Background: NGAL is an early biomarker for acute kidney injury. Contrast-induced acute kidney injury (CI-AKI) is associated with adverse outcomes in CKD patients. We sought to characterize blood NGAL level and the degree of kidney injury reflected by further increases in NGAL of CKD patients who underwent cardiac catheterization.

Methods: This study was a prospective, blinded assessment of blood samples from patients with eGFR between 15 and 90 ml/min/1.73 m2 undergoing elective coronary angiography with iodinated contrast. We excluded renal transplant recipients, dialysis patients and prior exposure of contrast within 30 days. Data were obtained at baseline, 1, 2, 4, 6, 12, 24, and 48 hours after contrast administration.

Results: A total of 63 subjects were enrolled with a mean age of 69.4±9.2 years and a mean eGFR of 48.17±16.45 ml/min/1.73 m2. Using a twofold rise in baseline NGAL levels across worsening stages of CKD. Eight patients were diagnosed with CI-AKI by diagnostic criteria of 2012 Kidney Disease International Global Outcomes (KDIGO) definition of CI-AKI, and 7 developed subclinical CI-AKI defined by a threshold or greater rise in NGAL. Two subjects met both clinical and NGAL criteria. Binary logistic regression found no relationship between baseline NGAL or diabetes on the composite outcome (clinical and subclinical AKI).

Conclusion: Baseline and post-procedure NGAL are progressively elevated according to the baseline stage of CKD. Using a twofold rise in NGAL, 46.7% of composite CI-AKI is detected and complements the 53.3% of cases identified using KDIGO criteria. Traditional risk predictors (eGFR and diabetes) were not independently associated with composite outcome.