The effect of serum free testosterone level on glycemic control and atherosclerosis in type 2 diabetic men

Abstract :

Background: Atherosclerosis is a complex disease of the arteries characterized by endothelial dysfunction, vascular inflammation, and the build-up of lipids within the intima of the vessel wall. Testosterone has a central or permissive role in pathogenesis of the metabolic syndrome and type 2 diabetes. Insulin resistance is associated with several CVD risk factors such as obesity, dyslipidaemia, hypertension and the proinflammatory state. We aim to disclose the relationship between serum testosterone concentration and carotid atherosclerosis and its risk factors in men with type 2 diabetes.

Patients and methods: The study population comprised 123 consecutive men of Type 2 diabetes. Retinopathy and nephropathy were ranked and graded respectively. Cardiovascular disease was defined as the presence of previous myocardial infarction or cerebral infarction. Total cholesterol and triglyceride concentrations were determined and hemoglobin Alc was measured. Assessment for the presence of carotid atherosclerosis was done, using ultrasonographic measurement of carotid intima media thickness (IMT). The relationship between serum testosterone concentration and carotid intima-media thickness IMT was investigated in all patients.

Results: The mean of IMT for all patients was 0.96 ± 0.28 mm. Mean IMT was significantly greater in patients with lower concentrations of F-tes than in patients with higher concentrations of F-tes. (P= 0.038). Relationship between serum free testosterone concentration and other variables showed a negative correlation with patients' age, patients' age at onset, duration of diabetes, BMI, HbA1c, systolic and diastolic blood pressure, and total cholesterol concentrations and mean IMT in men with type 2 diabetes. No significant correlation was found between F-tes with triglyceride and negative correlation with mean IMT .

Conclusion: Serum free testosterone concentration was found to be low in type 2 diabetic men. It has a negative correlation with patients' age, patients' age at onset of the disease, duration of diabetes, BMI and HbA1c, total cholesterol concentrations systolic and diastolic blood pressure and mean IMT. This may disclose the different mechanisms played by testosteronein the pathogenesis of cardiovascular risk in men with type 2 diabetes.

Keywords: Testosterone, Atherosclerosis, Type 2 Diabetes Mellitus.