≈ ORAL PRESENTATIONS ≈

OP 020

Sensitivity of Serum Cystatin C Over Serum Creatinine in Identifying CKD Patients with Proteinuria

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Abstract

Objective: Over fifteen thousand chronic kidney disease (CKD) patients were reported in Sri Lanka due to uncetain etiology. Researchers have postulated the disease due to toxic etiology and characterized as proteinuric CKD. Therefore objective of the study was to identify early detection criteria of proteinuric CKD patients.

Methods: Sixty six (66) individuals with persistence proteinuria were identified as proteinuric CKD patients and 21 as normal. Ten (10) ml of early morning urine and 5ml of blood were collected from selected individuals. Urine creatinine, protein, cystatin C and serum creatinine, cystatin C were analyzed. Urine protein to creatinine ratio (UP/UC) of each individual was calculated and greater than 0.20 mg/mg was confirmed as proteinuric CKD (as a gold standard). According to the serum creatinine and cyatatin C levels of all individuals (n=87) further classified as Patients and controls. Diagnosing accuracy of serum creatinine and cystatin C was calculated in terms of sensitivity, specificity and position of cut points using manual calculation and ROC curves. Estimated GFR were calculated with serum creatinine levels using MDRD formula and cystatin C based eGFR using Hoek and Larsson formulas. Pearson's correlation coefficients were calculated between three eGFR methods with UP/UC ratio.

Results: Mean UP/UC ratio of patients and controls were 1.290 and 0.1448 respectively. Mean serum creatinine of the patients was 1.22+ 0.40 mg/dl and which 1.35+ 0.39 mg/dl in controls. Mean serum cystatin C of the patients was 1.69 + 0.58 mg/l and 0.82 + 0.25 mg/l of controls. Sensitivity and specificity of serum cystatin C (0.9394 & 0.8182) to identify the proteinuric CKD patients was significantly high compared with the serum

creatinine (0.5758 & 0.1765). According to the ROC analysis cystatin C showed the excellent diagnostic accuracy (AUC-0.9675,p<0.001) of proteinuric CKD patients which was weak with serum creatinine (AUC =0.5390). Positions of cut points were identified as 1.015 mg/dl for serum creatinine and 0.930 mg/l for serum cystatin C. The best correlation with gold standard (UP/UC) was noted for Hoek formula which was -0.635 (p<0.001). No significant difference was noticed between mean eGFR (MDRD) levels of proteinuric patients and controls however significant difference was noticed in both Cystatin C based eGFR levels.

Conclusions: The study concluded that serum Cystatin C is a reliable and sensitive early marker to diagnose proteinuric CKD patients over serum creatinine. Cystatin C based eGFR estimations are more accurate in diagnosing early stages of proteinuric CKD than serum creatinine based estimations.

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