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Tracey A. Milligan

Diagnosis in Neurologic Disease 173

Tracey A. Milligan

The diagnosis of neurologic disease is relevant to the non-neurologist because neurologic symptoms are a common reason patients present to their health care provider and most of these patients are never referred to a neurologist. The diagnosis of a neurologic disease is a rewarding endeavor because it requires intellectual rigor, skill, and is of paramount importance to patient care. A tailored history and examination lead to localization and differential diagnosis. Diagnostic testing often involves neuroimaging and serum testing and also may involve lumbar puncture, electroencephalogram, nerve conduction studies, and electromyography. In the modern era, all neurologic diagnoses lead to treatments.

Examination of the Patient with Dizziness or Imbalance 191

Gregory T. Whitman

Dizziness and imbalance are common and challenging chief complaints carrying high morbidity, due to their association with falls, injuries, and loss of quality of life. The physical examination represents an opportunity to collect objective clinical data that facilitate an understanding of symptoms that might otherwise be enigmatic and ineffable. This review focuses on the examination techniques used routinely by physicians who provide specialized care for patients with dizziness and imbalance.

Gait Disorders and Falls in the Elderly 203

Michael Ronthal

Gait disorders in the elderly may be based on a neurologic deficit at multiples levels, or may be secondary to nonneurologic causes. The physiology and pathophysiology of gait problems are reviewed and bedside examination and investigative tools are discussed. The reader will have an excellent working knowledge of the subject and will know how to diagnose and treat gait disorders and falls.

Migraine and Tension-Type Headache: Diagnosis and Treatment 215

Rebecca Burch

Migraine and tension-type headache are highly prevalent. Migraine is associated with significant work- and family-related disability. Migraine

is underdiagnosed; it reasonable to err on the side of migraine when choosing between primary headaches. Barriers to appropriate treatment of migraine include lack of access to providers, misdiagnosis, and acute and preventive therapies not being prescribed. Acute, rescue, and preventive treatment options are extensive, and new classes of treatments are either available or in development. This review addresses diagnostic challenges including recognizing migraine with aura. It also summarizes nonpharmacologic, acute, rescue, and preventive treatment options for migraine and treatment of tension-type headache.

Nonmigraine Headache and Facial Pain 235

Angeliki Vgontzas and Paul B. Rizzoli

The vast majority of headache patients encountered in the outpatient general medicine setting will be diagnosed with a primary headache disorder, mostly migraine or tension-type headache. Other less common primary headaches and secondary headaches, related to or caused by another condition, are the topic of this article. Nonmigraine primary headaches include trigeminal autonomic cephalalgias, primarily cluster headache; facial pain, primarily trigeminal neuralgia; and miscellaneous headache syndromes, such as hemicrania continua and new daily persistent headache. Selected secondary headaches related to vascular disease, cerebrospinal fluid dynamics, and inflammatory conditions are also reviewed.

Concussion Evaluation and Management 251

William T. Jackson and Amaal J. Starling

Concussion is a public health crisis affecting vulnerable populations including youth athletes. As awareness increases, more patients with acute concussion are seeking medical evaluations. Internists are frontline medical providers and thus should be able to identify, diagnose, manage, and know when to refer patients with concussion. Management of concussion includes rapid removal from play, symptomatic treatment, and return to learn/play recommendations. Inappropriate management may lead to recurrent concussions, prolonged recovery, and potential long-term consequences. Understanding the key features of diagnosis, postinjury assessment tools, symptomatic treatment, and management of concussion, including return to learn/play recommendations, is essential for primary care providers.

The Alzheimer's Disease Clinical Spectrum: Diagnosis and Management 263

Alireza Atri

Alzheimer's disease (AD) care requires timely diagnosis and multidisciplinary management. Evaluation involves structured patient and caregiver history and symptom-function reviews, examination, and testing (laboratory and neuroimaging) to delineate impairment level, determine the cognitive-behavioral syndrome, and diagnose cause. Clinical biomarkers are available to aid high confidence in etiologic diagnosis. Management uses psychoeducation, shared goal setting, and patient-caregiver dyad decision making. When combined, pharmacologic and nonpharmacologic therapies mitigate symptoms and reduce clinical progression and care

burden. AD biopathologic processes develop over decades before symptoms manifest; this period is increasingly targeted in research as an opportunity to best delay or prevent AD dementia.

