Association of hemoglobin A1C level with hemorrhagic transformation in acute cardioembolic stroke patients in Prasat neurological institute

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Abstract

Background and Objective: Hyperglycemia is relevant in hemorrhagic infarction. Patients with acute cardioembolic stroke are often associated with brain hemorrhagic transformation. The studies of association between hemoglobin A1C level and hemorrhagic transformation after ischemic stroke are limited. The objective of this study was to determine the relationship between hemoglobin A1C level at admission and the severity of hemorrhagic transformation in the patients with acute cardioembolic stroke.

Methods: In this retrospective cohort study, we examined the clinical and imaging data of cardioembolic stroke patients and hemoglobin A1C level from medical records. Patients were tested for diagnostic imaging of the brain at admission in the first 48 hours after the patients had stroke onset with follow-up brain imaging after the initial diagnosis. Multiple logistic regression analysis included relevant confounders and potential predictors such as hemoglobin A1C level, age, blood pressure level, history of diabetes mellitus, antithrombotic drug prior bleeding, low-density lipoprotein level was performed.

Results: In univariate analysis, antithrombotic drug prior bleeding ($p<0.001$; OR, 0.05; 95CI, 0.02-0.09), hemoglobin A1C level $\geq$ 7.0 mmol/l ($p<0.001$; OR, 3.37; 95%CI, 1.89-6.01) and fasting blood sugar level $\geq$126 mg/dl ($p=0.048$; OR, 1.86; 95%CI, 1.01-3.43) associated with brain hemorrhagic transformation. Hemoglobin A1C level $\geq$7 mmol/l was a significant predictor of bleeding events in the final multivariate logistic regression model ($p<0.001$; OR, 4.48; 95%CI, 2.02-9.95).

Conclusion: Hemoglobin A1C level is a predictor of bleeding events in acute cardioembolic stroke patients.
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