Preoperative Management of Patients Receiving Antithrombotics

Bleeding complications remain an important concern for most surgical procedures. Attempts to minimize the risk of these complications by removing risk factors such as the use of anticoagulants are therefore legitimate. However in many instances withholding anticoagulants in the perioperative period may place the patients at risk of thrombotic complications which outweigh the benefits of normal hemostasis.

The approach to this dilemma has been inconsistent from physician to physician and so we sought to provide working guidelines for the management of perioperative anticoagulation based on our limited available evidence and opinion from major stakeholders.

These are by no means strict protocols because we can not account for all possible scenarios and inter-patient variability.

Page Links:

1. ASA (including Aggrenox)
2. Coumadin
3. LMWH (Low Molecular Weight Heparins)
4. Clopidigrel (and Ticlodipine)
Management of patients on ASA
(Includes Aggrenox)

A. Patients taking ASA for Primary prevention

- Hold 7 days preoperatively
- If patient at high risk of CAD with low risk of bleeding complications – consider continuing ASA 81mg

B. Patients taking ASA for Secondary prevention

(History of Coronary Artery Disease (CAD), suspected CAD, Cerebrovascular disease (CVD) – including post carotid endarterectomy, Peripheral Vascular Disease)

- Patients should remain on their ASA 81mg perioperatively
- Hold ASA for 7 days preoperatively for the following procedures:
  - Intracranial surgery
  - Spinal canal surgery
  - Tonsillectomy
  - Major neck dissection with free flaps
  - TURP/TURBT
  - Percutaneous Nephrostomy Tube insertion
  - Radical Prostatectomy (urology will try to provide evidence for this)
  - Liver resection

C. Patients with a cardiac stent should not stop their ASA

D. Patients with a carotid stent should not stop their ASA in most cases

** Primary prevention: The use of ASA to prevent acute coronary syndromes or ischemic cerebrovascular accidents in patients with no prior history of these events whether they have risk factors or not.
References:


Prevention of PE and DVT with low dose ASA: PEP trial, Lancet, vol 355, April15, 2000


Antithrombotic Therapy for Peripheral Artery Occlusive Disease Michael Sobel, Chest June 2008 133:815S-843S; doi:10.1378/chest.08-0686

The Primary and Secondary Prevention of Coronary Artery Disease Richard C. Becker et al., Chest June 2008 133:776S-814S; doi:10.1378/chest.08-0685
Management of patients on Coumadin

Effective withdrawal of Coumadin is expected for the majority of surgical patients. Documentation of a return to normal coagulation (INR ≤ 1.5) is expected before surgery can safely proceed. Exceptions to this approach include cataracts, minor dental surgery, examinations under anaesthesia.

Withdrawal of Coumadin exposes a number of high risk individuals to a risk of recurrent thrombosis and potential pulmonary embolus or cerebrovascular accidents. In such cases “bridging anticoagulation” with low molecular weight heparin may be indicated to maintain anticoagulation during Coumadin withdrawal.

We will recommend that the patient be assessed in the Thrombosis Unit, to determine the need for “bridging anticoagulation” therapy with low molecular weight heparin as well as post-op anticoagulation therapy. (The Thrombosis Unit is not the appropriate service for assessing Plavix requirements for patients with CAD or CVD). Patients need to hold their Coumadin for a period of 5 days minimum to return to a normal coagulation state, therefore the thrombosis unit assessment needs to be arranged with sufficient lead time. (Ideally 2 weeks is needed to book a visit in this clinic)

- Consult Thrombosis (613-737-5888 ext. 17622)
  - Individual assessment needed for bridging therapy with LMWH
  - Exceptions
    - Patients with a single episode of secondary DVT who have been on Coumadin for >3 months do not require bridging but should be advised to see the physician responsible for the Coumadin order to determine if this therapy is still required
    - Patients with atrial fibrillation with a CHADS score of 0 (See below)

- Hold Coumadin minimum 5 days preoperatively
- INR Stat am of surgery
**Secondary DVT**: DVT arising secondary to a now resolved high risk state (trauma, pregnancy, post-surgical) and not associated with a thrombophilia (Factor V Leiden, Hyperhomocysteinemia, Protein C deficiency, Protein S deficiency, Antiphospholipid Antibody Syndrome, Antithrombin III Deficiency, prothrombin gene mutation)

**CHADS score**: Score 1 point for each of the following –
- History of CHF
- Hypertension
- Age >75
- Diabetes Mellitus
- History of Stroke or TIA (2 points)

**CHADS score does not apply to patients with mitral stenosis; they need to be seen by the thrombosis clinic for possible bridging.**

Management of patients on Low molecular Weight Heparin (LMWH)

- **Prophylactic Dose**
  - Daltaparin (Fragmin) 5000 units once per day
  - Enoxaparin (Lovenox) 40 mg once per day
  - Tinzaparin (Inohep) 4500 IU

  Most outpatients treated with prophylactic LMWH do not require a preoperative visit to the Thrombosis unit.

