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CARDIOVASCULAR RISK FACTORS AND SUBCLINICAL ATHEROSCLEROSIS IN EGYPTIAN PATIENTS WITH T1DM

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Introduction: Type 1 diabetes (T1DM) is associated with increased risk of cardiovascular disease. Several studies have highlighted the metabolic syndrome and IR (insulin resistance) as an important precursor of cardiovascular disease, however, few data exist on its occurrence in type-1 diabetes.

Objectives: The objective of this work is to study the presence of early signs of atherosclerosis as well as myocardial structure and function in relation to some predisposing risk factors for cardiovascular disease as metabolic syndrome and estimated glucose disposal rate (eGDR) as, a surrogate measure of insulin resistance, in T1DM patients.

Study Design & Methodology: This study was conducted on 30 T1 diabetic patients, age range 11-30 years and having history of diabetes 5 years. They were compared to apparently healthy subjects aged around 20. After complete clinical examination including body mass index (BMI), waist circumference (WC), waist-hip ratio(WHR) and blood pressure measurements, blood samples were withdrawn to determine fasting, and postprandial blood glucose levels, HbA1c, lipid profile, fasting C-peptide, 24-h urinary albumin and fundus examination. Estimated glucose disposal rate (eGDR) was calculated and used as a marker of

IR. Of imaging techniques, echocardiography and carotid intima media thickness (CIMT) were done.

Results: There was significant difference between patients and controls regarding blood glucose, HbA1c, lipid profile and WHR. Diabetic patients had significant lower HDL, C- peptide, and higher TG, 24 h micro-albuminuria, and CIMT, in comparison to control subjects. Metabolic syndrome criteria were met in 26.7% of patients. Cut off value of eGDR was <9 (mg/Kg-1.min-1), with sensitivity of 70% and specificity of 100%. Twenty one patients (70%) had eGDR <9 (mg/Kg-1.min-1), and 9 patients (30%) had eGDR >9 (mg/Kg-1.min-1). Also there were negative correlation between eGDR and HbA1c, WHR, CIMT, interventricular septal thickness(IVST), posterior wall thickness (PWT), and left ventricular mass index (LVMI).

Conclusion: Main cardiovascular risk factors are visceral obesity, bad glycemic control and increased CIMT. Metabolic syndrome is estimated to affect 26.7% of T1D patients. eGDR is a reliable tool to pick up patients with IR with sensitivity of 70% and specificity of 100%. Although T1DM patients have low C- peptide level, yet 70% of them are IR.

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