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Ischemic Cerebrovascular Disease and Calcified Intracranial Vertebrobasilar Artery: A Case-Control Study by Using Cranial CT

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Abstract

Objective: To evaluate the association of intracranial vertebrobasilar (VB) artery calcification and ischemic cerebrovascular disease of the posterior circulation

Material and Method: A cross-sectional, retrospective, case-control study was performed in 198 patients with cranial CT. Presence of the posterior fossa infarction was disclosed in 104 patients of the case group. Absence of the posterior fossa infarction in 94 patients were defined as a control group. They were age and sex matched. Circumferential and thickness of calcification was graded for the intracranial vertebral and basilar arteries. Association between vascular wall calcification and posterior fossa infarction was analyzed.

Results: No statistically significant relationship between the presence of VB calcification and posterior fossa infarction was found ($p = 0.08$, $OR = 1.75$, $95\% CI = 0.94-3.26$). In subgroup analysis, by re-classifying occipital lobe and thalamus as areas supplied by VB system, there was a statistically significant relationship between the VB calcification and infarction ($p = 0.02$, $OR = 2.08$, $95\% CI = 1.10-3.94$). No relationship between degree of calcification and the area of infarction was observed.

Conclusion: The present study showed no significant relationship between the VB artery calcification and ischemic infarction of cerebellum and brainstem, but a significant relationship between VBA calcification and infarction in the end territory of VBA supply.

Keywords: Ischemia, Stroke, Posterior circulation, Calcification

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