Extrapyramidal disorders

By

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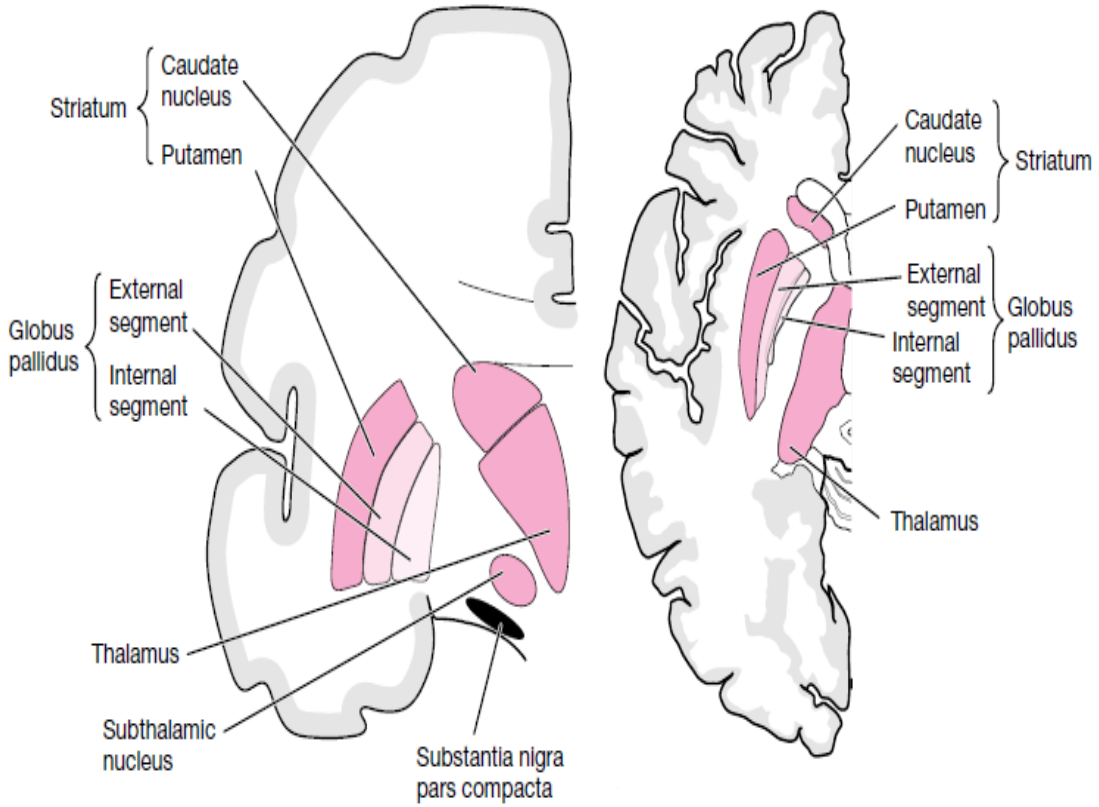
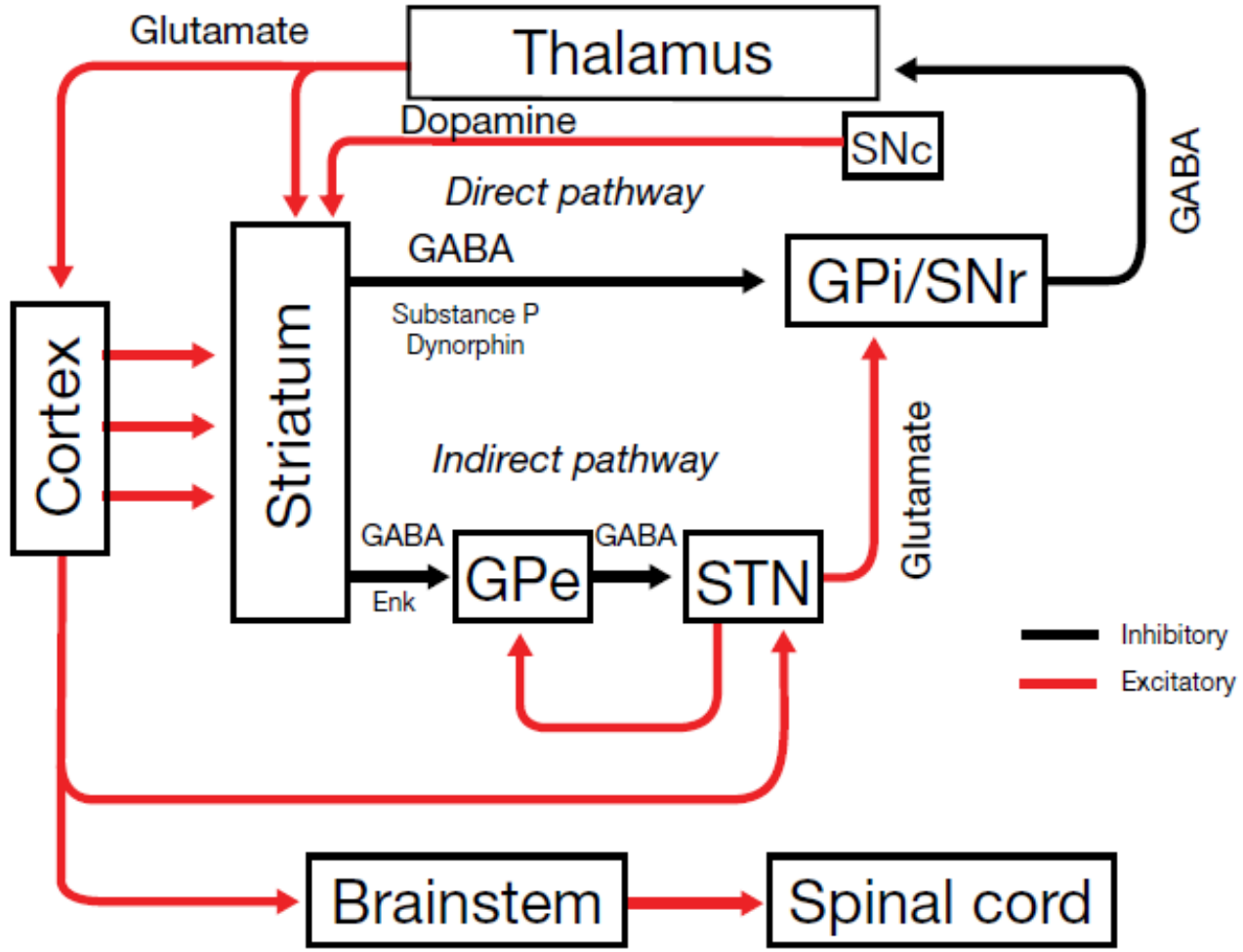
HYPOKINETIC MOVEMENT DISORDERS





