Role Of Prophylactic Magnesium Supplementation in Prevention of Postoperative Atrial Fibrillation in Patients Undergoing Coronary Artery Bypass Grafting: A Meta-analysis of 23 Randomized Controlled Trials (Poster).

Jalaj Garg MD
Lehigh Valley Health Network, jalaj.garg@lvhn.org

Rahul Chaudhary MD

Parasuram Krishnamoorthy MD

Neeraj Shah MD
Lehigh Valley Health Network, Neeraj_N.Shah@lvhn.org

Babak Bozorgnia MD
Lehigh Valley Health Network, Babak.Bozorgnia@lvhn.org

Follow this and additional works at: https://scholarlyworks.lvhn.org/medicine

Part of the Cardiology Commons, and the Medical Sciences Commons

Published In/Presented At
Role Of Prophylactic Magnesium Supplementation in Prevention of Postoperative Atrial Fibrillation in Patients Undergoing Coronary Artery Bypass Grafting: A Meta-analysis of 23 Randomized Controlled Trials

Jalaj Garg1, Rahul Chaudhary2, Parasuram Krishnamoorthy3, Neeraj Shah1, Abhishek Sharma4, Babak Bozorgnia1

1Lehigh Valley Health Network, Allentown, PA, 2Sinai Hospital of Baltimore, Johns Hopkins University, Baltimore, MD, 3Einstein Healthcare Network, Philadelphia, 4State University of New York, Brooklyn, NY

Background

A systemic literature search was performed (until October 20, 2015) using PubMed, EMBASE, Web of Science, and Cochrane Central Register of Controlled Trials to identify trials evaluating Mg supplementation post CABG (figure 1). Primary outcome of our study was reduction in the POAF. For each study, the incidence of atrial fibrillation in both the intervention and placebo groups was extracted to calculate odd ratio and 95% confidence intervals (CIs). We included a total of 2,973 participants (1,471 in the Mg group and 1,502 in the placebo group) enrolled in 23 randomized controlled trials. By using random-effects models, pooled analysis demonstrated no significant reduction in POAF (OR 0.81; 95% CI, 0.64-1.02; p = 0.08) in Mg group as compared to placebo. However, there was reduction in POAF in the group that received prophylactic Mg postoperatively (OR 0.66; 95% CI 0.44-0.99; p = 0.04) with no significant heterogeneity. Number needed to treat in our study was 13 (95% CI 7.04-81.34).

In nine trials that evaluated prophylactic intraoperative Mg supplementation, 27% patients had POAF in the intraoperative Mg arm versus 26% in the control arm with no significant reduction in POAF (OR 0.88; 95% CI: 0.58 - 1.33; p=0.53). In seven trials evaluated a combined intra and postoperative magnesium supplementation approach. There was no reduction in POAF (29% and 31% in Mg arm versus control arm; OR=0.87; 95% CI=0.60 - 1.27; p=0.48) (figure 2).

Figure 1: PRISMA Statement

Figure 2: Forest plot evaluating the efficacy of prophylactic magnesium (Mg) supplementation in prevention of post-operative atrial fibrillation (POAF) in patients undergoing cardiac artery bypass grafting (CABG).

Conclusions

Prophylactic postoperative Mg supplementation resulted in a lower incidence of POAF in patients undergoing CABG.