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Withdrawal of Angiotensin Converting Enzyme Inhibitor or Angiotensin Receptor Blocker Reduces Contrast-Induced Nephropathy from Meta-analysis of 4493 patients

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Background: To investigate whether stopping or starting Angiotensin converting enzyme Inhibitor(ACEI) or angiotensin receptor blocker (ARB) before contrast procedure might influence the occurrence of contrast-induced nephropathy (CIN). Methods: PubMed, EMBASE, Cochrane Central Register of Controlled Trials, through December 2013 were data sources. Randomized clinical trials(RCTs) or non-RCTs comparing overall incidence of CIN in the patients undergoing contrast-using procedure with or without pre-procedural use of ACEI or ARBs. The pre-specified primary endpoint was overall post-procedural incidence CIN according to the status of withdrawing ACEI/ARB in chronic users or new intervention with these medications before contrast procedure. Results: This analysis included 12 studies, 4,493 total adult patients receiving contrast procedures. Continuation of ACEI/ARB in chronic users or administration of ACEI/ARB as a preventive measure in the naive patients before contrast media exposure showed no effect in the incidence of post-procedural CIN in the random effect model (OR 1.27, 95% CI 0.77-2.11, p=0.351, I2=61.9%). However, for the patients with chronic users, the continuation of ACEI/ARB is significantly associated with higher incidence of CIN (OR 2.06, 95% CI 1.62-2.61, p>0.001, I2=0.0%). Hazard of continuation were marked in the subgroup of older patients and underlying chronic kidney disease. Administration of ACEI/ARB as a preventive measure in the naive patients showed no impact on the development of CIN.Conclusions: Discontinuation of ACE/ARB in chronic users is associated with significantly lower incidence of CIN, however administration of ACEI/ARB as a preventive measure did not show any effect in the occurrence of CIN in this meta-analysis.