ISBN 978-624-6150-43-3
Conference Proceedings of 2nd International Research Conference on Healthy Delights -ஆரோக்கியம்-2024
OP-ID 16

Assessing accuracy and validity of urine dipstick test in chronic kidney disease patients

Jayathilaka D. S.[1], Methsarani W. G. N. K.[1], Jayasinghe J .M. R. M.[1], Thangarajah B. R.[2] and Sivakumar H.[1]*
[1]*Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences, University of Jaffna, Sri Lanka.*
homathydr@yahoo.com

Proteinuria is a critical marker of chronic kidney disease. It is usually determined using the urinary protein to creatinine ratio (UPCR) and urinary albumin to creatinine ratio (ACR). The urine dipstick test (UDT) is currently used as a preliminary screening tool for proteinuria. Aim of this study is to assess the accuracy and validity of UDT for proteinuria compared to UPCR in chronic kidney disease (CKD) patients with proteinuria. UDT was performed on 111 random urine samples of CKD patients attending Nephrology Unit at Teaching Hospital Jaffna, while obtaining the UPCR testresults from the hospital's Chemical Pathology Laboratory. Sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of UDT were calculated, and the correlation between UDT and UPCR was assessed using Pearson's correlation coefficient. Out of 111 patients, 89.19% had proteinuria while 10.81% did not. There was a strong significant correlation in protein concentration with UPCR (r= 0.804, p< 0.001) and dipstick reading categories (r=0.706, p<0.001). Using "Nil" as the cut-off in UDT for UPCR<15 mg/mmol, the test showed high sensitivity (91.66%) and NPV (98.90%). As the dipstick reading category and UPCR cutoff value increased, sensitivity decreased while specificity increased. For "+2" to identify UPCR 100-300 mg/mmol, there was 33.33% sensitivity, 61.90% specificity, 21.95% PPV and 74.28% NPV. This study showed that the UDT demonstrates high sensitivity and specificity with a cut-off of ≥ 'trace' to identify proteinuria (UPCR>15 mg/mmol)in CKD patients. It is more effective in both detecting and ruling out proteinuria and can be used as a screening tool for identifying individuals with proteinuria from those without.

Keywords: *CKD Patients with proteinuria, Protein to creatinine ratio, Urine dipsticktest*