Evaluation of Endothelial Function in Patients with Prediabetes

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Background:

Pre-diabetes is a risk factor for development of future diabetes and cardiovascular disease (CVD). Cardiovascular disease is a leading cause of morbidity and mortality all over the world. One of the many underlying pathological processes that lead to CVDs is atherosclerosis. Endothelial dysfunction is essential in the development of any vascular process and occurs early in the development of atherosclerosis. Carotid intima-media thickness (CIMT), flow-mediated vasodilatation (FMD) and pulse wave velocity (PWV) are instrumental non-invasive tools able to detect the early impairment in cardiovascular system and assess cardiovascular risk of individuals.

Aim of work:

To evaluate the endothelial function in adults with prediabetes by CIMT, pulse wave velocity and flow mediated dilatation.

Methods:

A cross sectional study done on 200 Egyptian adults with pre-diabetes and 50 age and sex matched controls where all were subjected to history, examination, Lab test including serum glucose and HbA1c, CIMT, FMD and cf-PWV. Results: FMD was significantly higher in the control group compared with pre-diabetic group (p value <0.001), CFPWV was statistically higher in pre-diabetic than control (p value 0.004) and CIMT was statistically higher in pre-diabetics than control (p value 0.006). CIMT and PWV were positively correlated with serum blood glucose and HbA1c while FMD was negatively correlated with them.

Conclusion:

Endothelial dysfunction, arterial stiffness and arterial thickness start early in patients suffering pre-diabetes. FMD, cf-PWV and CIMT are noninvasive instrumental procedures can be used in early detection of vascular affection in patients with pre-diabetes.

Key words: Endothelial dysfunction, pre-diabetes.