Association of plaque type with insulin resistance estimated by HOMA-IR (Homeostatic Model Assessment for Insulin Resistance).

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BACKGROUND

Previous studies have reported that insulin resistance plays an important role in the burden of atherosclerosis. However, only limited studies have evaluated the association between the type of plaque and insulin resistance. HOMA-IR is the method used to assess β-cell function and insulin resistance using fasting glucose and fasting insulin levels.

METHODES

We conducted a retrospective analysis using the data from EVAPORATE trial (Effect of Vascepa on Improving Coronary Atherosclerosis in People with High Triglycerides Taking Statin Therapy) to evaluate the relationship of insulin resistance to atherosclerotic plaque type. We evaluated 72 patients with known coronary atherosclerosis, aged 30–85 years, 39 patients were male, 48 had diabetes, 32 were smokers, mean BMI 32.8 kg/m^2. Coronary computed tomography angiography (CTA) was performed using a multidetector CT scanner. Quantitative plaque assessment was performed using a semi-automated plaque analysis software (QAngio, Medis, Netherlands).

RESULTS

In a univariate regression analysis, densely calcified plaque (DC), Fibrous plaque (F), total non-calcified plaque (NCP), and total plaque (TP) were associated with their baseline HOMA-IR. After adjusting for age, gender, diabetes mellitus, HTN and past smoking, we estimate a 1 unit increase of HOMA-IR is associated with 12% higher fibrous plaque volume, p=0.029, and 17% higher DC plaque volume, p=0.045.

CONCLUSION

HOMA-IR is independently associated with fibrous, and dense calcified plaque.

DISCLOSURE INFORMATION

Authors have no disclosures.