EVALUATION OF A SIMPLE DYE BINDING METHOD FOR MEASUREMENT OF MICROPROTEINURIA IN DIABETIC PATIENTS AND ITS CORRELATION WITH MICROALBUMINURIA (TURBIDI-IMMUNOASSAY) AND CLINICAL PARAMETERS

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Diabetic microalbuminuria which predisposes to irreversible macroproteinuria and terminal renal failure is amenable to stringent metabolic control. However, because of high prevalence of diabetes and lack of a simple test, the monitoring of microalbuminuria has not become a standard clinical practice. To circumvent this problem, we studied the use of a simple and inexpensive method of quantitating microproteinuria using Commassie Brilliant Blue G-250. Fifty nine diabetic subjects (IDDM = 40, NIDDM = 19) who were ‘Uristix’ negative (test for overt proteinuria) were included in this study. Urinary albumin excretion was measured by turbidimetric immunoassay. Seven subjects (11.9%) were found to have microproteinuria (> 190 mg/24 hours), and 5 subjects (8.5%) had microalbuminuria (> 50 mg/24 hours). Using the test for microalbuminuria as the ‘gold standard’, for the microproteinuria dye binding assay ‘false negative’ rate was 0% (0/5), and ‘false positive’ rate was 4% (2/51%). There was a positive correlation between urinary protein excretion rate and HbA1c levels (r = 0.3, p < 0.05). Those with high and uncontrolled hypertension (n=6) had an average protein excretion rate of 112.5 mg/24 hours; subjects with angiographic or overt evidence of diabetic retinopathy (n=7) had an average protein excretion rate of 114.4 mg/24 hours (Cf. overall mean 88.2 mg/24 hours). In 19 patients who underwent a detailed dietary evaluation there was a positive correlation with the average daily intake of class I proteins (r=0.48, p<0.005) and total proteins (r=-0.26, p < 0.02). Cost per test of microproteinuria by dye binding method is Rs. ---.

CONCLUSION: Commassie Blue dye binding assay is a simple, precise and inexpensive technique for detecting and monitoring incipient nephropathy of IDDM.