Category 1 :**Neuro critical care**

A55 - ***Incidence and prognostic significance of rhythmic and periodic eeg patterns in a cohort of patients with acute brain injury***

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Introduction:

The aim of this study was to evaluate the incidence of rhythmic and periodic EEG patterns (RPPs) and their association with clinical variables. RPPs are frequently observed in patients with acute brain injury of different etiologies but their short- and long-term prognostic significance remains uncertain.

Methods:

We retrospectively collected clinical and EEG data from adult patients admitted to the Neurointensive Care Unit (NICU) at our hospital between January and July 2023. Patients with primary or secondary acute brain injury of various etiologies (vascular, traumatic, infectious, metabolic, autoimmune) who underwent at least one EEG during their ICU stay were included and those with a previous diagnosis of epilepsy were excluded.

Results:

A total of 71 patients were included and subdivided into two groups: 14 with RPPs and 57 without RPPs (noRPP). The two groups differed significantly in age [median 66.5 years (58.5–70.5) vs 61 years (53–74), $p = 0.03$], but not in sex distribution (Pearson's chi-square test, $p = 0.27$). The most frequently reported RPPs were generalized periodic discharges (GPDs; 35.7%), lateralized periodic discharges (LPDs; 21.4%), and generalized rhythmic delta activity (GRDA; 14.3%). Regarding etiology, RPPs were most frequently observed in patients with TBI (4/14, 28.6%) and ischemic stroke (4/14, 28.6%). No significant differences were found in terms of length of hospitalization, seizure recurrence, mRS (modified Rankin Scale) at last follow up or ICU mortality.

Conclusion:

EEG monitoring in neurocritical care patients is crucial not only for seizure detection but also for identifying RPPs, which may play a role in the assessment of short- and long-term neurological prognosis.

References:

1. Rodriguez Ruiz A, Vlachy J, Lee JW. Critical Care EEG Monitoring Research Consortium. Association of Periodic and Rhythmic Electroencephalographic Patterns With Seizures in Critically Ill Patients. JAMA Neurol. 2017 Feb 1;74(2):181-188.