

## Effect of postprandial hyperglycaemia on culprit plaque rupture in diabetic patients with non-ST segment elevation acute coronary syndrome

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**Background:** Postprandial hyperglycemia was reported to play a key role in established risk factors of coronary artery diseases (CAD) and cardiovascular events. Serum 1,5-anhydroglucitol (1,5-AG) levels are known to be a clinical marker of postprandial hyperglycemia and short-term glycaemic excursions. Low serum 1,5-AG levels have been associated with occurrence of CAD; however, the relationship between 1,5-AG levels and coronary plaque rupture has not been fully elucidated. The aim of this study was to evaluate 1,5-AG as a predictor of coronary plaque rupture in diabetic patients with non-ST segment elevation acute coronary syndrome (NSTEMI-ACS).

**Methods:** A total of 132 diabetic patients with NSTEMI-ACS were included in this study. All patients underwent intravascular ultrasound examination, which revealed 38 patients with plaque rupture and 94 patients without plaque rupture in the culprit lesion. Fasting blood glucose (FBS), hemoglobin A1c (HbA1c) and 1,5-AG levels were measured before coro-

nary angiography. Fasting urinary 8-iso-prostaglandin F<sub>2α</sub> (8-iso-PGF<sub>2α</sub>) level was measured and corrected by creatinine clearance.

**Results:** Patients with ruptured plaque had significantly lower serum 1,5-AG levels and a tendency of higher hemoglobin A1c levels than patients without ruptured plaque in our study population. In multivariate analysis, low 1,5-AG levels were an independent predictor of plaque rupture (odds ratio 3.3;  $p=0.006$ ) in diabetic patients with NSTEMI-ACS, but HbA1c was not. The area under the receiver-operating characteristic curve for 1,5-AG (0.678,  $p=0.001$ ) to predict plaque rupture was superior to that for HbA1c (0.618,  $p=0.034$ ). Levels of 1,5-AG were significantly correlated with urinary 8-iso-PGF<sub>2α</sub> ( $r=-0.224$ ,  $p=0.010$ ).

**Conclusions:** Postprandial hyperglycaemia appeared to be superior to long-term average blood glucose levels in predicting plaque rupture in culprit lesions, which may be useful to assess the cardiovascular outcomes in diabetic patients.