Abstract


Meta-analysis of ascorbic acid for prevention of postoperative atrial fibrillation after cardiac surgery.

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PURPOSE: Results of a systematic review and meta-analysis of published data on use of ascorbic acid to prevent postoperative atrial fibrillation (POAF) after cardiac surgery are presented.

METHODS: MEDLINE and other sources were searched for reports on trials evaluating the effects of preoperative and/or postoperative use of ascorbic acid in patients undergoing cardiac surgery. For each study selected for meta-analysis, an assessment for risks of methodological bias was performed. Data on POAF frequency and length of stay (LOS) outcomes were pooled and analyzed via random-effects modeling.

RESULTS: The 11 identified studies involved patients receiving coronary artery bypass grafts with or without valve replacement; both i.v. and oral ascorbic acid formulations were used. Analysis of pooled outcomes data on treatment and control groups indicated that ascorbic acid prophylaxis was associated with reductions in POAF frequency (odds ratio, 0.44; 95% confidence interval [CI], 0.32 to 0.61), intensive care unit (ICU) LOS (difference in means, -0.24 day; 95% CI, -0.45 to -0.03 day), and total hospital LOS (difference in means, -0.94 day; 95% CI, -1.65 to -0.23 day). Significant statistical, methodological, and clinical heterogeneity were observed.

CONCLUSION: A meta-analysis revealed that, compared with use of a placebo or a nonplacebo control, perioperative administration of ascorbic acid to patients undergoing cardiac surgery was associated with a reduced frequency of POAF and a shorter ICU LOS and total hospital LOS.

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