

PREDICTION OF EARLY INTERICTAL EPILEPTIFORM DISCHARGE (IEDs) IN ACUTE STROKE: A MULTIVARIATE APPROACH

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Background and aims

Recent studies support the hypothesis that early electroencephalography (EEG) data are associated with clinical and functional prognosis of patients with acute stroke (AS)^{1,2}. The aim of this study was to investigate clinical and radiological factors associated with the presence of early (before 72 hours from onset) interictal epileptiform discharges (IEDs) in AS patients.

Materials and methods

Between September 2020 and May 2023 clinical and neurophysiological data of AS consecutive patients who underwent point of care EEG within 72 h from onset were retrospectively analyzed in University Hospital of Trieste. Patients with stroke mimic or conditions that precluded EEG execution were excluded. IEDs were identified according to the International Federation of Clinical Neurophysiology criteria. Modified Rankin Scale (mRS) at 3 months was used to measure clinical outcome. A multivariate logistic regression model identified variables associated with IEDs.

Results

A total of 647 AS patients (women, 48%; median age, 77 years) were included in the study. The percentage of patients with modified Rankin Scale of 3 to 6 at 3 months was 61% in IEDs group and 35% in not-IEDs group. A multivariate analysis demonstrated that female sex (OR 1.097, 95% CI: 1.027-1.733, $p = 0.006$), NIHSS score at admission (OR 1.007, 95% CI: 1.000-1.013, $p = 0.036$), hemorrhagic stroke (OR 1.108, 95% CI: 1.009-1.216, $p = 0.032$), dyslipidemia (OR 0.922, 95% CI: 0.862-0.986, $p = 0.018$), and the presence of acute infectious disease (OR 1.122, 95% CI: 1.018-1.238, $p = 0.021$) were independently associated with IEDs on early EEG.

Figure 1: mRS at 3 months

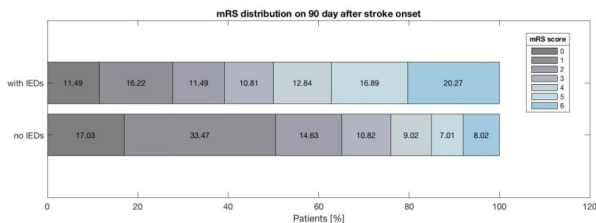


Figure 2: clinical cases compared

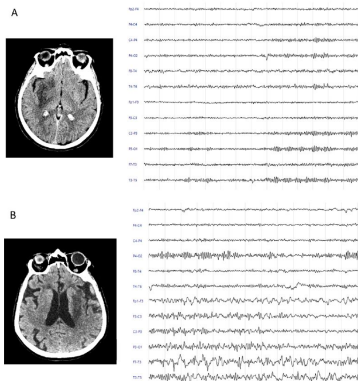


Table 1: multivariate analyses

	p-value	Odds Ratio	CI 95%
Female Sex	0.006	1.097	1.027-1.733
Baseline NIHSS	0.036	1.007	1.000-1.013
Hemorrhagic Stroke	0.032	1.108	1.009-1.216
Atrial Fibrillation	0.743	1.012	0.940-1.090
Dyslipidemia	0.018	0.922	0.862-0.986
Sum Lobes	0.425	1.013	0.981-1.047
Cortical Lesion	0.102	1.077	0.985-1.177
Supratentorial Lesion	0.462	1.046	0.928-1.179
Acute Infection Disease	0.021	1.122	1.018-1.238

Conclusions

Early IEDs on EEG performed within 72 hours of stroke onset are associated with poor outcome (mRS 3-6 at 3 months). Female sex, NIHSS score at admission, hemorrhagic stroke and the presence of acute infectious disease are risk factors for IEDs; dyslipidemia is a protective factor for IEDs.

References

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