

seizure activity during the clinically evident event (i.e., abnormal, repetitive, rhythmic activity having a discrete onset and termination) clearly establishes the diagnosis. The EEG is always abnormal during generalized tonic-clonic seizures. The absence of electrographic seizure activity does not exclude a seizure disorder, however, because focal seizures may originate from a region of the cortex that cannot be detected by standard scalp electrodes. Because seizures are typically infrequent and unpredictable, it is often not possible to obtain the EEG during a clinical event. In such situations, activating procedures are generally undertaken while the EEG is recorded in an attempt to provoke abnormalities. These procedures commonly include hyperventilation (for 3 or 4 min), photic stimulation, sleep, and sleep deprivation on the night prior to the recording. Continuous monitoring for prolonged periods in video-EEG telemetry units for hospitalized patients or the use of portable equipment to record the EEG continuously for ≥ 24 h in ambulatory patients has made it easier to capture the electrophysiologic correlates of clinical events. In particular, video-EEG telemetry is now a routine approach for the accurate diagnosis of epilepsy in patients with poorly characterized events or seizures that are difficult to control.

The EEG may also be helpful in the interictal period by showing certain abnormalities that are highly supportive of the diagnosis of epilepsy. Such *epileptiform activity* consists of bursts of abnormal discharges containing spikes or sharp waves. The presence of epileptiform activity is not entirely specific for epilepsy, but it has a much greater prevalence in patients with epilepsy than in other individuals. However, even in an individual who is known to have epilepsy, the initial routine interictal EEG may be normal 50–80% of the time. Thus, the EEG has limited sensitivity and cannot establish the diagnosis of epilepsy in many cases.

The EEG is also used for classifying seizure disorders and aiding in the selection of anticonvulsant medications ([Fig. 425-4](#)). For example, episodic generalized spike-wave activity is usually seen in patients with typical absence epilepsy and may be seen with other generalized epilepsy syndromes. Focal interictal epileptiform discharges would support the diagnosis of a focal seizure disorder