Perioperative management of antiplatelet agents in patients with coronary stents: recommendations of a French Task Force

Editor—Following recent articles relating to perioperative antiplatelet drugs (APs) in the British Journal of Anaesthesia,1–3 we thought it would be of interest to share with you the recommendations of a recent working party in France which addressed the use of APs in patients with coronary stents.

Currently, high-level evidence is lacking in the literature in support for strong recommendations on the perioperative use of APs. The lack of evidence is particularly striking when considering patients with coronary stents, especially drug-eluting stents. This is a problem because an increasing number of patients with stents and receiving a combination of APs (aspirin and clopidogrel) are candidates for an invasive procedure or surgery. The risk of bleeding and/or thrombosis while maintaining or withdrawing AP treatment in these patients has not been assessed.

A multidisciplinary group of experts (cardiologists, haematologists, surgeons and anaesthesiologists) met in December 2005 under the auspices of the French Society of Anaesthesiology and Intensive Care (SFAR) to review the state-of-the-art in the field and to produce recommendations on appropriate clinical practice. In view of the paucity of evidence-based data, the recommendations are based in large part on agreement among the members of the task force. A consensus was not reached on all points; at times, more than one management option was proposed. The recommendations are not meant to be evidence-based guidelines but a guide to practitioners in their routine practice.

Recommendations

1. Combination AP treatment should be maintained for at least 4–6 weeks after placement of a bare metal stent and at least 6–12 months after placement of a drug-eluting stent.4

2. If AP treatment is well managed, the risk of acute thrombosis is independent of stent type (drug-eluting or not). Withdrawing APs is a major risk factor for thrombosis for all types of stent and especially for late stent thrombosis in the case of drug-eluting stents,5,6 treatment should therefore be long term. However, one or both APs may need to be withdrawn in order to perform an invasive diagnostic or surgical procedure.7,8 The frequency of stent thrombosis in this situation has not been established for drug-eluting stents as only isolated clinical cases have been reported in the literature without any data on the number of cases with no perioperative thrombotic complications.9–11

3. Whether a stent should be placed or not should always be discussed early on. If surgery is to be performed in 6–12 months time, a bare metal stent is the preferred option. Before placement of a drug-eluting stent, any surgery likely to take place in the future should always be considered.

4. Patients with drug-eluting stents who have a very high risk of stent thrombosis should be identified. This includes patients who have discontinued AP in the 6–12 months after stent placement, patients with a history of stent thrombosis, patients with more than one stent, long stents, or stents placed at a bifurcation, incomplete revascularization, patients who have relapsed during treatment, diabetic patients or patients with a low ejection fraction.5

5. A multidisciplinary team meeting must take place in order to decide on perioperative AP use in these patients. The meeting should be attended by the cardiologist, the haemostasis specialist, the surgeon or practitioner carrying out an invasive procedure (e.g. endoscopy) and the anaesthetist. They should discuss the risk of bleeding during surgery if APs are maintained and the risk of thrombosis on discontinuing one or more APs. They should decide jointly how the patient should be managed perioperatively, or whether the procedure should be postponed or cancelled. Their conclusions should be entered in the record of the multidisciplinary team meeting and should be easily accessible in the patient’s file. The patient should be informed of the conclusions.

6. The task force agreed that aspirin should be maintained and that clopidogrel could be withdrawn for a 5 day window in a patient with a drug-eluting stent and receiving AP combination treatment, who needs to undergo a diagnostic or surgical procedure at a time when AP treatment cannot be totally discontinued (high risk of thrombosis) (Table 1). This recommendation is not based on the results of a prospective study but on a compromise between platelet half-life (10 days), risk of bleeding associated with antiplatelet agents’ maintenance, and risk of stent thrombosis associated with withdrawal. Treatment should be resumed as soon as possible after surgery. Some panel members recommended a loading dose of at least 300 mg of clopidogrel on treatment resumption.

