INTIMA-MEDIA THICKNESS OF INTERNAL CAROTID ARTERIES IN THE DIAGNOSIS OF CORONARY ATHEROSCLEROSIS IN PATIENTS WITH TYPE 2 DIABETES AND SILENT ISCHEMIA

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Introduction

Worldwide growing number of patients with type 2 diabetes mellitus (T2DM). In patients with T2DM cardiovascular risk increased 10 times compared with age-matched persons without diabetes. Such patients constitute a group of very high cardiovascular risk because 75% of death cases are due to cardiovascular disease. Prevalence of coronary artery disease (CAD) in patients with T2DM reaches 50-60%.

Objectives

To determine the role of intima-media (IMT) thickness of internal carotid artery (ICA) in the diagnosis of coronary atherosclerosis in patients with T2DM and silent ischemia (SI).

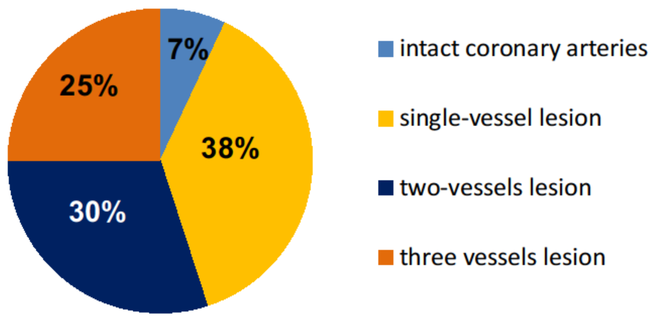
Methods:

We provide a retrospective analysis of 60 cases of patients with T2D (24 men, age 60.5 ± 4.7 years), history of diabetes – 4.7±0.5 years. SI was diagnosed by comparing complaints, anamnesis, ECG data and daily ECG monitoring. Control group consist of 20 patients without T2DM and SI. All patients underwent carotid ultrasound in B-mode to determine the degree of ICA IMT stenosis. The degree of coronary atherosclerosis was evaluated by coronary angiography (CAG).

Results

In 55% of patients with T2D and SI the presence of atherosclerotic lesions of two or three coronary arteries (CA). In 13% of patients with T2D critical subocclusion of CA was found **Figure 1, Figure 3.**

Figure 1



CA lesion among patients with T2DM have been localized in the middle and distal segments of CA in 64% of cases compare with 20% in the control group of patients (p< 0,05), **Figure 2, Figure 3**.

