Parkinsonism

Clinical syndrome involving **bradykinesia** plus at least one of the following: **tremor**, **rigidity**, **gait abnormality**. Parkinson Disease (PD), or idiopathic Parkinsonism, is caused by degeneration of dopaminergic activity in the substantia nigra. PD generally responds to drugs like Sinemet, while Parkinsonism of other causes typically does not (for long).

Patients may report balance deficits, sleep changes, depression, **micrographia** and loss of smell early in course. In PD, symptoms often begin asymmetrically; reduced arm swing or rest tremor may be observed unilaterally.

In hospital, consider timing PT treatment around Sinemet dosing in patients diagnosed with PD. Screen for movement disorder symptoms in patients with unexplained falls, or when resulting injury may overshadow identification of the fall's cause.

Test **Rapid Alternating Movements** allowing sufficient repetition to observe for decrease in movement speed and amplitude (at least 10 reps). Cue the patient to perform fast, large movements. Use arm pronation/supination, or open/close fist, or thumb to finger tapping to test UEs. Use toe tap to test LEs.

Rigidity (unlike spasticity) is not velocity or direction dependent. Check for **cogwheeling** – a ratchet-like resistance to passive movement.

The **Froment maneuver** can help activate subtle cogwheel rigidity. While supporting the patient's arm, test passive range in a circular motion at the wrist. Instruct the patient to tap their knee with their contralateral arm. This may uncover cogwheeling on the side you are testing.

Observe for a **pill-rolling tremor** while the arms are at rest in a pronated position.

Check for postural tremor by instructing patient to maintain position of 90 degrees shoulder flexion with arms held forward. Look for action tremor with finger-nose-finger, without moving visual target.

Postural reflexes may diminish. Patients may demonstrate a posterior bias with delayed correction upon standing from a chair, or frank **retropulsion**.

Reduced **facial expression** is common.

The **Pull Test** can be useful: stand behind the patient and provide a posterior-directed external perturbation (by pulling from the anterior shoulder bilaterally) and evaluate whether the patient can recover balance with a step or two.

Gait abnormalities are common:

- Reduced trunk rotation and arm swing
- Shortened step length
- Narrowed base of support
- Impaired foot clearance
- Festinating - progressive exaggerated anterior center of gravity displacement, with reduction in step length

Initiation of movement and "freezing" may present unique challenges. Auditory cueing may be helpful, particularly for gait cadence.

Most people with PD develop **dysautonomia**. Check 3-position VS; consider compression stockings and abdominal binders.

Supranuclear gaze palsies may occur: ocular-motor range of movement (particularly vertical) may be reduced; visual smooth pursuits may look "choppy" – an appearance caused by saccadic intrusion.

Consider Hoehn and Yahr Scale staging.

Other clinical syndromes may appear similar:

Progressive Supranuclear Palsy is defined by frontal dysfunction – impaired abstract thought early; abnormal verbal fluency, motor perseveration, behavioral disturbances later. Hypometric saccades are common. Downgaze palsy is the most specific impairment for PSP.

Lewy Body Dementia involves progressive cognitive deficits and visual hallucinations, as well as physical features of Parkinsonism.

Multiple Systems Atrophy can include Parkinsonian features, but is defined by dysautonomia (sometimes isolated, earlier than other features), may predominantly look like cerebellar ataxia, and often features dysphagia. Look for anterocollis (dystonia producing neck flexion).

Corticobasilar Degeneration involves executive dysfunction, aphasia, apraxia; limb rigidity, dystonia, myoclonus (sometimes one limb, occasionally symmetric), hyperreflexia (30-50%); sometimes limb agnosia.