ILAE 2017 SEIZURE CLASSIFICATION

The International League Against Epilepsy (ILAE) 2017 seizure classification replaces the 1981 classification. Change in terminology is disruptive and can take a lot of work. Adoption happens over time. The effect of the update should be easier classification of all seizure types, greater clarity, and more transparency of terminology to the nonmedical and medical community.

The first part of classifying a seizure refers to whether part (focal onset) or the whole brain (generalized onset) is involved. Classification of a seizure type is only part of the seizure description. Use of other descriptive terms or even free text is encouraged. For example, a "focal impaired awareness tonic seizure" might be described as a "focal impaired awareness seizure with tonic right arm stiffening, followed by right arm clonic jerking."

Focal Onset Seizures

Focal onset seizures may occur with or without impairment of awareness, except that atonic and epileptic spasm seizures usually do not show obvious impairment of awareness.

Focal automatisms seizure: A seizure with automatic fumbling behavior, such as lip-smacking, hand-rubbing, picking at objects, walking in circles, repeating meaningless phrases, or undressing.

Focal atonic seizure: Focal, for example in one arm or leg, sudden loss of muscle tone and strength, resulting in a transiently limp limb.

Focal clonic seizure: Sustained rhythmically jerking of one part of the body or face.

Focal epileptic spasms: Sudden flexion or bending of the trunk with flexion or extension of the limbs lasting less than a few seconds. These often occur in clusters. The term infantile spasms applies to epileptic spasms occurring during infancy. Video-EEG monitoring and a brain MRI may be needed to determine whether onset of epileptic spasms is focal or generalized.

Hyperkinetic seizure: A seizure with vigorous thrashing or pedaling movements. Even though both sides of the body are usually involved with these seizures, the EEG often shows a focal and frontal lobe origin. Some people used to call these hypermotor seizures.

Focal myoclonic seizure: Irregular and brief lightning jerks of limbs or face on one side of the body.

Focal tonic seizure: Stiffening of arm, leg, or neck producing a forced posture during the seizure.

Focal autonomic seizure: A seizure whose primary effect is on autonomic nervous system functions, such as heart rate, blood pressure, sweating, skin color, hair standing on end (piloerection), and gastrointestinal sensations.

Focal behavior arrest seizure: In this seizure type, movement stops, sometimes called a freeze or a pause. Because brief behavior arrest is common and hard to recognize as being abnormal, a seizure should only be classified as a focal behavior arrest seizure if the behavior arrest is the main feature through the entire seizure.

Focal cognitive seizure: This type of seizure refers to impaired cognition (thinking) during a seizure. The impairment might affect language, spatial perception, ability to calculate math, or other cognitive functions. Do not count loss of awareness or memory (unless only memory is impaired) as a focal cognitive seizure, because awareness is used to describe other seizure types.

Focal emotional seizure: This seizure type begins with spontaneous fear, anxiety, or less often joy. There may be involuntary laughing or crying, each of which might or might not be accompanied by a subjective emotion. Gelastic and dacrystic seizures would fit into this group.

Focal sensory seizure: Sensory seizures can consist of tingling or numbness, visual symptoms, sounds, smells, tastes, tilting or spinning sensations (vertigo), and hot-cold feelings.

Generalized Onset Seizures

Generalized onset seizures are not characterized by level of awareness, because awareness is almost always impaired.

Generalized tonic-clonic: Immediate loss of awareness, with stiffening of all limbs (tonic phase), followed by sustained rhythmic jerking of limbs and face (clonic phase). Duration is typically 1 to 3 minutes. The seizure may produce a cry at the start, falling, tongue biting, and incontinence.

Generalized clonic: Rhythmical sustained jerking of limbs and/or head with no tonic stiffening phase. These seizures most often occur in young children.

Generalized tonic: Stiffening of all limbs, without clonic jerking.

Generalized myoclonic: Irregular, unsustained jerking of limbs, face, eyes, or eyelids. The jerking of generalized myoclonus may not always be left-right synchronous, but it occurs on both sides.

Generalized myoclonic-tonic-clonic: This seizure is like a tonic-clonic seizure, but it is preceded by a few myoclonic jerks on both sides of the body. Such seizures are commonly seen in people with the syndrome of juvenile myoclonic epilepsy.

Generalized myoclonic-atonic: This seizure presents with a few myoclonic jerks, followed by a limp drop. These seizures may be seen in children with Doose syndrome.

Generalized atonic: This is an epileptic drop attack, with sudden loss of muscle tone and strength and a fall to the ground or a slump in a chair. Atonic seizures usually last only seconds.

Generalized epileptic spasms: Brief seizures with flexion at the trunk and flexion or extension of the limbs. Video-EEG recording may be required to determine focal versus generalized onset.

Generalized typical absence: Sudden onset when activity stops with a brief pause and staring, sometimes with eye fluttering and head nodding or other automatic behaviors. If it lasts for more than several seconds, awareness and memory are impaired. Recovery is immediate. The EEG during these seizures always shows generalized spike-waves.

Generalized atypical absence: Like typical absence seizures, but may have slower onset and recovery and more pronounced changes in tone. Atypical absence seizures can be difficult to distinguish from focal impaired awareness seizures, but absence seizures usually recover more quickly and the EEG patterns are different.

Generalized myoclonic absence: A seizure with a few jerks and then an absence seizure.

Generalized eyelid myoclonia: Eyelid myoclonia represents jerks of the eyelids and upward deviation of the eyes, often precipitated by closing the eyes or by light. These may be associated with absence seizures in people with Jeavon's syndrome.

Unknown Onset Seizures

Clinicians using the classification will identify a seizure as focal or generalized onset if there is about an 80% confidence level about the type of onset. This means that there is significant confidence on the seizure onset and type.

Seizures without enough confidence about onset are labeled of unknown onset. The most important seizures of unknown onset are tonic-clonic, epileptic spasm, and behavior arrest (which could be either a focal impaired awareness or absence seizure).

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