Idiopathic Parkinson's Disease

Risk factors

1. Age
2. Sex (M > F)
3. Family history

Inherited parkinsonism

1. *PARK1* gene (Autosomal dominant)
2. *PARK2* (Autosomal recessive)

Clinical features

a. Tremor

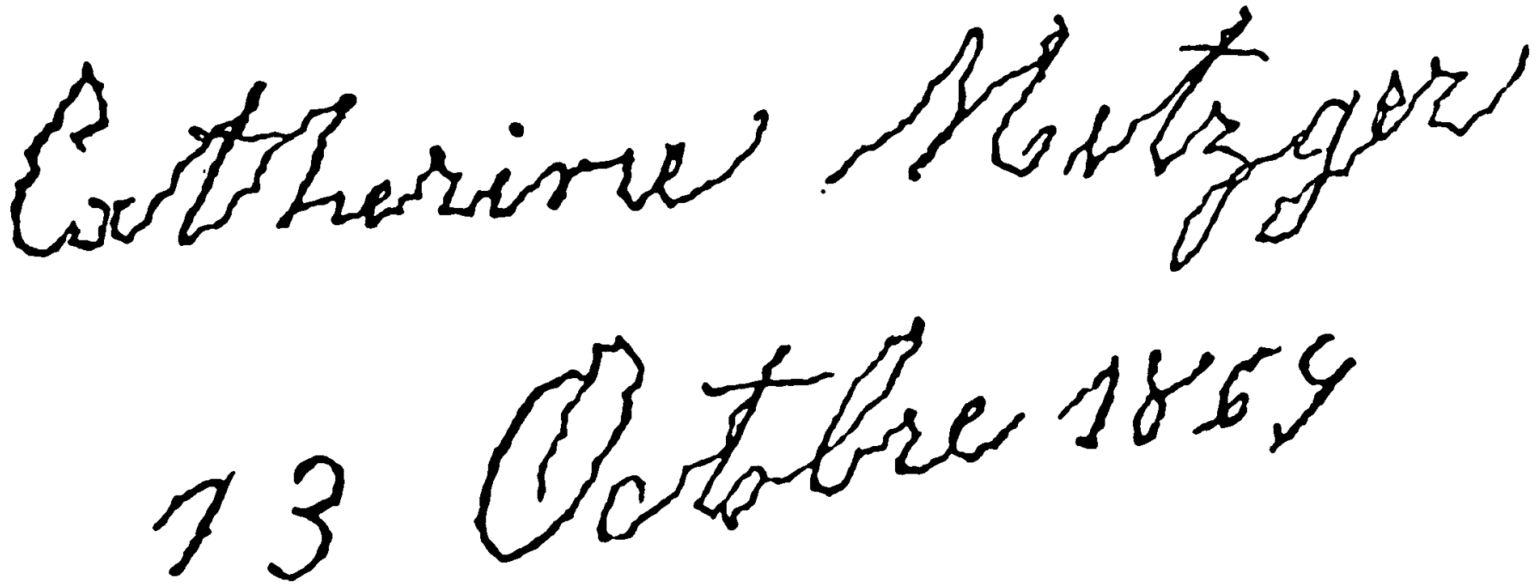
- Characterized as rest tremor
- May also be a postural or kinetic tremor (rest tremor typically dampens with posture or action)
- Usually unilateral onset in an extremity
- Tremor may spread to involve contiguous extremities

b. Rigidity

- Not velocity-dependent or direction-dependent
- “Cogwheeling”: usually indicative of superimposed tremor

