

PREFACE

The field of movement disorders is relatively broad, encompassing disorders of increased movement, such as tremors, dystonia, and tics, to disorders characterized by a paucity of movement, such as Parkinson's disease. Our understanding of the pathogenic mechanisms and our treatment options are expanding at a rapid pace. This expansion ranges from the medical and surgical advances in treating Parkinson's disease to the flood of genetic abnormalities that have now been found to cause various movement disorders. Although many patients are seen by the movement disorders specialist in neurology clinics around the country, most of these patients receive their follow-up care from a primary care physician or "general" neurologist who must be versed in the characteristics and treatment plans of this diverse group of disorders.

The major goal of *Parkinson's Disease and Movement Disorders: Diagnosis and Treatment Guidelines for the Practicing Physician* is to distill this immense amount of information and to educate the practitioner about the many facets of the movement disorders field. We believe that this book fills a large void, since most texts on movement disorders are more detailed and geared toward the specialist. We have asked the chapter authors to emphasize the clinical characteristics of each disorder, discuss the differential diagnosis and the diagnostic testing, and then outline the various treatment options, as if they were teaching during a preceptorship in their clinic. To this end, we have not designed the book to be an exhaustive review of each topic; rather, it takes a general approach to each subject. We have avoided referencing each statement; a short list of further recommended reading sources is given at the end of each chapter.

The purpose of this text is to help the practitioner distinguish which disorder is being encountered, give a basic understanding for test and treatment options that are required, and synthesize any recommendations made by a consulting specialist. As the movement disorders specialist becomes busier and insurance regulations limiting specialty referrals increase, the burden of caring for these patients by the primary care physician will continue to grow. Thus, we hope that this text will offer the reader full confidence in approaching patients with movement disorders.

The text is organized into five sections: basic diagnostic principles, Parkinson's disease, other parkinsonian disorders, hyperkinetic movement disorders, and other movement disorders. In Chapter 1 of Section A: Basic Diagnostic Principles, Dr. J. Eric Ahlskog provides an extensive overview on the neurologic examination. Since movement disorders can involve all parts of the neurologic system, a detailed neurologic examination is often imperative when these patients are evaluated. Changes in speech often occur in many of the disorders, and the speech characteristics may provide important diagnostic clues. In Chapter 2, Dr. Joseph Duffy describes the varieties of motor speech abnormalities that may be encountered and provides a systematic approach to their recognition.

Given the frequency of Parkinson's disease (PD), the tremendous advances made over the past two decades in understanding the disease and its treatment, and the debates on the "best" way to treat the patient, we have devoted 12 chapters to this entity in Section B: Parkinson's Disease. In Chapter 3, Dr. Howard Hurtig discusses the pathophysiology, neurochemistry, and neuropathology of PD. This is followed by Dr. Richard Dewey's

description of the clinical characteristics of PD in Chapter 4, outlining not only the typical features, such as rest tremor and slowness of movement, but also clinical signs suggesting an atypical form of parkinsonism.

What causes PD? The intriguing search for etiologic answers has generated volumes of studies and papers, sometimes with conflicting results. This information is distilled in two chapters. The epidemiologic studies of PD, which have generated multiple clues to the etiology, are reviewed by Dr. Demetrius Maraganore in Chapter 5. This chapter covers reported risk factors and the role of genetics (including the defects in the α -synuclein gene) in addition to basic incidence and prevalence data. On the other hand, basic bench research has produced multiple lines of evidence for a variety of possible causal factors. Etiologic hypotheses generated from knowledge of biochemical mechanisms are comprehensively reviewed by Dr. Peter LeWitt in Chapter 6. This chapter includes discussion of the roles of oxidative stress, mitochondrial dysfunction, and neurotoxins and addresses etiologic mechanisms that have received less publicity, such as possible autoimmune and infectious causes.

We have divided the discussion of the medical treatment of PD into three chapters. The issue of whether our current drug arsenal includes medications that will slow the progression of PD is hotly debated, and in Chapter 7, Dr. Ahlskog tackles the theories and practical issues for the practitioner. Chapter 8, also by Dr. Ahlskog, is devoted to the various treatment options available for the patient with newly diagnosed PD. This includes decision-making regarding the use of levodopa, dopamine agonists, and numerous other agents. The complicated issue of how to treat the patient with more advanced PD is covered by Dr. Ryan Uitti in Chapter 9.

Patients with PD also have nonmotor manifestations that can be as disabling as the tremor and bradykinesia. The sleep problems of PD, including insomnia and daytime drowsiness, are addressed by Dr. Cynthia Comella in Chapter 10. Neurogenic bladder and bowel problems and symptomatic orthostatic hypotension are common issues in the PD clinic; these autonomic problems and treatment strategies are covered by Dr. Bradley Hiner in Chapter 11. Dementia, psychosis, and depression can be overwhelming factors in the patient with more advanced PD, and Dr. Erwin Montgomery discusses these in Chapter 12.

Currently, the most visible topic concerning PD is surgical treatment, which has made newspaper and television headlines for the past several years. In Chapter 13, Dr. Kathleen Shannon discusses neurosurgical intervention, including pallidotomy, thalamotomy, deep brain stimulation, and cerebral transplantation, and reviews the prospects for the future. She provides guidelines on which patients may benefit and which of the different procedures may be appropriate for a given patient.

