THE ROLE OF PLASMA D-DIMER AS AN INITIAL DIAGNOSTIC BIOMARKER OF CEREBRAL VENOUS SINUS THROMBOSIS IN A TERTIARY LEVEL HOSPITAL, BANGLADESH – CASE CONTROL STUDY.

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Background: Cerebral venous sinus thrombosis (CVST) are an uncommon cause of stroke and is often more difficult to diagnose than usual causes of stroke. A number of studies have confirmed the usefulness of D-dimer level in CVST. The aim of the current study to evaluate the correlation of plasma D-dimer levels in diagnosis of CVST.

Methods: This case-control study was conducted on 50 stroke patients and 50 healthy individuals as the control group who will attend in the Department of Neurology of Sir Salimullah Medical College & Mitford Hospital, Dhaka Bangladesh during one year (2021-2022) with new onset headache and presentations suggestive of CSVT will be included in the study. Every medical or surgical condition which causes an increase in D-dimer level was considered as exclusion criteria.

Results: Among patient group, 28(56%) patients were females, while 22(44%) patients were males, and the mean of age was 37.7±11.8 years. Headache was the most frequent presentation that observed in 90% of the patients. The patient with focal neurological signs, papilloedema and seizures came next in 52%, 44% and 30% respectively. The average duration of the symptoms was 6.9 ±3.2 days. Overall, the mean plasma level of D-dimer in CVST patients and controls were 526.7± 97.34 ng/mL and 332.3± 53.71 ng/mL respectively (Table: 3). Independent t-test revealed a significant difference (t= 2.167, p= 0.029). According to cut-off value of the assay (400 ng/mL) there were 44 CVST patients (88%) who were positive for the test compared with 7 (14%) among controls (p< 0.001). Stratification of the study population according to male revealed a wide gap between patient and control males (541.7± 114.9 ng/mL and 320.2±71.13 ng/mL respectively) with a significant difference (p= 0.017) (Table: 4). However, in females, this gap was narrower (530.4± 100.9 ng/mL in females with CVST and 349.7±92.5 ng/mL in healthy females) but still significant (p= 0.032). The test revealed that the area under the curve (AUC) was 0.879, 95%CI=0.807-0.95, p<0.001. The sensitivity and specificity of the test at cut off value of 400ng/mL were 0.88 and 0.86 respectively, indicating a very good discrimination value. The positive and negative predictive values of D-dimer in diagnosis of CVST were 86.27 % and 87.76% respectively.

Conclusion: Our study suggests that measurement of D-dimer can be a reliable tool for diagnosis of CVST, especially in patients with acute and subacute disease.

Keywords: Plasma D-Dimer, Diagnostic Biomarker, Cerebral Venous Sinus Thrombosis

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