Nonconvulsive seizures

A significant percentage of seizures are not motor events. These seizures can be misdiagnosed easily if a seizure disorder is not considered in the differential diagnosis. Nonconvulsive seizures can be psychic, somatosensory, or autonomic in their clinical presentation and have the potential to generalize into convulsive events. It is estimated that 25% of all cases of status epilepticus are nonconvulsive, with altered mental status being the primary clinical manifestation [1].

Electroencephalography (EEG) in the intensive care unit (ICU) is often done to detect non-convulsive seizures (NCS). The outcome of ICU patients with NCS strongly depends on the underlying etiology. The implication of NCS and other EEG findings on clinical outcome independent from their etiology is not well understood.

Al-Said et al., retrospectively identified all adult patients in the ICU who underwent EEG monitoring between January 2008 and December 2011. The main goals were to define the rate of NCS or non-convulsive status epilepticus (NCSE) occurrence in the center among patients who underwent EEG monitoring and to examine if NCS/NCSE are associated with poor outcome [defined as death or dependence] with and without adjustment for underlying etiology. The rate of poor outcome among different EEG categories were also investigated.

During the study period, 177 patients underwent EEG monitoring in the ICU. The overall outcome was poor in 62.7% of those undergoing EEG. The rate of occurrence of NCS/NCSE was 8.5% and was associated with poor outcome in 86.7% with an odds ratio (OR) of 5.1 (95% confidence interval [CI] 1.09-23.8). This association was maintained after adjusting for underlying etiologies with OR 5.6 (95% CI 1.05-29.6). The rate of poor outcome was high in the presence of periodic discharges and sharp and slow waves of 75% and 61.5%, respectively.

The cohort of ICU patients undergoing EEGs had a poor outcome. Those who developed NCS/NCSE experienced an even worse outcome regardless of the underlying etiology [2].

1)
Jagoda A. Nonconvulsive seizures. Emerg Med Clin North Am. 1994 Nov;12(4):963-71. Review. PubMed PMID: 7956893.
2)
Al-Said YA, Baeesa SS, Shivji Z, Kayyali H, Alqadi K, Kadi G, Cupler EJ, Abuzinadah AR. Non-convulsive seizures and electroencephalography findings as predictors of clinical outcomes at a tertiary intensive care unit in Saudi Arabia. Clin Neurol Neurosurg. 2018 Jun 5;171:95-99. doi: 10.1016/j.clineuro.2018.06.002. [Epub ahead of print] PubMed PMID: 29890460.