

## ABSTRACTS OF RESEARCH PAPERS

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### RP 13

#### **Serum Creatinine Measurement: Do We Need to Change to an Enzymatic Assay?**

Senarathne UD<sup>1,2</sup>, Dayanath BKTP<sup>1</sup>, Jayathunga HSK<sup>1</sup>, Rajapakshe DP<sup>1</sup>, Karunaratne A<sup>3</sup>

<sup>1</sup>Colombo North Teaching Hospital, Ragama, Sri Lanka

<sup>2</sup>University of Sri Jayewardenepura, Nugegoda, Sri Lanka

<sup>3</sup>District General Hospital, Negombo, Sri Lanka

#### **Introduction**

The Jaffe and enzymatic methods are two widely used methods for serum creatinine measurement. Jaffe method is susceptible to interference by non-creatinine chromogens such as protein, glucose, ascorbic acid, cephalosporins and ketones. Although, enzymatic method is less prone to interferences, it is considerably more expensive.

#### **Methods**

In this study, assay performance of Jaffe and enzymatic methods were compared using routine 426 samples at a tertiary care hospital in Sri Lanka.

#### **Results**

Creatinine level in routine specimens ranged from 30–1017  $\mu\text{mol/L}$ . Two methods had a good correlation ( $r^2=0.95$ ). Jaffe method gave higher results than enzymatic method with a mean bias of 5.9  $\mu\text{mol/L}$ . According to Bland-Altman plots, difference between the two methods was significant at higher creatinine levels with a positive bias in Jaffe method compared to enzymatic assay. The average total protein, bilirubin and glucose concentrations in the routine samples were 72.8 g/L, 12.46  $\mu\text{mol/L}$  and 111.28 mg/dL respectively. According to the bias plots, both positive and negative biases were seen with lower glucose values (<100 mg/dL) while mainly positive biases were seen with higher glucose values (>200 mg/dL). The biases were evenly distributed among different levels of protein and bilirubin in the routine samples. However, all values had a clinically acceptable percentage bias (<18.2%) with an average of 17.5% when outliers were excluded.

#### **Conclusions**

The results of the above comparison study indicate that Jaffe method can produce comparable results to enzymatic method with clinically insignificant level of bias. Therefore, decision of changing into an enzymatic method from Jaffe method requires detailed risk-benefit assessment.

#### **Keywords**

Serum creatinine, Jaffe method, enzymatic method