Disclosure Statement

I, Gerald Jogerst, MD do not have any financial interests or relationships with any manufacturers of products or providers of services I might be discussing in my presentation.

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I will not discuss any pharmaceuticals, medical procedures, or devices that are investigational or unapproved for use by the FDA.

Objectives

- Describe a multidisciplinary and functional approach to Parkinson’s disease.
- Discuss the diagnostic criteria for Parkinson’s disease.
- Compare conditions misdiagnosed as Parkinson’s disease.
- List drug and non-drug therapies.
- Provide recommendations for practice.

Parkinson’s Disease: A New Multidisciplinary Approach for this Old Actor

<table>
<thead>
<tr>
<th>Braak's Stage 1-2</th>
<th>Braak's Stage 3-4</th>
<th>Braak's Stage 5-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>locus ceruleus</td>
<td>mesocortices</td>
<td>mesocortices</td>
</tr>
<tr>
<td>dorso 4/5 nucleus</td>
<td>substantia nigra</td>
<td>substantia nigra</td>
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</tbody>
</table>

Clinical Symptoms

- Hypotonia
- Constipation
- Depression
- Articular pain
- Fatigue
- Orthostatic hypotension

Clinical Symptoms

- Bradykinesia (plus at least)
- Rigidity
- Tremor
- Postural instability

Diagnosis

- No biologic marker to confirm the diagnosis
- Underdiagnosis and incorrect diagnosis are common
- Classic signs and symptoms - tremor, rigidity, bradykinesia and postural instability
- Best differentiate from other parkinsonisms by:
  - Asymmetry
  - Resting tremor
  - Good response to levodopa

Parkinson's Disease: A Geriatrician's Perspective

Gerald Jogerst, M.D.

Handout
Features suggestive of alternative diagnoses

- Dementia preceding motor symptoms
- In first 3 years: postural instability, freezing, hallucinations (not related to medication)
- Supranuclear gaze palsy (downward gaze)
- Severe symptomatic dysautonomia
- Documentation of plausible cause of parkinsonism (focal brain lesion, neuroleptic)

Conditions Misdiagnosed as Parkinson’s Disease

- Essential tremor
- Vascular parkinsonism
- Drug-induced parkinsonism
- Dementia with Lewy bodies
- Atypical parkinsonism (progressive supranuclear palsy, multisystem atrophy)

Tremor

- Resting tremor
- 4-6 Hz
- Prominent in hands
- Absent in 25%

Rigidity

- Increased tone throughout range of motion
- Increases when limbs are moving
- By itself, not disabling
- Spasticity versus rigidity

Bradykinesia

- One of the more disabling symptoms
- Delay in starting all movements
- Slowness and poverty of movement
- Arrest of ongoing movements
**Postural Instability**
- Inability to maintain equilibrium
- Inability to react to abrupt changes in position

**Modified Hoehn & Yahr Staging**
- Stage 0 = No signs of disease
- Stage 1 = Unilateral disease
- Stage 1.5 = Unilateral plus axial involvement
- Stage 2 = Bilateral disease, no imbalance
- Stage 2.5 = Mild bilateral, recovery on pull test
- Stage 3 = Postural instability but independent
- Stage 4 = Severe disability; still able to walk
- Stage 5 = Wheelchair or bed bound.

**Decision to Start Medical Therapy (consider)**
- Effect of disease on dominant hand
- Significant bradykinesia or gait disturbance
- Personal philosophy regarding drug use
- DEGREE TO WHICH DISEASE EFFECTS FUNCTION

**Protective Therapy**
- No proven treatment to slow progression
- Selegiline-ameliorated symptoms/question of increased mortality
- High dose Vitamin E ineffective

**Symptomatic Therapy**
- Levodopa remains the most effective treatment (Sinemet 25/100 TID)
  - Most patients benefit over the entire course of the illness
  - No evidence that it accelerates the neuro-degenerative process
  - Increases life expectancy
  - Survival reduced if drug is delayed until greater disability

- Anticholinergics (Artane 0.5-1 mg BID)
- Amantadine (100 mg BID)
- Selegiline (5 mg BID - last dose mid-day) (rasagiline 1 mg daily)
  - All have mild to moderate benefit, but levodopa or dopamine agonists are required as disability progresses
- Tolcapone (COMT inhibitor) 100 mg TID monitor LFT’s
Symptomatic Therapy
Dopamine agonists
- May provide inadequate benefit (1/3 of patients have good responses)
- Always require supplementary levodopa but may be adequate alone for two to five years
- Infrequent fluctuations and dyskinesias

Dopamine Agonists
Ergot-derived (lung and cardiac valve fibrosis)
- Bromocriptine 20-40 mg/day
Non-Ergot-derived (as first-line and adjunctive therapy)
- Ropinirole up to 24 mg/day, divided TID or SR
- Pramipexole up to 4.5 mg/day, divided TID or SR
- Rotigotine up to 6 mg/24 hr patch

Late Stage Problems (Treatment and Disease)
Motor fluctuations: (in 70% treated for 15 years)
- Wearing off of drug effect
- On-off phenomenon
Dyskinesia: (may respond to amantadine)
- Peak-dose dyskinesia
- Diphasic dyskinesia
- Off-period dystonia
Psychiatric disturbances - vivid dreams, visual hallucinations, mania, hypersexuality, paranoid psychosis

Deep Brain Stimulation
- For intolerable dyskinesias or motor fluctuation while on levodopa
- Appropriate candidates have cognition relatively intact and are less than 70 yrs old.
- Benefit: reduction in levodopa dose, improvement in off-medication function and reduced dyskinesias when taking medication.
- Risks: depression, decreased verbal fluency, increased falls and impulsivity.

Support Services
- Usual Elder Services
- Specific Disease Oriented Organization
- Physical therapy – disability improves
- Occupational therapy- in home interventions
- Speech therapy- intensive therapy for 2 weeks can improve voice problems and gain may last up to 3 months.

Assisted Devices

LIFTware
Recommendations for Practice

- Carbidopa/levodopa, nonergot dopamine agonists, or MAO-B for initial treatment.
- Nonergot dopamine agonists, COMT-I or MAO-B added to levodopa to treat motor complications.
- Consistent, good-quality patient-oriented evidence.

References

