

Abstract

Background: Perioperative atrial fibrillation (POAF) after non-cardiac surgery is a risk factor for cardiovascular events including stroke and death. The aim of this subanalysis of the MAMACARI study, a multicenter randomized control study on the effectiveness of a bisoprolol transdermal patch for prevention of perioperative myocardial injury in high-risk patients undergoing non-cardiac surgery, was to identify the predictors of POAF after non-cardiac surgery in high-risk patients and to determine changes in blood pressure and heart rate during bisoprolol patch administration in the perioperative period.

Methods and Results: Patients aged over 60 years with hypertension and a high revised cardiac risk index (≥ 2) who were scheduled to undergo non-cardiac surgery were randomly assigned to a bisoprolol patch group (n=120) or a control group (n=120). We divided the patients into two groups: patients with POAF (POAF group; n=16) and patients without POAF (non-POAF group; n=206). Multivariate analysis showed that bisoprolol patch therapy (OR: 0.30, 95% CI: 0.092-0.978) and surgery time of 250 minutes or more (OR: 4.99, 95% CI: 1.37-18.2) were independently associated with POAF. Although systolic blood pressure did not differ significantly between the two groups throughout the perioperative period, treatment with a bisoprolol patch significantly reduced heart rate throughout the perioperative period compared with that in the control group.

Conclusions: Low dose of a bisoprolol patch in the perioperative period was effective for prevention of POAF after non-cardiac surgery in high-risk patients, while long surgery time was an independent risk factor for POAF. It is expected that low dose of a bisoprolol patch can prevent POAF without causing hypotension.