propensity-matched analysis was performed in 685 pairs of patients. In propensity-adjusted as well as propensity-matched analyses, the use of PPIs was not associated with an increased risk of MACE or NACE. A similar study by Banerjee et al. [11], analysing all-cause death, non-fatal myocardial infarction, repeat revascularization and MACE in a cohort of 23,200 post-percutaneous coronary intervention (PCI) patients using a multivariate adjusted Cox model and propensity-matched case-control analysis, came to the same conclusion.

CLINICAL BOTTOM LINE

Current evidence is marginally in favour of routine acid-suppression following cardiac surgery for the prophylaxis of gastrointestinal complications. In particular, prophylactic PPIs have been shown to reduce haemorrhagic gastritis and haematemesis complications. Recent meta-analysis suggests an increased risk of pneumonia with routine use of acid-suppression, however, routine use of PPI has not been shown to increase complications related to inhibition of clopidogrel. Individual management decisions must be based on clinical indication. Due to the high morbidity and mortality in patients with gastrointestinal bleeding following cardiac surgery, the authors of this BET would recommend routine acid-suppression with PPI.

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REFERENCES


eComment. Gastrointestinal complications in cardiac surgery

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We read with interest the best evidence topic article by Shin and Abah regarding routine stress ulcer prophylaxis in cardiac surgery [1]. We agree with their recommendation of routine acid suppression therapy for the prevention of gastrointestinal (GI) complications in patients undergoing cardiac surgery.

Major GI complications following cardiac surgery consist mainly of upper GI bleeding and GI ischaemia followed by peptic ulcer disease, diverticulitis, pancreatitis and cholecystitis [2,3,4]. We have audited our practice with regards to major GI complications in patients undergoing cardiac surgery [2]. We found out that after routine introduction of acid suppression therapy, there was a significant reduction in GI complications related to upper GI bleeding. Therefore, there was no single practice in various cardiothoracic units in the United Kingdom [2].

In their retrospective study of 51 patients with GI complications (in total of 8719 patients), Fisulli et al. listed the following as independent predictive factors of GI complications in cardiac surgery: age, myocardial infarction, congestive heart failure, haemodynamic instability, cardiopulmonary bypass time (over 120 min), peripheral vascular disease, and renal and hepatic failure [3]. The overall hospital mortality among patients with GI complications was higher and the long-term survival was significantly decreased in these patients compared with the control group [3].

In addition, Mangi et al. performed a retrospective analysis of 46 patients (out of 8709 patients) with GI complications and found the following to be preoperative predictor factors: prior cerebrovascular accident, chronic obstructive pulmonary disease, type II heparin-induced thrombocytopenia, atrial fibrillation, prior myocardial infarction, renal insufficiency, hypertension, and need for intra-aortic balloon counterpulsation [4]. Univariate predictors of increased mortality rate in patients with GI complications included New York Heart Association class III and IV, smoking, direct bilirubin over 2.4 mg/dl, pH less than 7.30, syncope at time of presentation, chronic obstructive pulmonary disease, aspartate transaminase over 600 mg/dl and the need for two or more pressors [4].

The National Institute of Clinical Excellence has recommended the treatment with acid suppression therapy (H2-receptor antagonists or proton pump inhibitors) in all acutely ill patients (admitted to intensive care or high dependency units) for primary prevention of upper GI bleeding. Therefore, depending on the patient, the oral form of acid suppression therapy is preferable [5].

The need of acid suppression therapy should be reviewed after the discharge of the patient from the intensive care or high dependency units on an individual basis and during their recovery process [5].

Acid suppression therapy can reduce the risk of acute upper GI bleeding and blood transfusion requirements. However, it does not significantly affect the mortality rate. The adverse events of ventilation-associated pneumonia and of Clostridium difficile-associated diarrhoea do not appear to be increased significantly after the introduction of acid suppression therapy [5].

In conclusion, GI complications in patients undergoing cardiac surgery remain rare but devastating. The early identification of predictive factors and the application of all the preventive measures are of paramount importance for the better outcome of these patients.

References

We read with interest Shin and Abah’s Best Evidence Topic [1] regarding stress ulcer prophylaxis in patients undergoing cardiac surgery, as we have conducted a similar search for this topic recently.

Whilst we agree with the authors that routine acid suppression is warranted in patients undergoing cardiac surgery, we feel the conclusion that there is increased risk of pneumonia is of debatable significance within the context of cardiac surgery. Shin and Abah extrapolate this notion from a meta-analysis of acid suppression and risk of pneumonia [2]. This is a meta-analysis of a wide range of studies set predominately in non-cardiac surgical units. Due to the unique nature of open heart surgery, it will be extremely difficult to attribute the risk of pneumonia to acid suppression. This risk must be balanced with the morbidity and mortality of gastrointestinal (GI) haemorrhage in these patients.

There are several other studies of note assessing ulcer/GI haemorrhage prophylaxis in cardiac surgery patients. Johnston et al. prospectively recorded GI complications in 5,348 consecutive patients undergoing cardiac surgery over 8 years [3]. 41 patients developed acid-peptic complications. Gastric ulceration was the most common GI complication; interestingly, this was despite use of H2-receptor antagonists for prophylaxis. However, less than 15% of these patients received prophylaxis for more than 24 hours. Johnston et al. conclude that patients suffering acid-peptic complications are distinct from those suffering other GI complications, and should receive aggressive prophylaxis.

Finally, our search identified a prospective study of 2285 consecutive patients undergoing cardiac surgery [4]. The group receiving proton-pump inhibitor prophylaxis (PPI) had a significantly lower risk of GI bleed than the group without GI bleed prophylaxis.

Our search, like Shin and Abah’s, found only one randomised control trial (RCT) assessing acid-suppression and risk of GI haemorrhage in patients undergoing cardiac surgery [5]. Further RCTs to fully ascertain the most effective class of drug for preventing GI complications post-cardiac surgery in terms of post-operative incidence, optimum dosing and timing regimes, and cost are warranted.

References