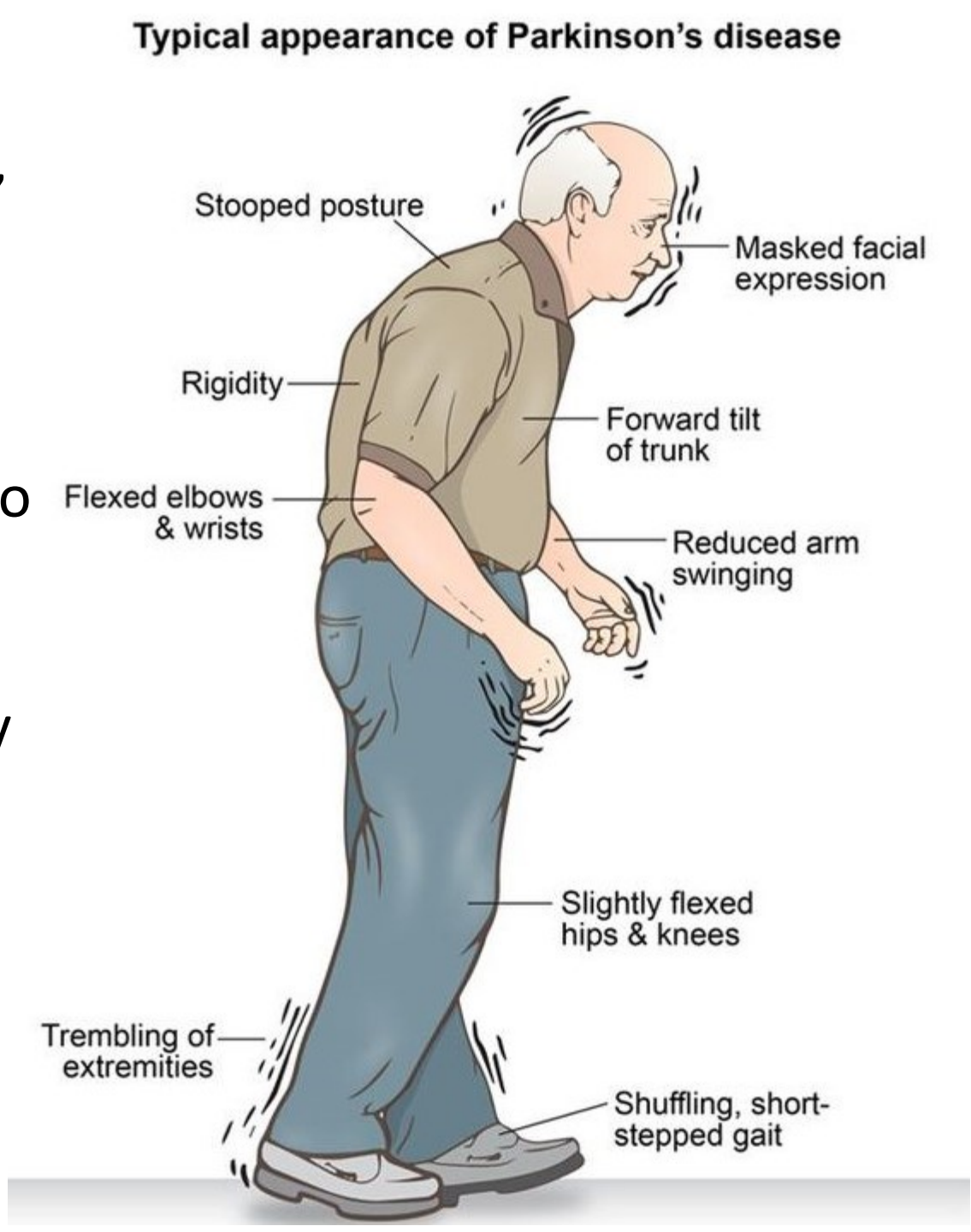
c. Bradykinesia

- Reduced arm swing
- Generalized slowness in movements
- Slowness and difficulty with manual dexterity
- Micrographia
- Masked facies (hypomimia)
- Sialorrhea because of bulbar bradykinesia



d. Gait disturbance

- Stooped posture: characteristic “shuffling” festinating gait with short stride, with tendency to lean forward
- Propulsion: involuntary and unwanted forward acceleration when patient wants to stop
- Difficulty initiating gait and gait “freezing” after gait already initiated (sudden inability to take another step)
- Difficulty with turns



e. Associated features

- Hypokinetic speech: characterized by reduced amplitude and sometimes acceleration of rate
- Autonomic features (most commonly, orthostatism, urinary symptoms, sexual dysfunction)
- Behavioral and cognitive features (mental slowing, dementia and depression)

Treatment

a. Levodopa

- Most efficacious and potent medical treatment
- Start at 1 tablet of 25/100 IR 3 times daily and increase to ceiling dose of 3 1/2 tablets 3 times daily
- Increments in dose should be made weekly because a week is required to determine cumulative effect of drug
- Greater incidence of motor fluctuations and dyskinesias than with dopamine agonists

b. Dopamine agonists

- Directly activate dopamine receptors
- Pramipexole and ropinirole: nonergolines, have lower rate of adverse effects than traditional dopamine agonists; may rarely cause sleep attacks and leg edema

c. COMT inhibitors

