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## Safety of preoperative use of angiotensin-converting enzyme inhibitors in patients undergoing heart surgery: A systematic review and meta-analysis of the literature

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**Background & Aim:** Although the long-term benefits of angiotensin-converting enzyme inhibitors (ACEIs) in myocardial infarction and heart failure have been repeatedly proven, reports concerning their continuation in patients scheduled for heart surgery have produced conflicting results. The purpose of this meta-analysis was to assess the impact of preoperative ACEIs on short term outcomes following cardiac surgery.

**Methods:** We performed a meta-analysis of articles comparing preoperative ACEIs with no ACEIs in patients undergoing cardiac surgery. The EMBASE and MEDLINE databases were searched until the first week of October 2013 for English-language articles. 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 analyze adjusted odds ratios, calculating pooled odds ratios (ORs) and associated 95% confidence intervals (CIs) using a random effects model.

**Results:** We retrieved 21 studies (1 randomized trial, 18 cohort studies and 2 case-control studies) enrolling a total of 51826 patients. Preoperative administration of ACEIs significantly increased postoperative atrial fibrillation (OR: 1.16; 95% CI: 1.03-1.30) and vasopressor requirements (OR: 1.84; 95% CI: 1.32-2.56). There was also a trend towards increased acute kidney injury (OR: 1.10; 95% CI: 0.91-1.33). However, no difference in mortality was observed (OR: 0.95; 95% CI: 0.79-1.15).

**Conclusion:** Preoperative use of ACEIs 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.

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