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ACCEPTED MANUSCRIPT

Urinary Neutrophil Gelatinase-Associated Lipocalin in Type 2 Diabetes: Relation to Nephropathy and Retinopathy

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ABSTRACT:

Background: Diabetes mellitus is the leading cause of end stage renal disease worldwide. Early identification of diabetic nephropathy even before appearance of microalbuminuria is a challenge for early prevention of occurrence and progression of this complication. Neutrophil gelatinase-associated lipocalin is a small protein that belongs to the lipocalin protein. Urinary neutrophil gelatinase-associated lipocalin is a promising early marker in different renal problems.

Aim of the work: To measure urinary neutrophil gelatinase-associated lipocalin in type 2 diabetic patients and to assess its role as an early marker for diagnosis of diabetic nephropathy and diabetic retinopathy.

Patient and Methods: The current study included 60 subjects with type 2 diabetes and 20 healthy control subjects. Diabetic subjects were divided into 3 groups according to urinary albumin creatinine ratio; 20 normoalbuminuric patients, 20 micro-albuminuric patients and 20 macroalbuminuric patients. They were subjected to history taking, full clinical examination, fundus examination, anthropometric measurement, urinary neutrophil gelatinase-associated lipocalin and urinary albumin creatinine ratio.

Results: Urinary neutrophil gelatinase-associated lipocalin was higher in all diabetic groups than in the control group, with no difference in between diabetic groups. The difference was of great value when comparing normoalbuminuric group with control as albumin creatinine ratio was not different while the urinary neutrophil gelatinase-associated lipocalin was statistically significant (5.94±1.85 ng/dl vs 1.96±0.65, $p<0.001$). No correlation was found with retinopathy.

Conclusion: Urinary neutrophil gelatinase-associated lipocalin is a sensitive marker for early detection of diabetic nephropathy even in normoalbuminuric patients denoting early tubular damage before microalbuminuria. It is not correlated with retinopathy.

LIST OF ABBREVIATIONS:

2hPPPG: 2 Hours Post-Prandial Plasma Glucose.
ANOVA: Analysis Of Variance.
AUC: area under the curve.
CKD: Chronic kidney disease.
Creat: serum creatinine.
DBP: Diastolic Blood Pressure.

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