

ABSTRACT

Introduction: Cardiovascular disease is the main cause of death in Type 2 diabetic patient. Similarly diabetic nephropathy is the major risk factor for morbidity and mortality in diabetes mellitus patients. Cystatin C as a marker of renal function can facilitate the early prediction of cardiovascular risk along with the other classical markers in DM Type 2 patients.

Cystatin C is identified as a promising marker of renal dysfunction and has emerged as a biomarker of cardiovascular risk. This study aimed to estimate and correlate the levels of plasma cystatin C with cardiovascular risk markers in type 2 diabetes mellitus patients.

Methods: The study population included type 2 diabetes mellitus patients above 18 years of either sex. Among 129 diabetes mellitus type 2 patients, 125 patients were recruited and divided into group A with $HbA_{1c} \leq 6.5\%$ Hb and group B with $HbA_{1c} > 6.5\%$ Hb. Fasting blood samples were analyzed for FBG, Total cholesterol, TRIG, HDL and Creatinine by enzymatic method. LDL by direct turbidimetric method. Plasma cystatin C and HbA_{1c} were estimated by immunoturbidimetric method and hs-CRP by particle enhanced immunoturbidimetric method. Cardiovascular risk ratios TC/HDL, LDL/HDL and others were calculated.

Results: About 73% of the patients recruited had poorly managed diabetes Patients with poor glycemic control (Group B, n = 91) had significantly higher values of hs-CRP (10.57 ± 4.58 mg/L), Total Cholesterol (4.56 ± 0.25 mmol/L), LDL (4.10 ± 0.25 mmol/L), TC/HDL (4.10 ± 1.39), LDL/HDL (2.56 ± 0.22) and Creatinine (68.52 ± 38.02).

The study revealed a positive correlation between cystatin C and the endothelial inflammatory marker hs-CRP ($r = 0.93$, $p = 0.001$). Similarly HbA_{1c} , LDL/HDL, Cholesterol and Triglycerides showed positive correlations with cystatin C of ($r = 0.92$, $p = 0.022$), ($r = 0.81$, $p < 0.0001$), ($r = 0.80$, $p < 0.0001$) and ($r = 0.80$, $p = 0.022$) respectively. Cystatin C also had a correlation with HDL ($r = 0.71$, $p = 0.018$). Creatinine and cystatin C also showed a positive correlation. ($r = 0.48$, $p < 0.0001$)

Conclusion: Plasma cystatin C, a preclinical marker of renal dysfunction can be used as a predictive marker of diabetic dyslipidemia and cardiovascular risk in poorly controlled Type 2 Diabetes mellitus patients.