

## 조영제 유발성 신병증에서의 RAAS 차단제의 역할

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### Renin–Angiotensin–Aldosterone System Blockades Increase the Risk of Contrast–Induced Nephropathy

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**Purpose:** Contrast–induced nephropathy (CIN) is the third leading cause of hospital–acquired acute kidney injury and is associated with poor long–term clinical outcome. While some studies have demonstrated that chronic medication with renin–angiotensin–aldosterone system (RAAS) blockades was a risk factor for CIN, other studies found a protective effect.

**Methods:** We conducted a retrospective cohort study to evaluate the effect of RAAS blockades on the development of CIN in 347 patients who underwent percutaneous coronary intervention (PCI) at Severance Cardiovascular Hospital from January 2008 to December 2008. CIN was defined as increase of  $\geq 0.5$  mg/dL or  $\geq 25\%$  in serum creatinine at 48 hours after the procedure.

**Results:** Among the study subjects, 145 patients (41.8%) were treated with RAAS blockades. Compared to patients without RAAS blockades, the prevalence of diabetes, hypertension, three vessel coronary arterial disease, and renal dysfunction with estimated glomerular filtration rate (eGFR)  $< 60$  ml/min/1.73m<sup>2</sup> was higher in those with RAAS blockades. Of the 347 patients, 14 (4.0%) developed CIN after PCI. The incidence of CIN in patients with RAAS blockades was significantly higher than those without RAAS blockades (71.4% vs. 40.5%,  $p=0.022$ ). In univariate analyses, old age, high systolic blood pressure, low eGFR, hypoalbuminemia, anemia, decreased Left ventricular ejection fraction (EF), diabetes, use of intra–aortic balloon pump, and diuretics use, as well as RAAS blockades use [Odds ratio (OR) 3.67, 95% confidence interval (CI) 1.13–11.93,  $p = 0.031$ ] were associated with the development of CIN. However, multiple logistic regression analysis revealed that diabetes (OR 5.11, 95% CI 1.08–24.22,  $p = 0.04$ ), decreased hemoglobin level (OR 0.50, 95% CI 0.29–0.85,  $p = 0.011$ ), and decreased EF (OR 0.91, 95% CI 0.86–0.97,  $p = 0.003$ ) were independent risk factors for CIN.

**Conclusion:** Incidence of CIN in patients with RAAS blockades was significantly higher than those without RAAS blockades. However, the use of RAAS blockades was not an independent risk factor for CIN because patients with RAAS blockades had more risk factors such as diabetes, three vessel coronary arterial disease, and renal dysfunction. Therefore, whether the use of RAAS blockades is independently associated with the development of CIN requires further prospective studies.

**Key Words:** RAAS 차단제, 조영제, 급성 신부전  
RAAS blockades, Contrast, Acute renal failure