URINARY NEUTROPHIL GELATINASE ASSOCIATED LIPOCALIN AS AN EARLY MARKER OF ACUTE KIDNEY INJURY IN THE RECIPIENT AFTER LIVER TRANSPLANTATION

Thesis

Submitted For Fulfillment of Master Degree In Critical Care Medicine

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2015

Abstract

Background:

Urinary neutrophil gelatinase-associated lipocalin (NGAL) is a novel, sensitive and specific biomarker that is rapidly released after kidney injury. It predicts acute kidney injury (AKI) in multiple clinical scenarios. We hypothesized that urinary NGAL/Urine creatinine ratio can predict AKI in the recipient of living donor liver transplantation as soon as 3 hours after induction of anesthesia.

Methods:

Fifteen microliters of urine was collected on 30 liver transplant recipients after induction of anesthesia prior to incision, immediately after portal reperfusion of the liver graft and then 3, 18 and 24 h later. The urine was immediately spun at 2000 g and the supernatant will freeze at -80 c. Urinary NGAL will determine using a commercially available ELISA. Urine creatinine levels were determined by a colorimetric method using a commercially available kit. All NGAL results were normalized to urine creatinine concentration and presented as urinary NGAL / urine creatinine ratio to compensate for possible urinary dilution or concentration. Urinary NGAL (nanogram per micro liter) /urine creatinine (microgram per deciliter) ratios are unit less.

Results:

Our results confirm that urinary NGAL/Urine Creatinine ratio at 3 and 18 up to 24 hours post operative considered as early predictor of AKI post liver transplantation for the recipients (P value<0.001,<0.001,<0.001 respectively) . While serum creatinine was not significant in detecting AKI during 1st and 2nd days post operative (P value< 0.06, <0.13 respectively) and during 3rd and 4th days was (P value <0.001, <0.001respectively).

According to mortality The best cut off value of urinary NGAL/Urine creatinine ratio at 3 hours post induction of anesthesia was >1.1 with a Specificity 100% and Sensitivity 100% , while at 18 hours post operative the best cut off value was >1.12 with a Specificity 95.4% and Sensitivity 100%. Meanwhile serum creatinine was not had statistical relation with the mortality during the 1st 24 hours.

Conclusions:

We conclude that urinary NGAL/Urine creatinine ratio is a good early predictor of AKI following liver transplantation starting from 3 hours post induction of anesthesia.

Key Words :

Neutrophil Gelatinase Associated Lipocalin - Liver Transplantation .