The diagnostic utility of serum Neutrophil Gelatinase Associated Lipocalin in Acute Kidney Injury at a Central Hospital in a Resource Constrained Setting

Mabaya L., Musarurwa C, Gomo ZAR, Nyamayaro T.

Abstract

The objective of the study was to determine the utility of serum NGAL as a biomarker for acute kidney injury in patients admitted into medical wards. Sixty consecutive adult patients presenting with suspected acute kidney injury at Parirenyatwa Hospital, Harare, Zimbabwe and admitted for at least three days were enrolled. Participants were enrolled if they were above 18 years but < 50 years, had serum urea >6.7mmol/l and/or creatinine >131μmol/l and had either oliguria or anuria. Patients were excluded if they had a history of chronic hypertension, chronic kidney disease, any malignancy or diabetes. The mean serum NGAL levels in patients were 653.3ng/ml and the mean eGFR was 9.7ml/min. There was a statistically significant correlation between NGAL and urea or creatinine (r=0.85; r= 0.46 respectively). A significant inverse correlation was observed between NGAL and eGFR (r= -0.97). There was an association between NGAL levels and dialysis requirement (OR=1.02, 95% CI (1.01 – 1.24), p=0.0008). A NGAL concentration of greater than 600ng/ml was highly predictive of RRT with an area under curve of 0.64. Indications from the study are that NGAL is a suitable biomarker for AKI because it correlates closely with renal function and allows timely identification of high risk patients to allow potentially beneficial therapies to be initiated early in the disease process. NGAL is also a suitable candidate for use in the estimation of glomerular filtration rate.