Dear Editor:

My coauthors and I submit a manuscript entitled,***“Association of Increased Pulsatility Index of the Basilar Artery with Neurological Deterioration after Stroke”*** for consideration in the “***Clinical paper”*** section of ***“Journal of Clinical Neuroscience”*** We certify that all the authors have read and approved the submission of the manuscript, and no work resembling the enclosed article has been published or is being submitted for publication elsewhere. We certify that we have all made substantial contributions so as to qualify for the authorship. I take complete responsibility for the data, analyses, and interpretations, and conduct of the research. I am supported by the research grant from the Ministry of Science and Technology, Republic of Korea, and the other coauthors have no financial interests to disclose.

Increased arterial stiffness of the middle cerebral artery (MCA) among lacunar stroke patients is known to be related with neurological deterioration, although transcranial Doppler (TCD) ultrasonography cannot be applied to the patients with a poor temporal window. In this study, we investigated whether basilar artery (BA) pulsatility index (PI) measured by TCD ultrasonography is associated with neurological deterioration (ND) among 703 patients with acute cerebral infarction. When the patients were categorized into quartiles according to BA PI, the proportion of patients with ND showed an increasing tendency with an increase in BA PI quartile. Correlation analysis between right MCA PI, left MCA PI and BA PI showed a significant positive correlation (Pearson’s r2 = 0.571, p < 0.001; r2 = 0.600, *p* < 0.001). Multivariable logistic regression analysis for variables, including age, sex, vascular risk factors, serum homocysteine level, and cerebral atherosclerosis burden, of brain CT angiography revealed that the the higher BA PI (odds ratio = 3.50; confidence interval = 1.10–11.37; *p* = 0.034) and highest BA PI quartile (odds ratio = 2.38; confidence interval = 1.06–5.45; *p* = 0.037) was independently associated with ND.

We thank you for your time and consideration of our manuscript. We look forward to hearing your response.

Sincerely,

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