of Lewy bodies: alpha-synuclein containing eosinophilic inclusions in neurons of substantia nigra.

Clinical presentation (mnemonic: RBC)

- Resting tremor (pin-rolling, coin-counting)
- Bradykinesia
- Cog-wheel rigidity
- Mask-like face
- Postural instability

Can you please explain how
to visually remember it?



***Imagine a stooping old man with very shaky hands
and emotionless face.***



Can you please explain Huntington's Disease?



Etiology

- Autosomal dominant
- CAG trinucleotide repeats in huntingtin gene.

Pathophysiology

- Aggregates of huntingtin gene
- Atrophy of caudate nucleus

Clinical presentation

- Chorea: involuntary rapid (jerky) movements
- Decline in cognitive function
- Psychiatric symptoms

