incontinence is rare. First aid involves turning the patient onto a side as the seizure ends to allow the saliva to drool out the mouth, decreasing the likelihood of aspiration. Witnesses commonly describe a GTC as lasting 5 to 10 minutes or longer; however, the GTC phase rarely lasts longer than 2 minutes. The postictal phase is marked by transient deep stupor, followed in 15 to 30 minutes by a lethargic, confused state, sometimes with automatic behaviors. As recovery progresses, many patients complain of headache, muscle soreness, mental dulling, lack of energy, or mood changes lasting for hours to days. Convulsions result in a number of striking, but transient, physiologic changes, including hypoxemia, lactic acidosis, elevated catecholamine levels, and increased serum concentrations of creatine kinase, prolactin, corticotropin, and cortisol. Complications include oral trauma, vertebral compression fractures, shoulder dislocation, aspiration pneumonia, and, very rarely, sudden death, which may be related to acute pulmonary edema, cardiac arrhythmia, or suffocation. Sudden Unexplained Death in Epilepsy (SUDEP) has garnered increased attention during the past decade, but remains poorly understood.

Partial seizures of all intensities may be followed by a transient neurological abnormality reflecting postictal depression of the epileptogenic cortical area. Thus, focal weakness may follow a partial motor seizure or numbness a sensory seizure. These reversible neurological deficits are referred to as *Todd's paralysis* and last minutes to hours, rarely more than 48 hours. Examination of a patient immediately after a seizure may show transient focal abnormalities that indicate the site or at least the side of seizure origin.

Focal Epilepsy (Epilepsy Syndrome)

Focal (localization-related, partial) *epilepsy* is characterized by recurrent partial seizures. It is divided into two main groups, idiopathic and symptomatic.

Idiopathic Focal Epilepsy

The idiopathic focal epilepsies are thought to be due to subtle genetic developmental anomalies that manifest in childhood and remit during puberty. There are several syndromes including occipital, frontal, and the most common type, *benign epilepsy with central midtemporal spikes* (BECTS), which is also known as *benign Rolandic epilepsy* (BRE). BECTS represents about 15% of all pediatric epilepsies. In BECTS, seizures usually begin between the ages of 3 and 12 years in an otherwise normal child. The seizures consist of brief simple partial hemifacial motor or sensory events. There is typically twitching of one side of the face, speech arrest, drooling, and paresthesias of the face, gums, tongue, or inner cheeks. These signs may be so minor that they escape notice, although the affected child often points to his face and goes to a parent and holds on until it is over; the child then quickly resumes normal activity. Seizures may progress to include hemiclonic movements or hemitonic posturing. Secondarily generalized tonic-clonic seizures occasionally occur, usually during sleep. The parents may report only the convulsions; the focal signature can be missed unless the child is carefully questioned. The EEG reveals distinctive, stereotyped epileptiform discharges over the central and midtemporal regions that are dramatically activated by sleep with a normal underlying background. Prognosis for BECTS is invariably good, as it is for most of the other benign focal epilepsy syndromes; the seizures disappear and the EEG normalizes by mid to late adolescence. Outcome is not affected by treatment, but AEDs prevent recurrent attacks.

Symptomatic Focal Epilepsy

The symptomatic focal epilepsies are the most common type of epilepsy and are classified based on the cerebral lobe involved during the initial phase of the seizure. Temporal lobe epilepsy is the most frequent, followed by frontal, with rarer cases of parietal and occipital. Although sometimes not identified in life, all cases of symptomatic focal epilepsy have an underlying focal abnormality in the cerebral cortex such as a scar, malformation, growth, or abnormal gene expression. An individual patient with symptomatic focal epilepsy usually has a single focus. However, the focus can involve a large, multilobar circuit. Some patients have multiple foci, each with different seizure manifestations.

Temporal lobe epilepsy (TLE) is the most common epilepsy syndrome of adults, accounting for at least 40% of epilepsy cases. Habitual seizures typically begin in childhood or adolescence although onset in adulthood occurs. There may be a history of childhood febrile seizures. Most patients have complex partial seizures, some of which secondarily generalize. *Medial temporal lobe seizures* involve the hippocampal and amygdalar areas. A rising epigastric sensation or vague cephalic sensation is the most common aura symptom. Less frequently, the classical symptom of a foul smell, déjà vu, or other odd thinking occurs. Olfactory auras are referred to as *uncinate seizures* because of their origin in or near the uncus of the medial temporal lobe. In *lateral (neocortical) temporal lobe seizures* language impairment (dominant hemisphere), recurring vocalizations (nondominant hemisphere), eye blinking, or formed visual or auditory hallucinations can occur. As a temporal lobe seizure spreads to involve the dominant temporal lobe or bilateral temporal lobe structures, including the limbic system, the seizure becomes complex. A blank stare is often described by witnesses. Automatic motor behaviors, termed *automatisms,* are common in seizures that involve the limbic system (usually in the temporal lobe). Automatisms include oroalimentary signs (e.g., lip-smacking, repetitive swallowing) and repetitive hand movements (manual automatisms).

Frontal lobe epilepsy (FLE) can be difficult to diagnose because the scalp EEG may be normal or not reveal a classic epileptic discharge, even during seizures. Depending on the area involved there are at least four different *premotor* frontal lobe seizure semiological patterns. S*upplementary motor* seizures (superior frontal gyri, posterior aspect) consist of contralateral versive posturing of the head and arms such that a fencing posture is assumed; the contralateral arm is extended, the head is turned strongly to that side, and the ipsilateral arm is flexed and held either up above the head or across the chest. *Lateral frontal* seizures manifest as contralateral head and eye deviation. *Hypermotor* seizures (frontal, poorly localized) can be dramatic and consist of wild asynchronous movements and are often confused with psychogenic nonepileptic attacks; thus, they are sometimes termed *pseudo-pseudoseizures*. Almost all hypermotor seizures last less than 40 seconds and typically occur 1 to 5 times a night during sleep and less often during waking. Obscene verbal expletives are commonly uttered loudly during hypermotor seizures.