

Adverse coronary plaque characteristics are more common in patients with diabetes

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Introduction: Diabetes mellitus (DM) is associated with increased cardiovascular morbidity and mortality. However, there is a lack of data about the prevalence of adverse coronary artery plaques characteristics in patients with DM.

Purpose: In our study we aimed to compare the prevalence of adverse atherosclerotic coronary artery plaque characteristics between patients with and without DM.

Methods: We have analyzed the data of patients who underwent coronary computed tomography angiography (CCTA) between October 2012 and December 2020. Our exclusion criteria were coronary anomaly, congenital or other structural heart disease, previous revascularization or heart transplantation, non-diagnostic image quality and no available data on the presence of DM. Patients were divided into two groups based on the presence of DM.

Results: In total, 11,357 patients were included in our study. Prevalence

of DM was 14.5%. There were significant differences in age (63.2 ± 9.5 vs 58.1 ± 12.2 years, $p < 0.001$) and major cardiovascular risk factors such as hypertension, dyslipidemia and smoking between the two groups (all $p < 0.05$). We have measured higher coronary artery calcium score in patients with DM vs. without DM (424.3 ± 744.0 vs 174.2 ± 794.6 , $p < 0.001$). Obstructive coronary artery disease (stenosis $> 70\%$) was more frequent in the DM group (24.6% vs 10.5%, $p < 0.001$). While 29.6% of patients without DM had at least one plaque with adverse characteristics, this rate was 38.9% in those with DM (positive remodeling: 19.6% vs 26.1%, low attenuation: 7.6% vs 10.2%, spotty calcium: 16.9% vs 21.6%, napkin-ring sign: 1.7% vs 2.6%, all $p < 0.05$).

Conclusions: The prevalence of severe coronary artery stenosis and coronary plaques with adverse characteristics was higher in patients with DM. Multivariate analysis is needed to further explore this association.