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Differentiating Epileptic and Non-Epileptic events using Video EEG

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In modern neurological care, Video EEG is more than a diagnostic tool



Seizure-like episodes can arise from multiple underlying causes, not all of which are epileptic in origin. A range of medical, neurological, and psychological conditions can cause symptoms that look like epileptic seizures, making accurate diagnosis clinically difficult.

Individuals with recurrent seizure-like episodes are ultimately found not to have epilepsy. Instead, they are diagnosed with non-epileptic events (NEE) also known as psychogenic non-epileptic seizures (PNES) or functional seizures. While these episodes may look like epileptic seizures, they differ fundamentally in their underlying mechanisms. This overlap in clinical presentation, combined with specific biological causes, creates a key diagnostic challenge: Distinguishing epileptic seizures from non-epileptic events to ensure appropriate and effective treatment.

Understanding the Difference: Epileptic Seizures VS Non-Epileptic Events

Epileptic seizures are episodes caused by abnormal electrical discharges in the brain. These electrical discharges occur abruptly, affecting normal brain activities, which may lead to convulsion, unawareness, staring, confusion, and odd movements.

Non-epileptic seizures are those events that appear to be like Seizures but are not true seizures. They are not caused due to the abnormal brain electricity. Non-epileptic seizures occur due to psychological or emotional upsets. The psychological or emotional distress are expressed through the symptoms that appear to be like the symptoms experienced during epileptic seizures.

Since both can present with shaking, collapse, unresponsiveness, and confusion, clinical appearance alone is often misleading.

The Hidden Burden of Misdiagnosis

When there is confusion between epileptic and non-epileptic seizures, outcomes can be severe. If patients do not have epilepsy, they might be treated with anti-epileptic medications, which they do not need. These may result in unnecessary side effects at times.

Conversely, patients who suffer from real epilepsy may receive delayed appropriate care because of misdiagnosis or incorrect identification of their condition. This, in turn, can lead to various problems, ranging from uncontrolled seizures, possible

injuries and accidents, and untold suffering for the patients and their families.

Why Clinical Observation Alone Is Not Enough

Traditional diagnosis relies on patient history and clinical examination. While essential, these methods are limited in nature. Many seizure-like conditions show similar physical signs, making visual evaluation ineffective and unreliable. This creates a need for a diagnostic tool that directly connects physical symptoms with real-time brain activity.

How Video EEG Transforms Diagnosis

Video Electroencephalography (Video EEG) brings together continuous video monitoring of a patient with simultaneous recording of the brain's electrical activity (EEG). Patients are observed in a controlled environment until their typical episodes occur.

This allows doctors to directly match what the body is doing with what the brain is doing at the exact same moment:

- In epileptic seizures, the EEG shows abnormal electrical discharges that matches with the physical seizure activity seen on video.
- In non-epileptic events, the patient may show physical symptoms, but the EEG remains normal.

This direct correlation makes Video EEG the gold standard of differentiating epileptic seizures from non-epileptic events.

Why Accurate Diagnosis Changes Everything

For patients with epilepsy, proper diagnosis allows for proper planning of medication and treatment strategies followed by timely referral of patients to advanced therapy when needed. It creates the door for patients with nonepileptic events to have proper psychotherapy and treatment to support healing and wellness.

Restoring Clarity, Confidence, and Hope

For patients and families living with unexplained seizure-like episodes, uncertainty can be overwhelming. A clear diagnosis gives trust, direction, and emotional stability. It replaces fear with understanding and confusion with clarity. In modern neurological care, Video EEG is more than a diagnostic tool. It is a bridge between symptoms and truth, appearance and cause, fear and reassurance. By allowing differentiation between epileptic and non-epileptic events, it ensures patients receive the right diagnosis, the right treatment, and the right support at absolutely the right time.

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