

Microalbuminuria and Endothelin-1: Very Sensitive Biological Markers for Renal and Cardiovascular Complications in Type II Diabetic Patients

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Received April 22, 2013; Accepted May 21, 2013

Abstract: Hyperglycemia and insulin resistance in type II diabetes cause damage to the vascular endothelium in a systemic level, leading to dysfunction of its homeostatic role in general and to glomerular and coronary endothelium specifically. Defining the level of endothelial dysfunction is possible through measuring the biological and anatomic markers. Microalbuminuria is a biological marker of glomerular endothelial dysfunction and vasodilatation of the brachial artery is an anatomic marker of coronary endothelial dysfunction. They are both measurable and helpful in evaluating prognosis and treatment during the following up of type II diabetic patients in preventing renal and cardiovascular damage. The purpose of study is to find out the sensitivity of biologic and anatomic markers in evaluating renal and coronary endothelial dysfunction in type II diabetic patients. 40 type II diabetic patients (having diabetes for 2-5 years) were taken in the study. 20 patients had no microalbuminuria ($< 30\mu\text{g/day}$) and 20 patients had microalbuminuria (30-300 $\mu\text{g/day}$). Endotheline -1, glucose and HbA1c levels were measured in blood samples for each patient to evaluate glomerular endothelial dysfunction. Dilatation of the Brachial artery was measured one minute after the release of the blocking cuff. Measuring was made for five minutes using Doppler Ultrasound. Considerable relationships were found between microalbuminuria and Endotheline -1 ($r= 0.303$; $p =0.05$). Considerable relationships were also found between Endotheline -1 and vasodilatation of brachial artery ($r= 0.407$; $p= 0.009$). All relationships are righteous and positive. Microalbuminuria and ET-1 are very important biological markers in calculation of endothelial dysfunction in patients of diabetes type 2. Through them we are able to define the level of renal and cardiovascular impairment in order to make interventions in due time so that patients are prevented or their disease is slowed down and not be endangered by renal and cardiovascular impairment.

Keywords: *endothelial dysfunction, microalbuminura, Endothelin-1, vasodilatation of the brachial artery.*

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