

# PARKINSONS DISEASE

It is neurodegenerative disorder characterized by the progressive loss of the Dopaminergic neurons in the substantia nigra which innervates the dorsal striatum.

Parkinson's disease (PD) is a chronic progressive disease of the nervous system characterized by the cardinal features of rigidity, bradykinesia, tremor and postural instability.

# Parkinsons disease (PD)

## Etiology

- Most cases are of **idiopathic** parkinsonism
- viral inflammation
- Brain trauma, stroke
- Poisoning by manganese, carbon monoxide, pesticide, or 1-methyl-4-phenyl,-1,2,3,6-tetrahydropyridine (**MPTP**).

- Genetic predisposition, environmental Toxins  
aging

- Drug-induced (**iatrogenic** parkinsonism,) which often is a complication of antipsychotic therapy, especially following the use of the butyrophenone and phenothiazine drug classes .

(**Unlike idiopathic parkinsonism**, striatal content of dopamine is not reduced by administration of these drugs. **In contrast, they produce a functional decrease in dopamine activity by blocking the action of dopamine on postsynaptic dopamine receptors**).

# Clinical Findings (Symptoms)

- There is a progressive loss of dopamine neurons with age. Relatively smooth functioning of motor control is maintained until neuronal loss is such that it causes an **80% reduction of dopamine in the striatum.**
- At this time, clinical symptoms appear and then worsen with increasing neuronal loss. The onset of symptoms of Parkinson's disease is usually gradual.
- The most prominent features of parkinsonism are tremor, rigidity, and bradykinesia.  
**Tremors** are often unilateral in onset, present at rest, and cease during voluntary movement.  
**Rigidity,** is increased muscle tone

- **Bradykinesia**, an extreme slowness of movement, It results in a typical stooped posture when the person is standing or walking and absence of normal arm swinging movements.
- **The absence of facial expression** (masklike face) results from loss of facial muscle function.
- **Inability to swallow** leads to drooling, while bradykinesia of the muscles in the larynx results in changes in voice quality.
- **Orthostatic hypotension** may also be observed and may complicate therapy.
- **Cognitive dysfunction** and dementia are also seen in a small percentage of Parkinson's disease patients, especially the elderly

# Pathology

- The most prominent pathological findings in Parkinson's disease are **degeneration of the darkly pigmented dopamine neurons** in the substantia nigra, loss of dopamine in the neostriatum, and the presence of intracellular inclusion bodies known as Lewy bodies.
- Other neuronal populations are also affected in Parkinson's disease to a much lesser extent, but they may contribute to some of the other pathology seen in parkinsonism (e.g., cognitive decline, depression, and dementia).

# THERAPY

## Non-Pharmacological Treatment:-

- Physical Therapy to delay disability

Emotional Support to lessen feelings of helplessness and inadequacy in the patient

## PHARMACOLOGICAL TREATMENT (DRUGS)

Levodopa, MAO-B inhibitors, Anticholinergic drugs, COMT inhibitors

## SURGERY

Surgical procedures are now available for specific patients who no longer respond to drug treatments.