HOSPITAL PHYSICIAN®

NEUROLOGY BOARD REVIEW MANUAL

STATEMENT OF EDITORIAL PURPOSE

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

NOTE FROM THE PUBLISHER:
This publication has been developed without involvement of or review by the American Board of Psychiatry and Neurology.

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Neurologic Complications of HIV Infection

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INTRODUCTION

HIV and AIDS are a major cause of morbidity and mortality worldwide. According to surveillance data from the World Health Organization and United Nations AIDS, worldwide, an estimated 33.2 million people were living with HIV and 2.1 million deaths resulted from HIV/AIDS in 2007.[1] In the United States, 1.2 million people were living with HIV and 16,000 deaths occurred as a result of HIV/AIDS in 2005.[2] In developed countries, where access to highly active antiretroviral therapy (HAART) is widespread, the incidence of AIDS-defining illnesses has decreased.[3] The incidence of neurologic complications has correspondingly decreased since the advent of HAART.[4] Despite these improvements, new patterns of HIV-related disease are emerging as a result of patients living longer, including milder forms of cognitive deficits. Furthermore, the worldwide burden of HIV infection and its neurologic complications remains high.

Neurologists must be able to recognize the varied manifestations of HIV-associated neurologic disease. An important factor in the approach to any patient with HIV infection is the degree of immunosuppression, usually defined by the number of CD4 T lymphocytes. HIV-infected patients with CD4 counts greater than 500 cells/μL (normal range) are subject to similar neurologic diseases as the HIV-negative population. As immunosuppression sets in, patients with CD4 counts in the range of 200 to 500 cells/μL are at increased risk for cognitive changes and tuberculosis.[5,6] Most neurologic complications occur at CD4 counts less than 200 cells/μL.

As with any neurologic disease, the diagnosis begins with localization. HIV can affect virtually every part of the nervous system, including the brain, retina, spinal cord, spinal nerve roots, peripheral nerves, and muscle. It is important to bear in mind, however, that in patients with advanced immunodeficiency, multiple pathologies can occur simultaneously or sequentially. A detailed review of all possible HIV-related neurologic complications is beyond the scope of this manual, but some of these are summarized in **Table 1**. The discussion that follows focuses on the more common neurologic manifestations of HIV infection and takes a differential diagnostic approach based on characterizing the lesion as focal versus nonfocal and central versus peripheral. Infections of the nervous system not associated with HIV will be covered in a later manual.

SUBACUTE MENINGITIS

CASE 1 PRESENTATION

A 27-year-old man with advanced AIDS not on antiretroviral therapy (ART) presents to the emergency department (ED) with vomiting, headache, neck pain, and change in mental status. According to medical records, he has a prior diagnosis of presumptive *Pneumocystis jiroveci* (formerly *Pneumocystis carinii*) pneumonia (PCP). A recent evaluation for pulmonary tuberculosis was negative. The patient's wife is with him and provides the history.

For several weeks, the patient has had vomiting about 2 times per day, without abdominal pain or diarrhea. He also has complained of generalized frontal headache, persistent neck pain and stiffness, and occasional shaking and chills with fever. His wife reports that, earlier in the day, the patient had been acting bizarrely and then became more confused and lethargic. He seemed clumsy and fell once. He has had no photophobia, recent head trauma, or history of previous meningitis. Past medical history is significant for AIDS. Medications include double-strength trimethoprim-sulfamethoxazole (TMP-SMX) 1 tablet daily and azithromycin twice per week. The patient moved to the United States from Honduras 5 years prior and lives with his wife. His wife reports that the patient does not drink or smoke or use any illicit drugs.

On physical examination, the patient's temperature is 101.9° F, pulse is 72 bpm, respiratory rate is 16 breaths/min, blood pressure is 144/77 mm Hg, and blood oxygen saturation is 99% on room air. In general, the patient is arousable but uncooperative; he does not respond to verbal commands in English or Spanish. His neck is moderately stiff, with multiple enlarged (1 cm) anterior and posterior cervical lymph nodes. Cranial nerves are intact. All 4 extremities move equally,