ASSOCIATION OF DYSLIPIDEMIA, CHRONIC KIDNEY DISEASE AND HYPERTENSION WITH CAROTID ATHEROSCLEROSIS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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OBJECTIVES

Atherosclerotic complications are the leading causes of morbidity and mortality among patients with DT2. Aim was to investigate the possible role of dyslipidemia, hypertension and chronic kidney disease (CKD) on the characteristics of carotid atherosclerosis (presence of plaque, carotid IMT and total plaque area) in patients with DT2.

METHODS

• Patients aged 60–75 years with DT2 were included in this study.
• Control group included 24 healthy subjects the same age.
• Other atherosclerosis risk factors of subjects, including smoking, hypertension, dyslipidemia, and CKD, were identified with a questionnaire and a blood test.
• The IMT was measured using automated edge detection software as the distance between the lumen-intima interface and the media-adventitia interface.

RESULTS

MULTIVARIATE LINEAR REGRESSION ANALYSIS FOR PUTATIVE PREDICTORS OF IMT AND TPA IN ELDERLY DT2 PATIENTS (2)

In the 68 patients with DT2, the mean blood glucose and HbA1c level were 8.52 ± 3.10 mmol/L and 6.59 ± 1.88%, respectively. We divided all patients (DT2 and control) into 3 groups: Group 1 (n=24) – patients did not have any additional atherosclerosis risk factor, Group 2 (n=25) – patients had one additional atherosclerosis risk factor, and Group 3 (n=43) – patients had two or three additional atherosclerosis risk factors. There were significant differences of blood glucose and HbA1c level between Group1 and Group 2, 3 (Table 1; p<0.05).

Using multiple linear regression analysis adjusted for confounding factors, IMT and TPA were significantly correlated with age >60 years (β=0.359, p<0.0001; β=0.263, p<0.0001), hypertension (β=0.041, p=0.003; β=0.126, p<0.0001), dyslipidemia (β=0.066, p<0.0001; β=0.125, p<0.0001) and CKD (β=0.054, p=0.003; β=0.165, p<0.0001), respectively. However, gender (men) was not significantly correlated with IMT (p=0.171) and TPA (p=0.112) (Table 2).

The results of the study suggested that the left carotid artery in patients with DT2 was more vulnerable to atherosclerosis when compared with the right carotid artery. So, we found a significant difference in carotid IMT between left and right carotid artery (0.70 ± 0.16 mm versus 0.66 ± 0.13 mm, p=0.001, respectively). There were no significant difference in carotid IMT between patients with plaque and without plaque (p=0.171).

CONCLUSIONS

We showed the role of additional atherosclerosis risk factors to carotid atherosclerosis in elderly patients with DT2. In these patients, the presence of dyslipidemia, hypertension, and different CKD status were predictors of carotid plaque. Thus, early diagnosis and treatments of hypertension, dyslipidemia, and CKD are necessary for diabetic patients to prevent adverse cardiovascular and cerebrovascular outcomes and reduce cardiovascular and cerebrovascular morbidity and mortality in aged patients with diabetes.