

WORLD BIOSIMILARS CONFERENCE

Annual Conference on NEPHROLOGY AND UROLOGY

August 20-21, 2018
Chicago, USA

Calcium channel blockers and contrast induced nephropathy: A meta analysis of randomized controlled trials

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Background: Contrast induced nephropathy (CIN) occurs with a significant frequency, especially among hospitalized patients. The administration of iodinated contrast agents is the third leading cause of hospital-acquired acute kidney injury. Previous reports have showed conflicting results that the use of calcium blockers decrease the risk of CIN. This meta-analysis focuses on the effectiveness of calcium channel blockers in preventing CIN.

Methods: Relevant studies published up to October 2016 that investigated the efficacy of calcium channel blockers for preventing CIN were collected from PUBMED, MEDLINE and Cochrane Central Register of Controlled Trials. The information was reviewed and extracted by two evaluators independently. The primary outcome was CIN. A fixed effect meta-analysis of RCT assessing the effects of calcium

channel blocking drugs in preventing CIN fitting the inclusion criteria was conducted. Statistical analysis was performed by using Review Manager 5.3.

Results: In the meta-analysis of the 3 trials, which included 395 randomized patients, the combined risk ratio was 0.50 (95% CI 0.23-1.09). This meta-analysis demonstrates a nonsignificant trend towards benefit in patients treated with calcium channel blockers. No significant heterogeneity was revealed among the identified comparison (Chi2 = 0.50, p 0.78, I2 0%).

Conclusion: Calcium channel blockers may lower the risk of contrast induced nephropathy. Further randomized trials of large sample size will add importantly relevant information to the totality of evidence.

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