

Evaluation of the Interference of Urea on Creatinine Measurement by Jaffe's Kinetic Method and Enzymatic Method in Pooled Serum

P Deloshana^{1*}, H Sivakumar² and K Kandeepan³

¹Unit of Allied Health Sciences, Faculty of Medicine, University of Jaffna, Sri Lanka

²Department of Pathology, Faculty of Medicine, University of Jaffna, Sri Lanka

³Department of Biochemistry, Faculty of Medicine, University of Jaffna, Sri Lanka

*deloshana.p@gmail.com

The objective was to evaluate the urea interference on creatinine by Jaffe's kinetic and enzymatic method in pooled serum. Blood samples were collected from 28 healthy individuals and pooled serum was prepared. Baseline concentrations of creatinine and urea were measured in pooled serum. Pooled serum was adjusted to contain three different creatinine concentrations (0.6, 2 and 6 mg/dL) and six different urea concentrations (baseline, 50, 75, 100, 125 and 150 mg/dL). Each of 18 different samples was measured by Jaffe's kinetic and enzymatic method. Urea treated samples with low, medium and high creatinine levels showed significant mean difference in Jaffe and enzymatic method ($p < 0.05$). In Jaffe method, samples treated with 125 and 150 mg/dL urea showed statistically significant differences in all 3 different creatinine samples compared with the baseline, but samples treated with 50, 75 and 100 mg/dL urea did not show significant differences from the baseline. Enzymatic method showed insignificant interference in medium and high creatinine samples with 5 different urea concentrations, but it showed a significant interference only in low creatinine samples which were treated with 150 mg/dL of urea. It is concluded that urea interference on creatinine measurement depends on urea and/or creatinine concentration. Enzymatic measurements were always significantly higher than Jaffe method in any concentration of urea and creatinine. Enzymatic measurement of creatinine is stable with interference of urea. Hence, enzymatic method is preferable to Jaffe method for measurement of creatinine in serum.

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