

ABSTRACTS

RELATIONSHIP BETWEEN PLASMA N-TERMINAL PRO-BRAIN NATRIURETIC PEPTIDE LEVELS WITH CLINICAL PRESENTATIONS AND SHORT TERM FUNCTIONAL OUTCOME IN ACUTE ISCHEMIC STROKE PATIENTS

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Background: Since elevated N-terminal pro-brain natriuretic peptide (NT-proBNP) levels are a crucial biomarker for determining stroke etiology and forecasting both immediate severity and short-term functional outcomes, the association between N-terminal pro-brain natriuretic peptide (NT-proBNP) levels and Acute Ischemic Stroke (AIS) has attracted substantial clinical attention. The goal of this study was to determine the association between NT-proBNP levels and acute ischemic stroke patients, which may aid in the patients' diagnosis and severity evaluation. **Methods:** This case-control study was conducted in the department of Neurology, Sir Salimullah Medical College Mitford Hospital, Dhaka, Bangladesh from November, 2023 to October; 2024. Total 100 subjects were enrolled in this study. Among this, 50 acute ischemic stroke patients with history within 3 days and confirmed by CT scan of head or MRI of brain were selected purposively from the Neurology department and Internal Medicine Department of Sir Salimullah Medical College Mitford Hospital, Dhaka, Bangladesh. Another 50 age and gender matched subjects were selected from these facilities for comparison. Venous blood samples were collected from these patients and analyzed for estimation of plasma NT-proBNP. **Results:** This study found Mean plasma NT-proBNP level was significantly higher (333.0 ± 221.9 pg/ml) in acute ischemic stroke patients (Case group) than control group (109.4 ± 131.1 pg/ml). Mean plasma NT-proBNP level for different anatomical sites across the OCSF classification showed significantly higher value in total anterior circulation stroke (435.7 ± 217.2 pg/ml). Mean plasma NT-proBNP level according to TOAST classification showed significantly higher value in Cardioembolic types (435.7 ± 217.2 pg/ml). A moderately strong positive correlation was observed between plasma NT-proBNP level score at admission ($r=0.566$; $p<0.001$) and after 3 months ($r=0.540$; $p=0.003$). A moderately strong positive correlation was found between plasma NT-proBNP level and mRS score at admission ($r=0.507$; $p<0.001$) and after 3 months ($r=0.420$; $p=0.002$). **Conclusion:** Plasma NT-Pro BNP levels were significantly connected with acute ischemic stroke, as well as with severity and prognosis. It identifies plasma NT-proBNP as a significant marker for the diagnosis and severity assessment of acute ischemic stroke.

Keywords: Acute Ischemic Stroke, N-terminal pro-brain natriuretic peptide (NT-proBNP), Oxfordshire community stroke project, OCSF, TOAST, trial of ORG 10172 in acute stroke treatment, National Institute of Health Stroke Scale, NIHSS, Modified Rankin Scale, mRS.

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