

ABSTRACT

Background. Hyperglycemia is a known predictor of negative outcomes in stroke. Several glycemic measures, including admission random glucose, fasting glucose, and glycated hemoglobin (HbA1c), have been associated with neurological outcomes in acute ischemic stroke, particularly in nondiabetic patients. However, the predictive power of these glycemic measures is yet to be investigated.

Methods. This retrospective study enrolled 484 patients with acute ischemic stroke from January 2009 to March 2013, and complete records of initial stroke severity, neurological outcomes at 3 months, and glycemic measures were evaluated. We examined the predictive power of admission random glucose, fasting glucose, and HbA1c for neurological outcomes in acute ischemic stroke. Furthermore, subgroup analyses of nondiabetic patients and patients with diabetes were performed separately.

Results. Receiver operating characteristic (ROC) analysis revealed that admission random glucose and fasting glucose were significant predictors of poor neurological outcomes, whereas HbA1c was not [areas under the ROC curve (AUCs): admission random glucose = 0.564, $p = 0.026$; fasting glucose = 0.598, $p = 0.001$; HbA1c = 0.510, $p = 0.742$]. Subgroup analyses of nondiabetic patients and those with diabetes revealed that only fasting glucose predicts neurological outcomes in patients with diabetes, and the AUCs of these three glycemic measures did not differ between the two groups. A multivariate logistic regression analysis of the study patients indicated that only age, initial stroke severity, and fasting glucose were independent predictors of poor neurological outcomes, whereas admission random glucose and HbA1c were not (adjusted odds ratio: admission random glucose = 1.002, $p = 0.228$; fasting glucose = 1.005, $p = 0.039$; HbA1c = 1.160, $p = 0.076$). Furthermore, subgroup multivariate logistic regression analyses of nondiabetic patients and those with diabetes indicated that none of the three glycemic measures were associated with poor neurological outcomes.

Discussion. Fasting glucose is an independent predictor of poor neurological outcomes in patients with acute ischemic stroke and had greater predictive power than that of admission random glucose and HbA1c. The predictive power of glycemic measures for poor neurological outcomes did not differ significantly between the nondiabetic patients and those with diabetes.

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Comment[MKL1]: Should insert qualifier e.g. "bad", or "adverse"