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FRACTIONAL EXCRETION OF TOTAL PROTEIN IS AN ACCURATE INDICATOR OF PROTEINURIA IN NPHROTIC PATIENTS

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Background and Aims: Urinary total protein/creatinine ratio (U-TP/Cr) is a simple and useful indicator of proteinuria. And it had been shown to correlate well with 24-hour urinary protein test (24hr UPT). However, U-TP/Cr is not always accurately reflecting the degree of proteinuria, especially in cases with heavy proteinuria.

Proteinuria in nephrotic syndrome could be defined as the result of changed sieving coefficient (SC) of plasma total protein through the glomerular capillary wall. Therefore, we studied fractional excretion of total protein (FETP; total protein clearance/creatinine clearance %) instead of directly unmeasurable SC. The accuracy of the FETP was verified by 24hr UPT in comparison with U-TP/Cr.

Method: Sixty-three serum and urine samples were collected from 35 pediatric patients with various age (age: 3 – 20 y; mean: 10.3 y, 22 male, 13 female) with hypoproteinemia (TP \leq 5.0 mg/dL), heavy proteinuria (FETP \geq 0.01%), and normal GFR (creatinine clearance \geq 100 ml/min). The correlations between 24hrUPT and U-P/Cr and FETP were studied using samples obtained the same time and the superiority was statistically examined.

Results: Mean \pm SE of 24hUPT, U-TP/Cr and FETP (%) were 5.53 ± 0.71 (g/day), 10.23 ± 1.26 (g/gCr), and 0.12 ± 0.016 (%) respectively. R values for the correlation between 24hrUPT and U-TP/Cr and 24hr UPT and FETP were 0.64 and 0.86 respectively. FETP showed a statistically better correlation with 24hrUPT than with U-TP/Cr (P: 0.0001).

Conclusion: FETP is an accurate indicator of 24hr UPT for nephrotic patients under conditions of heavy proteinuria and hypoproteinemia in comparison with UTP/CR.

