YKL – 40, Nitrous oxide and preptin early biomarkers of cardio- renal disease in type 1 diabetic children and adolescents

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Abstract

Objective: We are aiming to explore the use of new biomarkers of cardio – renal injury such as human cartilage glycoprotein 39 (YKL-40), preptin and nitrous oxide in type 1 diabetic patients

Patients and methods: The study included 62 type 1 diabetic patients and 30 healthy volunteer of the same age and sex. Blood sample was taken for assessment of YKL-40, nitrous oxide and preptin by ELISA technique. Also blood sample were taken for analysis of glycosylated hemoglobin, lipid profile and albumin/creatinine ratio in urine. M mode echocardiography was also done.

Results: The study included 62 patients with type 1 diabetes, the mean age were 16.3 ± 1.5 yrs (14.0 – 19.0 yrs), and mean duration of diabetes were 9.4 ± 2.9 yrs (5.0 – 16.5 yrs). Nitrous oxide was significantly lower, while YKL-40, preptin and albumin/creatinine ratio were significantly higher than controls. Nitrous oxide had a significant positive correlation with LVEDD, LVESD, PWT and LV mass and negative correlation with YKL-40, preptin and albumin/creatinine ratio. YKL-40 had a significant positive correlation with waist, hip, waist/height ratio, preptin and negative correlation with E/A ratio.

Conclusion: A significant reduction of nitrous oxide and elevation of YKL-40 and preptin and their relation to echocardiographic data imply that early assessment of these markers may unmask the initial endothelial dysfunction in type diabetic patients before overt microalbumin and renal impairment supervenes.