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THE VALUE OF URINARY NGAL ON THE EARLY DIAGNOSIS OF CONTRAST-INDUCED NEPHROPATHY IN PATIENTS UNDERGOING PERCUTANEOUS CORONARY INTERVENTION

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Objective To evaluate the value of NGAL on the early diagnosis of contrast-induced nephropathy after the PCI.

Methods One hundred and five patients undergoing PCI were enrolled in this study. Serum creatinine (Scr), urinary NGAL and eGFR were detected at different time points before and after PCI. Serum creatinine values and estimated glomerular filtration rate (eGFR) were measured before and within 48 h after the administration of contrast agents. Contrast-induced AKI was defined as an increase of ≥ 0.5 mg/dl or $\geq 25\%$ in serum creatinine concentration over baseline within 48 h of angiography.

Results Of all 136 patients, there were 14 cases (10.3%) of CIN. In the patient of CIN, the level of urine NGAL at 12, 24, 48 h (71.50 ± 15.61 , 114.19 ± 38.62 , 29.67 ± 22.35) ng/ml after operation was increased significantly compared with baseline (7.44 ± 4.26) ng/ml ($p < 0.05$), but the level of Scr at 24 h after operation was not increased significantly compared with baseline. Urine NGAL make a diagnosis of CIN at least 24 h ahead Scr level, the area under the curve of urine NGAL ROC to 12 h after operation is 0.824, while the CI of AUC 95% is (0.735, 0.913). According to results of ROC curve analysis, NGAL predicted that when critical point of CIN is 61.00 ng/ml, the sensitivity corresponding to it is 80%, with the specificity of 74.4%. It is found in univariate analysis that NGAL level of preoperative is negatively correlated with the GFR, and positively correlated with creatinine, age, the level of GLU, diabetes and hypertension; after PCI NGAL levels and creatinine, operation duration were positively correlated. Multiple logistic regression found that creatinine and eGFR are the independent predictor of NGAL.

Conclusions Urinary NGAL might be a better early biomarker of prediction CIN than Scr in patients undergoing PCI.