

HOSPITAL PHYSICIAN®

NEUROLOGY BOARD REVIEW MANUAL

STATEMENT OF EDITORIAL PURPOSE

The *Hospital Physician Neurology Board Review Manual* is a peer-reviewed study guide for residents and practicing physicians preparing for board examinations in neurology. Each quarterly manual reviews a topic essential to the current practice of neurology.

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Neurodegenerative Disorders: Parkinsonism

Editor and Contributor: Catherine L. Gallagher, MD

*Assistant Professor of Neurology
University of Wisconsin School of Medicine
University of Wisconsin Movement Disorders Program
Staff Neurologist, Middleton VA Hospital
Madison, WI*

Consulting Editor: John O. Fleming, MD

*Professor of Neurology
Professor of Medical Microbiology and Immunology
University of Wisconsin School of Medicine
Madison, WI*

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Neurodegenerative Disorders: Parkinsonism

Catherine L. Gallagher, MD

INTRODUCTION

Volume 8 of the *Hospital Physician Neurology Board Review Manual* focuses on neurodegenerative disorders. Clearly, the distinction between genetic and degenerative conditions is imperfect. We will focus on late-life conditions that in the majority of cases have no known single genetic cause. Part 1 of this volume discussed Parkinson's disease (PD). Part 2 addresses other causes of parkinsonism. Prototypical signs and symptoms rather than atypical (and at times overlapping) phenotypes are emphasized, and case studies are provided to illustrate the distinguishing clinical features of several of these syndromes.

PD classically presents in late life with unilateral pill-rolling rest tremor, rigidity, and bradykinesia that gradually involves axial muscles and contralateral limbs, ultimately producing postural instability. Any patient who exhibits some of the clinical signs of PD may be said to have *parkinsonism*. Approximately 75% of cases of parkinsonism are caused by PD. Parkinsonism also may be due to other primary neurodegenerative disorders (*Parkinson plus syndromes*), genetic disorders, and some potentially treatable toxic and structural conditions (*symptomatic parkinsonism*). An alternative cause of parkinsonism should be considered in a patient who: (1) has no tremor; (2) has symmetrical signs and symptoms; (3) presents with falls, autonomic instability, hallucinations, or dementia; (4) experiences early disease onset or rapidly progressive disability; or (5) has had minimal or unsustained response to dopamine replacement therapy. The essential role of the clinician is to recognize treatable conditions and to provide advice, prognostic information, and supportive care for patients with untreatable disease.

EVALUATING THE PATIENT WITH PARKINSONISM

In evaluating a patient presenting with parkinsonism, special attention should be paid to certain features of the history and neurologic examination.

HISTORY

- **Onset of symptoms.** At what age did symptoms begin? Were tremor, bradykinesia, and/or rigidity lateralized or symmetrical at onset? Were postural instability or falls early symptoms? Are cognitive problems present, such as aphasia, apraxia, executive dysfunction, hallucinations, or paranoia?
- **Previous medications.** Was the patient exposed to antagonists of central dopaminergic function? Did the patient complete an adequate trial of levodopa therapy and, if so, did motor symptoms respond?
- **Past medical, family, and social history.** Are there genetic and environmental risk factors, such as exposure to volatilized metals, recreational drugs, and repeated cranial deceleration (eg, boxing)?
- **Systems review.** Is there a history of symptoms of autonomic failure (eg, unexplained erectile dysfunction, syncope, urinary incontinence, loss of sweating)?

NEUROLOGIC EXAMINATION

- **Vital signs.** As a screen for orthostatic hypotension, blood pressure and pulse rate should be recorded in supine position and after 3 minutes standing.
- **Mental status examination.** A standard evaluation, such as the Mini-Mental State Examination (MMSE), may be followed by more specific tests sensitive for executive dysfunction (eg, reverse digit span, 1-minute category fluency). The patient should be asked to pantomime common motor activities (eg, combing hair, blowing out a match) to assess for ideomotor apraxia.
- **Oculomotor abnormalities.** During ophthalmoscopic examination, specific attention should be paid to the evaluation of saccadic eye movements. To test saccades, the patient should be asked to shift gaze between stationary objects in both horizontal and vertical planes. The examiner should note time taken to initiate the saccade, its speed, and whether it reaches its target accurately or if subsequent corrective saccades are required.¹ Normally, saccades are so rapid that they cannot be seen. An optokinetic nystagmus (OKN) strip can be used to evaluate the