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STUDY OF URINARY NGAL AS AN EARLY PREDCITIVE BIOMARKER FOR CONTRAST INDUCED NEPHROPATHY IN PATIENTS WITH NORMAL CREATININE UNDERGOING CORONARY ANGIOGRAPHY

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Objectives: 1. To assess the diagnostic utility of urinary neutrophil gelatinase-associated lipocalin (NGAL) as an early biomarker for contrast induced nephropathy in patients with normal creatinine.
2. To assess the relationship between urinary NGAL and serum creatinine in these patients.

Methods:

This is an observational and cross sectional study conducted at AIIMS Jodhpur in patients undergoing elective coronary angiography.
Patients having sepsis, hypotension, heart failure, exposure to contrast or nephrotoxic agents in past 1 week, CKD patients, pregnant patients were excluded from study.
Urine NGAL levels were measured before the procedure and 8 hours post procedure. Serum creatinine was obtained at baseline and 48 hours after the procedure. CIN was defined as 0.3mg/dl increase in serum creatinine within 48 hours after the procedure.

Results:

80 patients were included in the study of which 42 were diabetics (52.5%) and 38 (47.5%) were non-diabetics. 7 (8.75%) patients had CIN of which 5 (71.42%) were diabetics and 2 (28.57%) were non-diabetics. Urine NGAL ranged from 10-1000ng/ml. Median pre-procedural and post-procedural urine NGAL was 67.44 ng/ml [26.05-180] and 196.60 ng/ml [95-349.5]. In contrast induced nephropathy CIN group, median pre-procedural and post-procedural urine NGAL was 24.20 ng/ml [10.6 - 60.32] and 537.65 ng/ml [434.38-937.08], P= 0.0001; R = 0.413, P= 0.03. In non CIN group, median pre-procedural and post-procedural urine NGAL was 172.19 [33.38- 183.70] and 155 [93.56-313.83], P= 0.001. Post procedural urine NGAL of 418.55 ng/ml could predict CIN with sensitivity of 87.55 % and specificity of 86.11% . Diabetics were 2.43 times more likely than non-diabetics to develop CIN.

Conclusions: In our study we found a significant rise in urine NGAL after 8 hrs of contrast and higher cut-off level of urine NGAL post procedure could predict CIN.