Epilepsy is a neurological disorder that affects persons of all ages, persists for years (and even over a lifetime), and commits the individual to daily and often long-term treatment. Antiepileptic drugs (AEDs) are the mainstay of epilepsy treatment, although nonpharmacologic therapies occupy an increasingly important position.

As more AEDs become available, the challenge to the clinician is to choose the AED most likely to achieve seizure control with the least chance of acute or chronic toxicity. Thus, we consider safety as well as effectiveness. Effectiveness considers cognitive and sedating effects, effects on vision and coordination, impact on reproductive physiology, potential for teratogenicity, and effects on bone mineral metabolism. As AEDs are used for conditions other than epilepsy (ie, migraine, pain, bipolar disease, and depression), the concept of effectiveness remains relevant.

Beyond the seizure diagnosis, healthcare providers strive to establish a syndromic diagnosis. Establishing the epilepsy syndrome helps one identify probable etiology, predict response to therapy, and establish a likely prognosis. In this month's first article, Dr. Jonathan Edwards discusses the classification of epilepsy syndromes, providing examples of some of the more common types. A proper organizational framework helps the clinician successfully direct the diagnostic evaluation of a patient. Diagnostic testing for seizures includes an electroencephalogram (EEG) and, for most, neuroimaging with magnetic resonance imaging (MRI).

Since 1993, with the introduction of 10 new AEDs, selecting a medication has been more challenging, but also more rewarding. Several of these agents have similar efficacy for given epilepsy syndromes, so selection must consider tolerability, ease of use, and pharmacokinetics. Dr. Carl Bazil's article this month provides a thorough review of both the old and new AEDs. Considerations include efficacy for particular seizure types, acute toxicity, idiosyncratic reactions, chronic toxicity, teratogenicity, necessary dosing intervals, and likelihood of drug-drug interactions.

Nonpharmacologic therapies for epilepsy include surgery and vagus nerve stimulation (VNS). Surgery is the best chance for a cure in the 15% of patients who have surgically remediable epilepsy syndromes. These patients have discrete structural or functional lesions identified after an exhaustive evaluation that includes video-EEG recording of seizures, neuroimaging, neuropsychological assessment, language and memory lateralization, and an intracarotid amobarbital procedure. Properly identified candidates for cortical resection have a greater than 80% chance of permanent seizure remission.

Not everyone is a candidate for surgery. For those with medically refractory epilepsy who are not candidates for curative epilepsy surgery, VNS provides an exciting new option.