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EARLY CAROTID ARTERIOPATHY ASSESSED BY CAROTID INTIMA MEDIA THICKNESS: A SURROGATE MARKER OF ATHEROSCLEROTIC RISK IN YOUNG NONHYPERTENSIVE DIABETIC SUBJECTS

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BACKGROUND: Diabetes is associated with accelerated atherosclerosis. Measurement of carotid intima-media thickness (CIMT) by ultrasound has been shown to be a valid direct method of assessing early atherosclerotic changes. The majority of studies, however, involve middle-aged and elderly subjects. We aimed to compare the CIMT between young normotensive diabetic and normoglycemic subjects, and correlate CIMT with various atherosclerosis risk factors.

METHODS: We included young nonhypertensive adults aged 18 to 45 years old. Subjects were grouped into: group 1–diabetic group; and group 2–normoglycemic group. The clinical and biochemical profile included body mass index (BMI), waist circumference (WC), lipid profile and HbA1c. Carotid Doppler ultrasound was done to measure CIMT of both common carotid arteries. Clinical data and CIMT were compared between the 2 groups and analyzed.

RESULTS: There were 70 subjects: 35 in group 1 (diabetic) and 35 age- and sex-matched controls in group 2 (normoglycemic). The following parameters were significantly higher in the diabetic group: BMI (26+/-5 vs 23+/-5 kg/m^2), WC (86+/-11 vs 78+/-8 cm), and serum triglycerides (166+/-88 vs 105+/-54 mg/dl) with all $p < 0.05$. There was no difference in blood pressure and cholesterol profile. CIMT was significantly higher in the diabetic group compared with the normoglycemic group (0.77+/-0.14 vs 0.69+/-0.13 mm, p=0.016). Among diabetics, there was significant correlation between CIMT and WC, duration of diabetes and HbA1c level. On multivariate analysis, WC, presence and duration of diabetes, and HbA1c were independent predictors of increased CIMT.

CONCLUSION: In this study, young diabetic patients have significantly higher CIMT than normoglycemic subjects. CIMT significantly correlated with WC, duration of diabetes, and HbA1c. The presence and duration of diabetes, WC and HbA1c were independent predictors of increased CIMT.

Keywords: carotid intima media thickness, diabetes, atherosclerosis