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Efficacy of Cystatin C-based equations to predict risk of Contrast Induced Nephropathy in Elective Percutaneuous Coronary Intervention.

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Background Decreased estimated glomerular filtration rate (eGFR) and larger amount of contrast media (CM) were known to potent risk factor of contrast induced nephropathy (CIN) after percutaneous coronary intervention. Lately, the low molecular weight protein cystatin C was introduced as a GFR estimate superior to creatinine. We investigated usefulness of cystatin C to predict CIN compared to creatinine based eGFR in patients with elective PCI. **Method** In this single center prospective study, 154 consecutive patients who underwent elective PCI were enrolled from January 2009 to July 2009. GFR was calculated as creatinine clearance by Modified Diet in Renal Disease (MDRD) study equation and Cystatin C based equation. CIN was defined as an absolute increase of > 0.5mg/dL in the serum creatinine level compared to baseline. **Result** Overall, CIN occurred in 5 patients (3.2%) in this study. On univariate analysis, diabetes urine protein (+) and decreased eGFR both creatinine based equataion (MDRD method) and cystatin C based equation were significantly associated with CIN. On multivariate regression analysis, eGFR by cystatin C (odds ratio=0.901, 95% CI 0.826-0.982, p=0.018) was a significant independent predictor of CIN. In receiver operation characteristic curve analysis, fair discrimination between the CIN group and the non CIN group was found at a cystatin C level 1.16, and at this value, the sensitivity and specificity for development of CIN were 80.3% and 87.9%, respectively. (AUC=0.973) **Conclusion** Performance of cystatin C based equation was superior to MDRD in prediction of CIN after elective PCI.