

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).

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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

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Background

Several randomized clinical trials have evaluated the efficacy of prophylactic magnesium (Mg) supplementation in prevention of post-operative atrial fibrillation (POAF) in patients undergoing cardiac artery bypass grafting (CABG). We aim to determine the role of prophylactic Mg in 3 settings (intraoperative, postoperative, intraoperative + postoperative) in prevention of POAF.

Methods

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).

Results

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 = 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

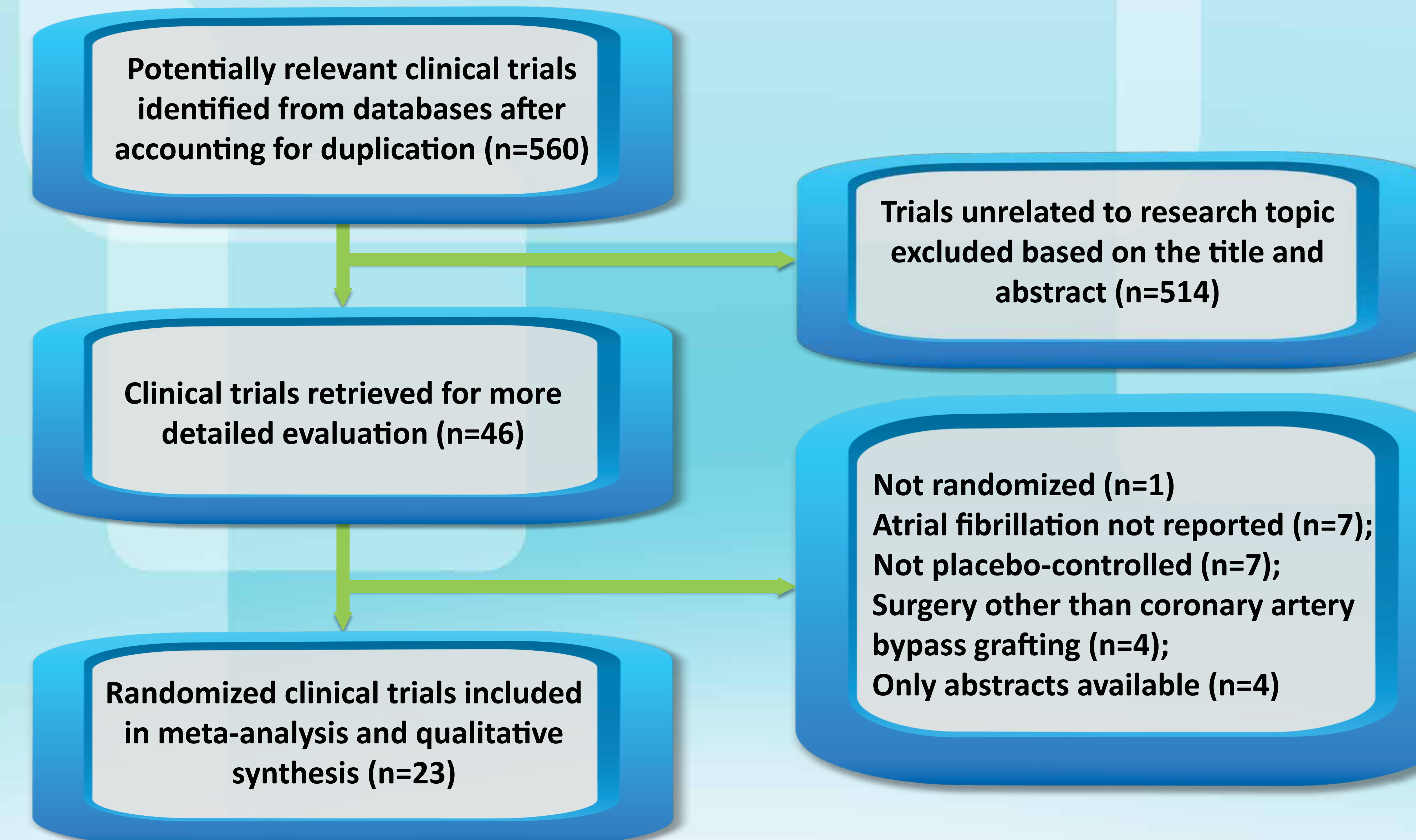
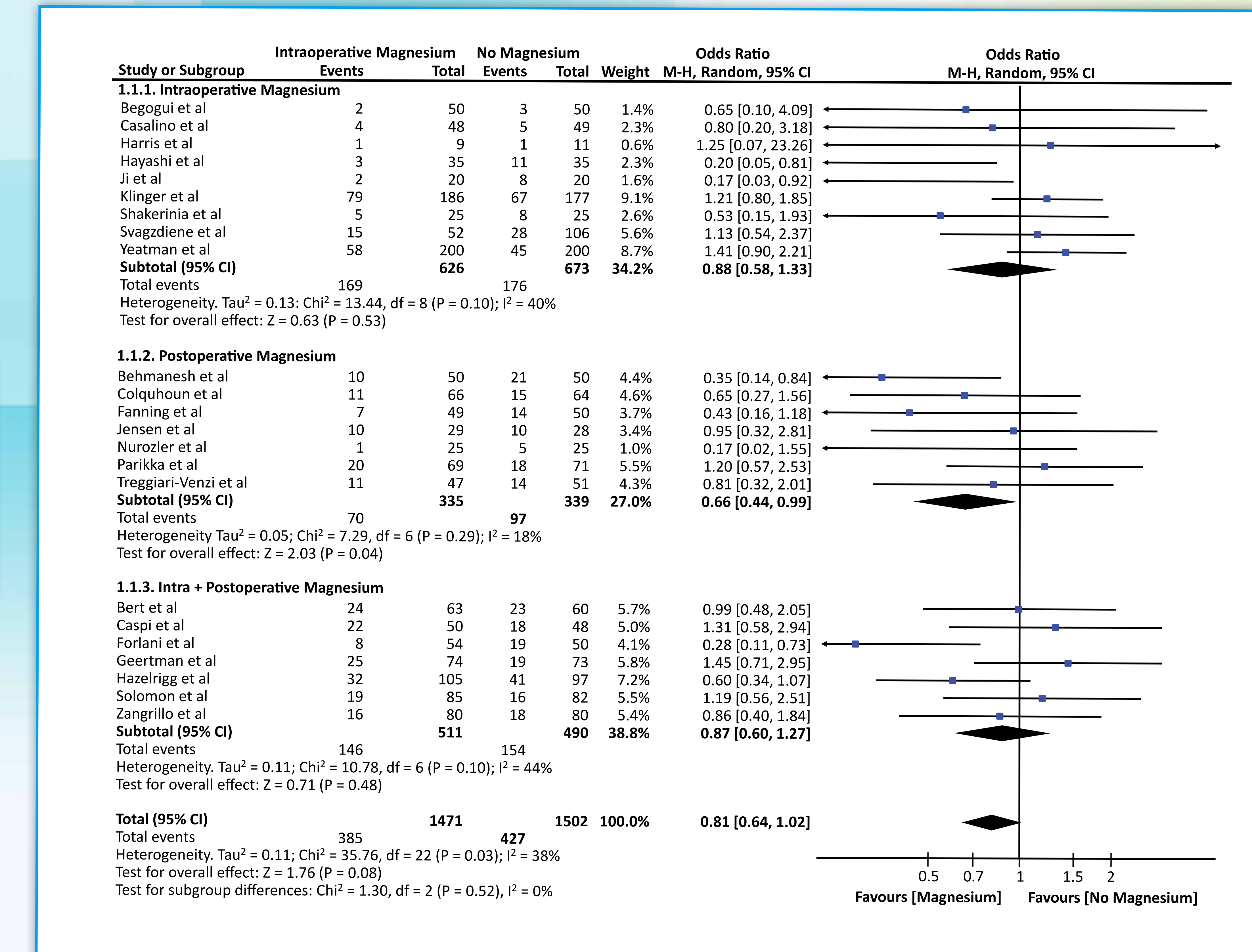


Figure 2: Forest plot evaluating the efficacy of prophylactic magnesium (Mg) supplementation in prevention of post-operative atrial fibrillation (POAF) in patients undergoing cardiac artery bypass grafting (CABG).



Conclusion

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