

## ABSTRACT

### **Correlation of qEEG Delta Theta Ratio with Cognitive Impairment on Post Stroke Subject in Rumah Sakit Umum Pusat Dr. Sardjito: A Cross Sectional Study**

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**Background:** Defined as a focal or global disturbance of cerebral function, stroke, is a condition occurs due to various reasons and is an important cause of death and disability in the world, including Indonesia. The brain works by conducting electrical impulse that can be monitored by electroencephalogram (EEG). Five known brain waves index that differs based on amplitude and region, gamma, alpha, beta, delta, and theta has a strong association with cognitive outcome. A comparison between Delta and Theta wave of quantitative EEG called Delta Theta Ratio in determining cognitive outcome, unfortunately, haven't been studied much, hence this study is conducted. As we know, there is a wide range of cognitive impairment as a manifestation from both ischaemic and hemorrhagic stroke, and in this study, we assessed the cognitive impairment using a functional instrument called Montreal Cognitive Assessment (MOCA-Ina). The correlation between delta theta ratio and moca-ina score was investigated. Predicting the possible cognitive outcomes of a stroke may act as preventive management as well as diagnostic approach needed to minimize the decreased quality of life of all patients.

**Aim:** The purpose of this study is to find the correlation between the qEEG Delta Theta Ratio in a post-stroke patient with cognitive impairment.

**Method:** The method for this study was a cross-sectional design. A medical record of qEEG record that fulfilled the inclusion and exclusion criteria was obtained from the patient in Unit Stroke, Bangsal Saraf, Poliklinik RSUP dr. Sardjito. The patient was asked to completed the MOCA-Ina questionnaire. The statistical test used was Correlation Analysis using the Spearman Coefficient Correlation.

**Results:** This study involving 31 post-stroke subjects shows a positive correlation between Delta Theta Ratio and MoCA-Ina score that is statistically significant ( $r=0.492$ ;  $p=0.005$ ).

**Conclusion:** There is a correlation between delta theta ratio with cognitive impairment on post-stroke patient.

**Keywords:** Stroke, qEEG, cognitive impairment, MOCA-Ina, delta theta ratio