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BIOMARKERS IN CONTRAST-INDUCED ACUTE KIDNEY INJURY IN ADULT ICU PATIENTS

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Objectives: - Intravenous administration of radiocontrast media is referred to as contrast-induced kidney injury (CI-AKI). CI-AKI is described as the third most common cause of new AKI in hospitalized patients. The occurrence of CI-AKI is reported up to 55% in these high-risk patients.: NGAL (Neutrophil gelatinase-associated Lipocalin) and Cystatin C have been found an early and sensitive marker of acute kidney injury (AKI).

Objective: To evaluate biomarkers in plasma (P) and urine (U) after intravenous contrast in adult ICU patients.

Methods: Total of 46 patients recruited as per inclusion criteria. ICU patients who were >18 years with radiographic contrast for diagnostic or interventional computed tomography (CT scan), were included. After ethical approval, samples of 5 ml blood and 5 ml urine were collected before contrast exposure and at 4 h, 24 h, and 48 h after contrast exposure. NGAL and Cystatin C assay was done by ELISA, and urinary levels were normalized as per urine creatinine (UCr) values for each sample. CI-AKI is defined as a rise in SCr of ≥ 0.3 mg/dl within 48 hrs.

Results: Median age was 36 yrs and 13 (43%) were male. On day of inclusion, median SOFA score was 3; 16% In patients having CI-AKI, mean values changes from pre-contrast to at 4 h, 24 h and 48 h after contrast are presented.. Kinetics of plasma (P) and urine (U) NGAL and Cystatin C levels (Mean \pm SD) with p value among patients having CI-AKI P NGAL (ng/ml), Before Contrast(BC) (708.5 \pm 201.76) ,04hrC(851.5 \pm 332.05,p=0.07) ,24hrC(1093.25 \pm 225.03,p=0.02),48hrC(788 \pm 323.4,p=0.21),UNGAL (ng/mg of U Cr)BC(67.63 \pm 48.09) ,04hrC(39.69 \pm 19.79,p=0.07) ,24hrC(101.97 \pm 90,p=0.12) ,48hrC(59.87 \pm 56.85,p=0.73) ,P Cystatin C (ng/ml) BC(4698.85 \pm 574.71),04hrC(4704.57 \pm 1144.87,p=0.02),24hrC(4428.85 \pm 1135.73,p=0.03),48hrC(4288.85 \pm 435.8,p=0.17),U Cystatin C (ng/mg of UCr) BC(346.06 \pm 224.7),04hrC(219.66 \pm 72.18,p=0.91),24hrC(470.21 \pm 536.28,p=0.99),48hrC(633.61 \pm 811.77,p=0.23).

Conclusions: ROC curve analysis during pre-contrast exposure: NGAL, and Cystatin C), both plasma and urine level AUC was significantly higher in patients who develop CI-AKI and Post-contrast exposure Plasma levels AUC significantly higher than Urine levels.