**HYPERHomocysteineMIA is not associated with SYSTEMIC ARTERIAL STIFFNESS IN PATIENTS WITH ACUTE ISCHEMIC STROKE**

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Background:

Hyperhomocysteinemia is reported to be a risk factor for vascular calcification, atherosclerosis, and cerebrovascular disease. Also, arterial stiffness is associated with increased pulse pressure and cerebral small vessel disease. The aim of this study was to determine the association between hyperhomocysteinemia and brachial-ankle pulse wave velocity (baPWV) in patients with stroke.

Methods:

We identified consecutive patients with acute ischemic stroke who visited a tertiary university hospital within seven days of symptom onset between January 1, 2011 and April 30, 2017. The hyperhomocysteinemia was defined as serum level of homocysteine > 11 umol/L. The average of baPWV measured on both sides was categorized into quartiles. The association between homocysteine and baPWV was tested using chi-square test and logistic regression analysis.

Results:

A total of 1624 patient were enrolled in this study. Mean age was 68.5 +/- 12.5 years and male was 882 (54.3%). Hyperhomocysteinemia was found in 1074 (66.1%). On bivariate analysis, baPWV was significantly associated with age, sex, hypertension, diabetes mellitus, smoking, systolic blood pressure, highly sensitive C reactive protein, estimated GFR, and hyperhomocysteinemia. However, the association between hyperhomocysteinemia and baPWV was not significant on multivariable logistic regression. The interaction term of hyperhomocysteinemia and sex was not significant, either. Age, hypertension, diabetes mellitus, and systolic blood pressure remained significant on multivariable analysis.

Conclusion:

Despite previous studies showed the association between homocysteine and arterial stiffness in general population, our study did not show significant association between them in stroke population. We presumed that potent vascular risk factors such as hypertension and diabetes rather than homocysteine play a more important role in damaging vessel wall in stroke patients. Further studies are warranted to confirm our findings and hypothesis.