- They inhibit catechol *O*-methyltransferase (COMT) and increase plasma level of levodopa
- Entacapone (Comtan) (Given as 200-mg dose with each dose of levodopa)
- They act to prolong “on” time

d. Anticholinergic agents

- Usually less effective than levodopa or dopamine agonists
- May be selectively more effective for tremor and dystonia
- Most commonly used formulations: trihexyphenidyl

Adjunctive therapy

1) Amantadine (reduce the required doses of dopaminergic treatment and may be effective in reducing levodopa-induced dyskinesias)

2) Selegiline and Rasagiline

- Selectively inhibits monoamine oxidase (MAO)
- May have a synergistic effect with levodopa

Surgical Treatment

- Deep brain stimulation: it is an option when treating a patient with advance parkinsonism with severe levodopa induce dyskinesia and on-off phenomena.

Parkinson plus syndrome

1. Multiple System atrophy (early and severe autonomic symptoms and or cerebellar signs and symptoms)
2. Progressive supranuclear palsy (Axial rigidity with ocular manifestation)
3. Corticobasal degeneration (progressive asymmetric rigidity and apraxia)
4. Lewy Body Dementia (Dementia, visual hallucination)

Secondary Parkinsonism

1. Vascular (e.g. multi-infarction)
2. Medication (e.g. Neuroleptics)
3. Metabolic disease (e.g. Wilson disease)
4. Endocrine disease (e.g. Hypothyroidism)
5. Heavy metals (e.g. Mangenese)
6. Repetitive trauma (e.g. Boxers)
7. Infectious diseases (e.g. Whipple disease)
8. Normal pressure hydrocephalus