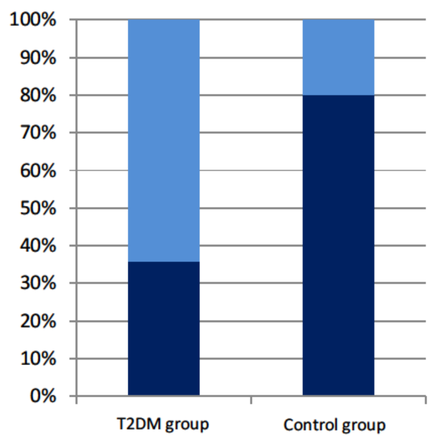


Figure 2

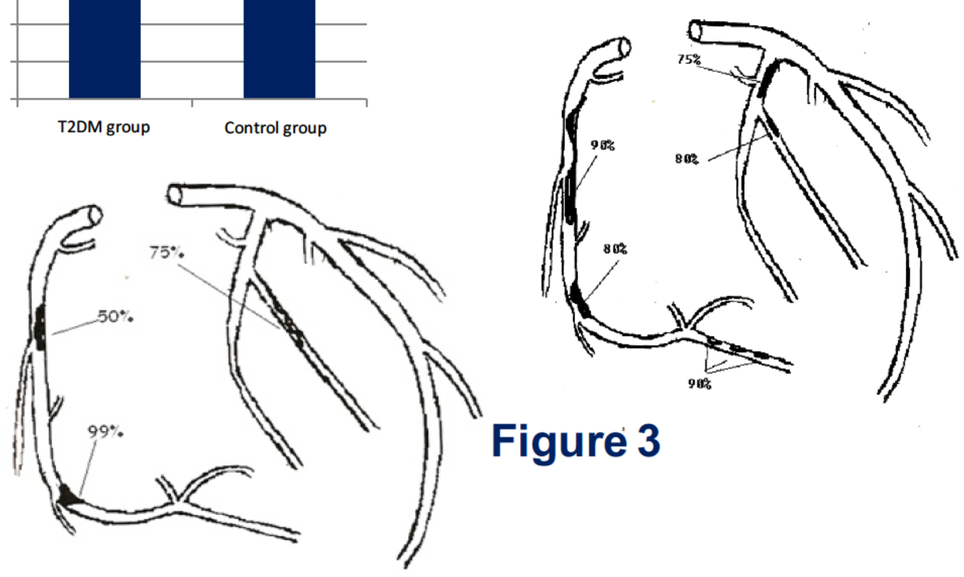


Figure 3

ICA IMT according Mannheim Consensus was defined as the distance between the leading edge of the lumen-intima interface and the leading edge of the media-adventitia interface, **Figure 4.**

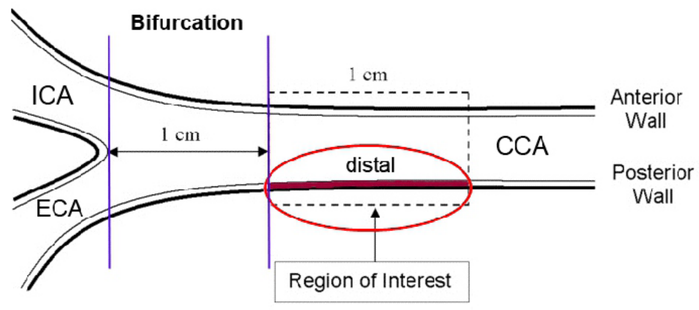


Figure 4

ICA IMT values were significantly higher in patients with SI and coronary atherosclerosis compared to patients with T2DM without atherosclerotic CA lesions (1.41 ± 0.12 vs 1.21 ± 0.11, p<0.05) **Figure 5**, in 20 % of patients with T2DM and SI the presence of atherosclerotic plaques of ICA was revealed.

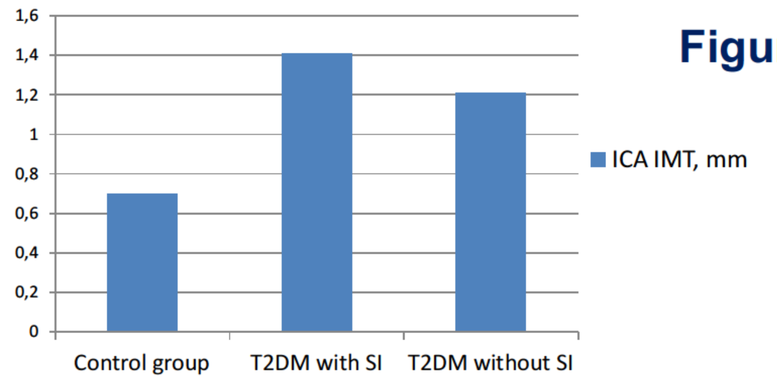


Figure 5

When conducting multiple logistic regressions in patients with T2DM and SI the following predictors of atherosclerotic CA lesions were identified: duration of T2DM (OR 4.07, 95% CI 2.56-4.32; p <0.05), dyslipidemia (OR 2.17 95% CI 1.47-3.12; p<0.05), gender (OR 1.52, 95% CI 1.14-2.31; p<0.05), ICA IMT (OR 2.81, 95% CI 1.76-3.21; p<0.05). AUC value in the analysis of ROC-curve for ICA IMT was 0.75 (95% CI 0.61-0.79; p<0.05).

Conclusions

Increased thickness of ICA intima-media and CA atherosclerotic plaques combined with coronary atherosclerosis in patients with T2DM and SI should be considered during the screening of this group of patients to identify those to perform CAG and early revascularization for the prevention of cardiovascular events.

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