7. In patients with drug-eluting stents, irrespective of when the stent was placed, maintaining aspirin during surgery was the preferred option (Table 1). This recommendation is based on expert opinion as high-level evidence studies are lacking. However, caution should be
exercised and a group discussion is highly recommended when considering surgery associated with high blood loss (e.g. major tissue detachment, aorta, prostate, neurosurgery, ENT, posterior segment of the eye). Currently, there are no published data on the perioperative risk of bleeding with clopidogrel, except for cardiac surgery, and there are only few data for ticlopidine (a thienopyridine with a risk of bleeding equivalent to that of clopidogrel). Compared with aspirin, ticlopidine has been reported to show an increased risk of bleeding.12 13

8. If AP treatment cannot be maintained (major risk of bleeding during surgery, or surgery that cannot be postponed), total withdrawal of combined treatment should be considered on a case by case basis, as the patient is exposed to a severe risk of thrombosis.6 If total withdrawal is decided, the task force considered drug substitution as a possibility but had no reasons for preferring either a non-steroid anti-inflammatory (flurbiprofen: 50 mg × 2, withdrawn 24 h before surgery) or low-weight heparin (s.c. dose of 85–100 IU aXa per kg for 12 h with effective anticoagulant activity and not just a preventive dose). Heparin exposes the patient to a substantial perioperative risk of bleeding.

**Task Force: members**

Acknowledgements to Prof. Jean François Hardy (University of Montreal) for the translation of the table.

Editor—Dent and Lekic relate in their letter to an important topic, namely hypercoagulability with adverse events after discontinuation of unfractionated heparin. In our study we observed the majority of ischaemic events clustered around day 0 or 1 after surgery. We think it is reasonable to assume that the above phenomenon contributes to the overall high rate of events—as does postoperative hypercoagulability without earlier heparin administration. Certainly, neither effect can be proven by our study and remains speculation. Additionally, we emphasize that despite >80% of the study population taking antiplatelet drugs until the day before surgery, the rate of ischaemic events was high. More and more evidence is mounting that we need standardized tests to adequately monitor and titrate anticoagulant and antiplatelet drugs on an individual basis in the perioperative scenario.

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Unfractionated heparin and coronary artery stenting

Editor—We read with interest Vicenzi and colleagues’1 paper concerning coronary artery stenting and non-cardiac surgery. We were concerned by the high cardiac complication rate they reported, particularly in patients receiving unfractionated heparin (UFH) as a component of their anticoagulant regime (14 patients out of 16) compared with low molecular weight heparin (LMWH) (32 out of 87). The authors, while noting this association, warn against interpreting this as a significant effect, as the heparin regime was not subject to randomization in the study design. We believe, however, that this is further evidence of ‘heparin rebound’—a period of hypercoagulability after abrupt cessation of an infusion of UFH. This can be associated with ischaemic events when UFH is used in the management of unstable angina2 and myocardial infarction.3 This effect has been attributed to an increase in thrombin activity4 and activation of platelets5 during UFH infusion which persist for many hours after cessation of infusion, whilst the protective anticoagulant effects decline rapidly because of the short half-life of UFH. Ischaemic events in Theroux and colleagues’ study5 were clustered around a median time of 9.5 h after cessation of UFH—was there any temporal relationship between UFH administration and cardiac events in the authors’ study?

LMWH which has a longer half-life than UFH and does not activate platelets is not associated with an increase in ischaemic events and should, perhaps, be considered the drug of choice in this setting.

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Adverse events in anaesthetic practice

Editor—I read with interest the article by Smith and colleagues’1 on adverse events in anaesthetic practice. I have recently completed an audit in our anaesthetic department to ascertain the reason why critical incidents are under-reported. My audit relied on both consultants and registrars completing an anonymous questionnaire, the results of which are summarized in Table 1. I was pleasantly surprised to see that we are overcoming the era of ‘blame culture’ and that triviality was the most common reason for under-reporting. I, as do some of my colleagues anaesthetists, agree that the definition of ‘criticality’ is ambiguous. As a result most of us would not regard situations such as laryngospasm and circuit disconnection as a ‘critical’ incident. Anaesthesia as a speciality is fraught with life-threatening