  Patients receiving a prophylactic dose of LMWH should hold their dose on the day of surgery only.

- **Treatment Dose**
  - Daltaparin (Fragmin) 200 U/kg once per day
  - Enoxaparin (Lovenox) 1.5 mg/kg once per day
  - Tinzaparin (Inohep) 175 U/kg once per day

  Those receiving a treatment dose of LMWH should be assessed by the Thrombosis unit.
Management of Patients on Clopidigrel (Plavix) and Ticlopidine (Ticlid) and patients with cardiovascular or cerebrovascular disease

The patient’s interventional cardiologist or his/her neurologist should be contacted for all patients taking Clopidigrel to assist decision making. At the Ottawa Heart Institute, cardiologists who are unavailable will be covered by one of their colleagues, and the same applies to neurologist at the Stroke Prevention Clinic.

Perioperative decisions to hold or continue Clopidigrel are complex. Continuing the drug may increase bleeding risk, but withholding the drug may increase the risk of in stent thrombosis, myocardial infarct, death and stroke.

The following is only a guide.

**No patient should have surgery (unless life saving) within 2 weeks of any cardiac stent implantation

1. Recent MI (>7 days but < 1 month)
   - Hold Plavix if significant bleeding risk but continue ASA

2. Stroke (ischemic)
   - < 3 months ago
     - Delay non life saving surgery
     - If on ASA + Plavix, proceed without discontinuing (unless risk of severe bleeding - hold Plavix continue ASA)
     - If on Coumadin, bridge with LMWH
   - > 3 months ago
     - Hold Plavix and continue ASA (unless risk of severe bleed)
     - If on Coumadin, bridge with LMWH
     - If on Aggrenox or ASA continue (unless risk of severe bleed)
   - In all cases preoperative therapy should be resumed ASAP
3. **Carotid stents**

- **< 3 months**
  - Delay non life-saving surgery OR
  - Proceed without discontinuing (unless risk of severe bleeding – Hold Plavix but continue ASA)

- **> 3 months**
  - Proceed without discontinuing (unless risk of severe bleeding – Hold Plavix but continue ASA)

- In all cases preoperative therapy should be resumed ASAP

4. **Coronary Angioplasty without stent**

- **< 4 weeks ago**
  - Delay non-life saving surgery or
  - Operate without discontinuing (unless intracranial surgery)

- **> 4 weeks ago**
  - Hold Plavix continue ASA, proceed with elective surgery

2. **Patients with cardiac Bare Metal Stent (BMS)**

Optimal time for surgery would be > 4 weeks but < 12 weeks after stent

- **BMS < 4 weeks old**
  - Delay non life-saving surgery or
  - Operate without discontinuing (unless intracranial surgery)

- **BMS > 4 weeks old**
  - Hold Plavix, maintain ASA throughout
  - Proceed with elective surgery
  - Re-bolus Plavix 300mg as soon as safe, continue with Plavix at 75mg per day
3. Patients with cardiac Drug Eluding Stent (DES)

- DES < 12 months old
  - Delay non-life saving surgery or
  - Operate without discontinuing (unless intracranial surgery)

- DES >12 months
  - Hold Plavix 7 days and continue with ASA throughout
  - Re-bolus Plavix 300mg as soon as safe (night of surgery) then continue with Plavix 75mg per day

NB

1. Guidelines for BM stents and DES are variable because some patients may be at even higher risk of in stent thrombosis and may require a longer period of anticoagulation.

2. Contacting the patient’s cardiologist is preferable to asking for a cardiology consult, as they will have the required information to make the correct decision.

3. For patients taking Clopidigrel for CVD, contacting the patient’s neurologist or neurosurgeon may be required.

4. Heparin and Low molecular Weight Heparin are not substitutes for Clopidigrel. If patients must stop Plavix, then consideration should be to given to use ASA as a substitute.

5. The Thrombosis Unit is not the appropriate service for decision making regarding Clopidigrel requirements preoperatively.

6. When held, the period of abstinence should be 7 days for Clopidigrel to keep us in agreement with the ASRA guidelines for neuraxial blockade. There is evidence that 5 or even 3 days would be sufficient to allow adequate platelet activity to proceed with surgery without increasing morbidity and mortality. For those patients at higher risk if Clopidigrel is stopped, consider a shorter abstinence period. The abstinence period should be 14 days for Ticlopidine, again in keeping with the ASRA guidelines and the product monograph (10-14 days before surgery).
Decisions regarding perioperative use of Plavix are complex and continue to evolve. Monitoring information as it becomes available may alter these current recommendations.

Reference


**Antithrombotic Therapy for Peripheral Artery Occlusive Disease**: Michael Sobel, *Chest* June 2008 133:815S-843S; doi:10.1378/chest.08-0686


**The CURE trial: Using clopidogrel in acute coronary syndromes without ST-segment elevation**-GREGORY P. GERSCHUTZ, MD, DEEPAK L. BHATT, MD, *Cleveland Clinic Journal of Medicine* May 2002 vol. 69 5 377-378