Serum Midkine as an Early Predictor of Diabetic Nephropathy in Type 1 DM

Thesis

Submitted for partial fulfillment of master degree in pediatrics

By

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ABSTRACT

Background: Diabetic nephropathy (DN) is one of the most common and serious microvascular complications of DM and is associated with increased morbidity and mortality in diabetic patients. For now, microalbuminuria is still the gold standard for diagnosis. But, there is an urgent need for new biomarkers to allow earlier diagnosis and management for better outcome.

Objectives: This study was aimed to assess the role of serum Midkine (MK) as a biomarker for early detection of diabetic nephropathy (DN) in children with type 1 diabetes mellitus (T1DM) before microalbuminuria emerges.

Methods: A total of 100 children, 50 with T1DM (25 microalbuminuric patients (group 1), 25 normoalbuminuric patients (group 2), and 50 healthy participants as a control group (group 3) were included in this study. Detailed medical history, clinical examination, and laboratory assessment of hemoglobin A1c% (HbA1c%), lipid profile, urinary microalbuminuria (MA), serum MK were performed in the three groups.

Results: our study revealed significantly higher serum MK in both diabetic groups compared to controls. Additionally, patients with microalbuminuria had higher serum MK concentrations than those with normoalbuminuria. Receiver operating characteristic (ROC) curve analysis revealed that MK cutoff value of 260 pg/ml was able to predict microalbuminuria with a sensitivity of 96% and specificity of 90%.

Conclusions: The results of this study suggest that serum MK is a useful, novel, practical marker for the evaluation of renal involvement in children with T1DM, especially in normoalbuminuric children.

Keywords: Type 1 DM, Diabetic nephropathy ,Microalbuminuria, Midkine.