Cerebrovascular Disease: Primary and Secondary Stroke Prevention 295

Fan Z. Caprio and Farzaneh A. Sorond

Despite advances in earlier diagnosis and available aggressive treatments for vascular risk factors, stroke remains a leading cause of death and long-term disability worldwide. Disparities exist in stroke risk, rates of stroke, and treatment. Stroke is a heterogeneous disease with multiple additive risk factors and causes. Primary prevention of stroke focusing on risk factor modification plays an important role in reducing the burden of stroke in an aging population. Secondary prevention of recurrent strokes relies on the workup and a tailored treatment targeted at the mechanisms responsible for the incident stroke or transient ischemic attack.

Seizures and Epilepsy 309

Emily L. Johnson

Epilepsy affects 65 million people worldwide, and is a leading neurologic cause of loss of quality-adjusted life years. The diagnosis of seizures and epilepsy often depends on a careful history, and is supported with electroencephalogram and imaging. First-line treatment of epilepsy includes medical management. Antiepileptic drugs must be chosen with the patient's particular comorbidities in mind. Drug-resistant epilepsy cases should be referred to an epilepsy specialist and may be evaluated for additional medications, epilepsy surgery, neurostimulation, or dietary therapy. When caring for women, providers must take into account needs for contraception or pregnancy safety where applicable.

Multiple Sclerosis and Autoimmune Neurology of the Central Nervous System 325

Kristin M. Galetta and Shamik Bhattacharyya

Autoimmune disorders of the central nervous system are common and often affect people in the most productive years of their lives. Among primary autoimmune diseases of the central nervous system, multiple sclerosis is most prevalent in the United States. Many other autoantibody-mediated neurologic syndromes have been identified within the past 2 to 3 decades, including neuromyelitis optica and anti-N-methyl-D aspartate receptor encephalitis. Finally, the central nervous system can also be affected by systemic autoimmune diseases such as sarcoidosis. Many of these diseases are treatable when detected early.

Parkinson's Disease 337

Stephen G. Reich and Joseph M. Savitt

The diagnosis of Parkinson's disease (PD) is based on the presence of bradykinesia and either resting tremor or rigidity and there should be no features from the history or examination to suggest an alternative cause of parkinsonism. In addition to the motor manifestations of PD, there is a long list of nonmotor symptoms, several of which occur before motor signs

and are considered "prodromal" PD. These are classified as neuropsychiatric, autonomic, sleep, and sensory. There are many medical options for the treatment of PD but levodopa remains the mainstay. Deep brain stimulation and other advanced therapies are also available.

Essential Tremor 351

Stephen G. Reich

Essential tremor is one of the most common movement disorders. It is characterized by a bilateral action tremor of the upper limbs. It may be accompanied by tremor of the head, voice, or lower limbs. Essential tremor is often present for years or decades before presentation and it progresses insidiously. It is often familial and transiently responsive to alcohol. For patients requiring treatment, the two first-line medications are propranolol and primidone, which are synergistic. Patients with disabling essential tremor that cannot be managed medically are candidates for either deep brain stimulation or focused ultrasound.

Entrapment Neuropathies of the Upper Extremity 357

Christopher T. Doughty and Michael P. Bowley

Upper extremity entrapment neuropathies are common and can cause pain, sensory loss, and muscle weakness that lead to functional disability. In this article, the authors review common entrapment neuropathies of the upper extremities, including median neuropathy at the wrist (carpal tunnel syndrome), ulnar neuropathy at the elbow, and radial neuropathy. The authors discuss the pathophysiology of nerve compression and typical etiologies, as well as strategies for differentiating between common mimics such as cervical radiculopathy and for selecting between various treatment modalities.

Entrapment Neuropathies of the Lower Extremity 371

Michael P. Bowley and Christopher T. Doughty

Entrapment neuropathies in the lower limbs are a common neurologic problem and may present in any medical setting. Accurate identification and management of these nerve palsies can prevent pain, sensory loss, incoordination, and muscle weakness that may significantly affect a patient's functional mobility. In this article, the authors focus on the cause, signs and symptoms, diagnosis, and treatment of select entrapment neuropathies of the lower extremity, including palsies of the common peroneal, lateral femoral cutaneous, femoral, and posterior tibial nerves.

Peripheral Neuropathy 383

Kelsey Barrell and A. Gordon Smith

Peripheral neuropathy is a commonly encountered disorder in clinical practice. In light of an aging population and the diabetes and obesity pandemic, the prevalence of peripheral neuropathy is increasing, posing a significant public health concern. This article provides a diagnostic framework for neuropathies and summarizes treatment options.