

Safety of Preoperative Use of Angiotensin-Converting Enzyme Inhibitors and Angiotensin Receptor Blockers in Patients Undergoing Cardiac Surgery

→ A Systematic Review and Meta-Analysis of the Literature



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BACKGROUND

Although the long-term benefits of angiotensin-converting enzyme inhibitors (ACEI) and angiotensin receptor blockers (ARB) in myocardial infarction and heart failure have been repeatedly proven, reports concerning their administration in patients scheduled for cardiac surgery have produced conflicting results. The purpose of this meta-analysis was to assess the impact of preoperative ACEI/ARB on short term outcomes following cardiac surgery.

METHODS

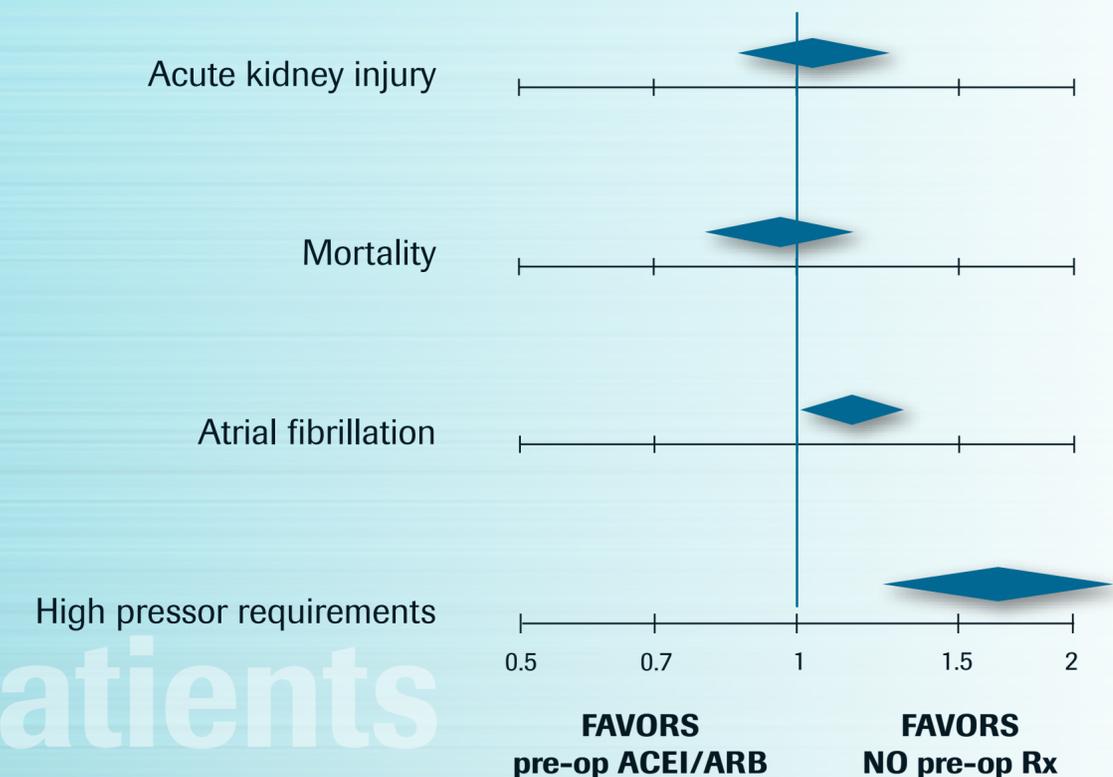
- We performed a meta-analysis of articles comparing preoperative ACEI/ARB with no ACEI/ARB in patients undergoing cardiac surgery. The EMBASE, MEDLINE and CENTRAL databases were searched until the first week of October 2013. Two reviewers performed independent article review and study quality assessment.
- Data on atrial fibrillation, vasopressor requirements, acute kidney injury and mortality all occurring in the first month following surgery were collected. Since most included studies were retrospective, the generic inverse variance method was used to analyse adjusted odds ratios, calculating pooled odds ratios (ORs) and associated 95% confidence intervals (CIs) using a random effects model.

RESULTS

- We retrieved 24 studies (2 randomized trials, 20 cohort studies and 2 case-control studies) enrolling a total of 52,378 patients.
- Preoperative administration of ACEI/ARB significantly increased postoperative atrial fibrillation (OR: 1.15; 95% CI: 1.01 – 1.31) and vasopressor requirements (OR: 1.65; 95% CI: 1.25 – 2.22).
- No differences in mortality (OR: 0.96; 95% CI: 0.8 – 1.16) or acute kidney injury (OR: 1.05; 95% CI: 0.86 – 1.26) were observed.

52,378 patients

Post-operative Outcomes (Odds ratio, 95% CI)



CONCLUSION

Preoperative use of ACEI or ARB is potentially associated with an increased risk of adverse events following heart surgery, including atrial fibrillation and greater vasopressor requirements. Large randomized trials are required to confirm these findings.