

22nd European Nephrology Conference

October 15-16, 2018 | Warsaw, Poland

Correlation between urine protein to creatinine ratio and 24 hour urine total protein excretion in proteinuria

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Twenty-four-hour urine total protein excretion is considered the gold standard method for proteinuria assessment. However, it can be cumbersome to perform and prone to errors in collection. For this reason, the use of the spot urine protein/creatinine ratio has been proposed. The aim of the present study is to assess the correlation, the difference and the agreement between the spot urine protein/creatinine ratio and the 24-h urine total protein excretion in samples collected consecutively from patients with sub-nephrotic and nephrotic range proteinuria. Consecutive paired determinations of 24-h urine total protein excretion and the spot urine protein/creatinine ratio were conducted in 80 patients; 40 patients with sub-nephrotic range proteinuria (Group I) and 40 patients with nephrotic range proteinuria (Group II). The strength of the correlation, the difference and the agreement between the two methods were determined. The spot urine protein/creatinine ratio and the 24-h urine total protein excretion were correlated in both groups with more strong correlation in the sub-nephrotic group. There was a statistically significant difference between the two methods in patients with nephrotic range proteinuria, focal segmental glomerulosclerosis (FSGS), lupus nephritis and acute kidney injury (AKI). Also, there was no agreement between the two methods in patients with nephrotic range proteinuria, FSGS, lupus nephritis and estimated glomerular filtration rate (GFR) (30–59 ml/min). The spot urine protein/creatinine ratio and the 24-h urine total protein excretion are correlated in both sub-nephrotic and nephrotic range proteinuria. But in nephrotic range proteinuria, the correlation is less and the difference is significant and there is no agreement between the two methods. Caution should be taken when interpreting the results of these two methods especially in patients with nephrotic range proteinuria, FSGS, lupus nephritis, AKI and estimated GFR (30–59 ml/min).

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