Evidence and Beta-blocker Management in High-risk Patients Presenting for Non-Cardiac Surgery: A Prospective Cohort Study

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Introduction: Great effort is directed towards developing an evidence base for clinical practice, but current implementation rates of evidence-based treatments are unacceptably low. We therefore investigated the uptake of new high-quality evidence on perioperative beta-blockade. Influential guidelines recommended perioperative beta-blockade in high-risk patients, but a systematic review concluded that the evidence was insufficient. The POISE study randomised 8351 patients having non-cardiac surgery to 30-day treatment with metoprolol or placebo, and reported that beta-blockade decreased the incidence of myocardial infarction but increased the incidence of stroke and death. The aim of the present study was to compare the use of perioperative beta-blockade before and after the release of the POISE study results in high-risk patients presenting for non-cardiac surgery.

Methods: Patients aged ≥45 years of age, with or at risk of ischaemic heart disease and presenting for non-cardiac surgery were recruited. The first cohort was recruited after POISE study recruitment closed in July 2007 and before the first presentation of the results. The second cohort was collected in August and September of 2008 following the publication of the main paper. Data collection commenced prior to induction of anaesthesia and concluded at hospital discharge or postoperative day 7 as applicable, and included preoperative risk factors, postoperative events and heart rates. At the end of surgery, an investigator asked the senior anaesthetist for the case to report their reasons for either implementing or not implementing perioperative beta-blockade.

Results: 392 patients were included in the first cohort and 241 patients were included in the second cohort. Fifty percent of all patients were taking beta-blockers preoperatively. Beta-blockade was initiated within 7 days of surgery in a further 9 (1.4%) patients (6 [1.5%] in the first cohort and 3 [1.2%] in the second cohort; p = 0.78), and postoperatively in 42 patients (26 [13%] in the first cohort and 16 [13%] in the second cohort; p = 0.97). Beta-blockade was initiated by the anaesthetist in 12 patients (9 [2.3%] in the first cohort and 3 [1.2%] in the second cohort; p = 0.35).

Conclusions: The six participating hospitals were high-recruiting centres for the POISE study, where the inadequacy of the evidence for beta-blockade was widely known. The POISE study authors concluded that based on the risk of stroke and death, widespread perioperative beta-blockade was not warranted and this was reflected in the results of the present study.

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