

EEG correlates in the three variants of primary progressive aphasia

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State of the art. The analysis of EEG cortical sources is promising for the investigation of neurodegenerative disorders. The aim of this study is to explore its value in the characterization of the three clinical presentations of primary progressive aphasia (PPA).

Methodology. A resting-state 19-channel EEG was obtained in 48 patients diagnosed with PPA (21 nonfluent/agrammatic variant PPA [nfv-PPA], 18 logopenic variant PPA [lv-PPA], 9 semantic variant PPA [sv-PPA]) and in 21 matched healthy controls. Using eLORETA, EEG current source density (CSD) values were estimated at voxel-level and compared among groups of patients and controls.

Results. Patients showed a low-to-moderate cognitive impairment. Lv-PPA cases showed a higher delta density over the left frontal and temporal regions when compared to sv-PPA subjects, and in left precuneus and posterior cingulate when compared to nfv-PPA patients. They also displayed a higher delta density in left frontal, parietal and temporal regions than healthy subjects, and lower alpha1 density in left occipital regions compared with other patient groups. Lv-PPA patients also showed reduced alpha2, beta1 and beta2 density over the left occipital regions when compared to healthy subjects. No significant differences were found in terms of CSD among sv-PPA, nfv-PPA and healthy subjects.

Conclusion. Consistently with our previous studies, findings in PPA patients suggest that Alzheimer's disease (AD), but not fronto-temporal degeneration (FTD), might induce a characteristic disruption of the cortical electrical activity, detectable by EEG. EEG might thus help in the differential diagnosis between AD-related and FTD-related PPA variants.

Conflicts of interest

None