

Correlation Study Between Inflammatory Response and PSCI in Patients with Acute Ischemic Stroke

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Abstract

Objective: To explore the correlation between the inflammatory response and the occurrence of Post-Stroke Cognitive Impairment (PSCI) in patients with acute Ischemic Stroke (AIS). **Methods:** A total of 71 patients diagnosed with AIS in the Department of Neurology of the First Hospital of Hebei Medical University from January 2022 to December 2022 were included. The general information and imaging data of the patients were collected, and peripheral venous blood within 24 hours after admission was collected. Calculate the inflammatory Ratio indicators, such as the Neutrophil-to-Lymphocyte Ratio (NLR), Platelet-to-Lymphocyte Ratio (PLR), Monocyte-to-Lymphocyte Ratio (MLR), and Systemic Immune-inflammatory Index (SII). Follow-up was conducted 6 months after the onset of the disease. According to the Mini-Mental State Examination (MMSE) score and educational level, the patients were divided into the PSCI group and the Post-Stroke No Cognitive Impairment (PSNCI) group. Univariate analysis was conducted on the two groups of data. The indicators with statistical differences ($P < 0.05$) were included in the multivariate Logistic regression analysis to explore the risk factors for the onset of PSCI. **Results:** 1. The incidence of PSCI in AIS patients was 49.3%. There was no statistically significant difference between the two groups in terms of age, gender, height, weight, Body Mass Index, years of education, past medical history, smoking history, drinking history, stroke classification and infarction location ($P > 0.05$). 2. There was no statistically significant difference in the relationship between the infarction site and the MMSE score ($P > 0.05$), but it was found that the MMSE score of infarction in the temporal lobe was the lowest (median 18 points), and that of infarction in the basal ganglia was the highest (median 26 points). 3. The levels of NLR, PLR, MLR and SII in the PSCI group were significantly higher than those in the PSNCI group, and the difference was statistically significant ($P < 0.05$). And they were all negatively correlated with the MMSE score 6 months after the onset ($P < 0.001$), that is, the higher the levels of PLR, NLR, MLR and SII, the more severe the degree of cognitive impairment. 4. Multivariate Logistic regression analysis showed that PLR was a risk factor for PSCI. **Conclusion:** When AIS patients have higher inflammatory ratio indicators (NLR, PLR, MLR, SII), they may be more prone to PSCI. PLR is a risk factor for PSCI, which provides certain clinical value for the early prevention of PSCI.

Keywords

Post-Stroke Cognitive Impairment, Neutrophil-to-Lymphocyte Ratio (NLR), Platelet-to-Lymphocyte Ratio (PLR), Monocyte-to-Lymphocyte Ratio (MLR), Systemic Immune-inflammatory Index (SII)