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Spot urinary protein creatinine ratio versus 24 hour urinary protein for detection of proteinuria in type 2 diabetic patients

Saroj Kunwar¹, Jivan Bohara¹, Shail Rupakheti²

¹Department of Biochemistry, Modern Technical College, Nepal

²Department of Medicine, Star Hospital, Nepal

Objectives: Diabetic nephropathy accounts for 20% cases of chronic renal failure. Proteinuria is recognized as a common indicator and predictor of progressive kidney disease. This study was conducted to evaluate cut off value of spot protein creatinine ratio (PCR) to detect proteinuria in relation to 24 hour urinary protein among type 2 diabetic patients.

Methods: A hospital based cross-sectional study was conducted and total of 66 participants were recruited from department of internal medicine, Star Hospital, Lalitpur, Nepal. Urine samples were analyzed for protein and creatinine by pyrogallol red method and modified Jaffe's reaction. 24 hour urinary protein (24 HUP) was used as a gold-standard method and was compared with spot protein creatinine ratio (PCR).

Results: The finding from study depicts strong correlation between spot protein creatinine ratio and 24 hour urinary protein ($r=0.63$, $p= 0.001$). A PCR <0.37 ruled out significant proteinuria ($>300\text{mg/day}$) with sensitivity and specificity of 84.4% and 100% respectively. Similarly PCR value at cut off of 0.9 had sensitivity (86%) and specificity (71%) for detection of severe proteinuria ($>5000\text{mg/day}$).

Conclusions: To conclude, a strong correlation between spot PCR and 24-hour urine protein was obtained. The present study suggests that random urine PCR can be reasonable alternative to predict the amount of 24-hour urine protein excretion with high accuracy.