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Reliability of clinical dwi mismatch approach to predict patient with the probability of large infarct growth: A comparison of the percentage of infarct growth and clinical dwi mismatch status of the patients with Acute Ischemic Stroke

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Purpose: The purpose of this study is to highlight the reliability of clinical DWI mismatch (CDM) in the identification of patients with large infarct growth.

Methods: We prospectively reviewed 21 ischemic stroke patients who underwent DWI imaging within 72 hours from stroke symptoms onset. Description of images was made by experienced radiologists. Lesion volumes were assessed by manually outlining the DWI infarct lesions area. The percentage of infarct growth was calculated by dividing the difference between second and first infarct volume by the first infarct volume times 100. The NIHSS scores were assessed by an experienced neurologist. CDM was defined as NIHSS score ≥8 and initial infarct volume on DWI ≤ 25 mL.

Statistical Tests: We assessed the relationships of variables within different groups of CDM using nonparametric tests— Kruskal-Wallis and chi-square test. Sensitivity and specificity of CDM to predict large infarct growth were tested by using crosstabs table.

Results: CDM was present in 36.8% of our patients and was associated with the percentage of infarct growth (P < .01). The mean percentage growth was high in patients with CDM (211.8%) while it was low in the group of patients without CDM (5.7%; group B and 10.7%; group C). The sensitivity and specificity of CDM to predict infarct growth was 77.8% vs 100% with a likelihood ratio of 15.4 (P = .0004).

Conclusion: The approach of comparing CDM and percentage of infarct growth proved that the concept of CDM can accurately indicate the existence of a large volume of tissue at risk of infarction—penumbra.

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