Therapy for patients with PD does not end with medications and surgery; Chapter 14, written by Drs. Pdraig O'Suilleabhain and Susan Murphy, addresses adjunctive treatments. They include nutrition and dietary issues, which are especially important in advancing disease. They also address the role of physical therapy in management of parkinsonian motor problems.

All disorders characterized by slowness of movement are not PD, and in Section C we have devoted six chapters to discussing these other disorders. In Chapter 15, Drs. Eric Molho and Stewart Factor cover secondary causes of parkinsonism, such as vascular, toxic, and traumatic etiologies; they also provide a practical strategy for the workup of parkinsonism. Among the more common neurodegenerative disorders sometimes mistaken for PD is progressive supranuclear palsy; the key clinical signs and points that

separate this disorder from PD are covered by Dr. Mark Stacy in Chapter 16. When patients have cerebellar signs, prominent autonomic dysfunction, or resistance to dopaminergic therapy, one must consider the multiple system atrophies discussed by Dr. James Bower in Chapter 17. Inherited cerebellar disorders, including the autosomal dominant spinocerebellar ataxias, sometimes resemble sporadic multiple system atrophy and occasionally PD; these familial ataxic syndromes are reviewed by Dr. Bower in Chapter 18. Corticobasal degeneration may resemble PD early in the course. The clinical hallmarks that allow differentiation are covered by Dr. Brad Boeve in Chapter 19. The final chapter in this section, Chapter 20, by Dr. Richard Caselli, describes the various primary dementing disorders, including Alzheimer's disease, that often include components of parkinsonism.

Section D begins the discussion of disorders characterized by too much movement, or hyperkinetic movement disorders. All the chapters in this section address the characteristics of the individual disorders, diagnostic considerations, and treatment options. We begin by a discussion of the most commonly encountered movement disorder, tremor. Chapter 21, by Dr. Joseph Matsumoto, describes the different types of tremor and how to differentiate and treat them. Chapter 22, by Dr. Jean Hubble, goes into further detail about the most commonly seen tremor, essential tremor.

Dystonia is a more common disorder than is often appreciated, occurring in adulthood as torticollis, blepharospasm, writer's cramp, and other focal or segmental dystonias. These along with generalized dystonic conditions, including primary torsion dystonia developing in childhood, are reviewed by Dr. Daniel Tarsy in Chapter 23. Hemifacial spasm is sometimes mistaken for facial dystonia; this disorder, due to compression of the seventh cranial nerve, is discussed by Dr. Mark Lew in Chapter 24.

The dancing movements of chorea have origins ranging from inherited (Huntington's disease) to infectious (Sydenham's chorea) causes. Clinical characterization and treatment are covered by Dr. John Caviness in Chapter 25. Tardive dyskinesias are sometimes confused with primary choreiform syndromes. These iatrogenically induced conditions are discussed by Dr. Kapil Sethi in Chapter 26.

The lightning-like jerks of myoclonus occasionally cause diagnostic confusion; if repetitive, they may resemble tremor or the phasic movements seen in some dystonic conditions. In Chapter 27, Dr. Caviness discusses diagnostic criteria, categorization, and treatment of myoclonus.

Simple spasm of muscle may have a wide variety of causes, ranging from peripheral to central nervous system origins. In the most elementary sense, the concept of muscle spasm should include the sustained muscle contraction state of dystonia. Primary disorders characterized by muscle spasm, however, have their own distinguishing features, which separate them from primary dystonias. These disorders of muscle spasm, including the prototypical condition, stiff-man syndrome, are discussed by Dr. Michel Harper in Chapter 28.

The most common movement disorder of childhood is that of tics. This problem, however, is not confined to children and occasionally confronts internists with adult practices. The spectrum of motor and other tics, as well as the constellation of symptoms that make up Tourette's syndrome, is the topic of Chapter 29 by Drs. Kathleen Kujawa and Christopher Goetz.

A disorder that has gained much recognition in the past few years is restless legs syndrome, discussed by Drs. Virgilio Evidente and Charles Adler in Chapter 30. Dr.

Adler then covers the various uses of botulinum toxin (Chapter 31), an injectable agent that reduces movement and has application for treating multiple different movement disorders. This drug has revolutionized the treatment of dystonia and certain other hyperkinetic movement disorders.

We conclude this book with Section E, which covers other movement disorders, those that do not fit well into previous sections. Dr. Katrina Gwinn-Hardy, in Chapter 32, discusses the autosomal recessively inherited disorder Wilson's disease, which can present with hyperkinetic or bradykinetic features. This is critical to diagnose, since treatment is available; if unrecognized, it can result in irreversible neurologic damage and even death by hepatopathy.

Abnormal gait is a common component of many neurologic disorders and especially the conditions covered in this text. Recognition of the prototypical types of gaits is critical to diagnosis. Dr. Frank Rubino applies his years of clinical savvy in Chapter 33, which addresses the broad topic of gait disorders.

Commonly, patients attribute their condition to some prior trauma. How often does this occur? Although subject to much debate, the topic of trauma-induced movement disorders is covered in Chapter 34 by Dr. Sotirios Parashos. Possibly the most difficult problem for clinicians is that of a psychogenic movement disorder. In Chapter 35, Drs. David Glosser and Matthew Stern have written a very reader-friendly review of what the practitioner should consider when approaching these patients. We conclude this book with an appendix that lists many of the organizations and foundations devoted to the disorders discussed in the book.

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