



“From the Trough”

Perioperative Interest Group Notes

Based on Cases discussed at the Weekly PIG Clinical Meeting on 26th April 2018.

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Website: www.perioptalk.org

The imperfect opinions in these reports are only meant to stimulate discussion: - they should not be considered a definitive statement of appropriate standards of care.

TOPIC 1: Iatrogenic Hyperthyroidism

A 53 year old patient awaiting a laminectomy with history of hypothyroidism treated with thyroxine replacement. Thyroid Stimulating Hormone assay showed hyperthyroidism (TSH 0.6) on 250 mg thyroxine per day. Further tests: - T4 26 (raised) and FT3 within normal limits. Question: - How should this be managed?

Discussion: - (Advice from endocrinologists):- the results suggest that the thyroxine replacement is excessive (moderately raised T4), but the FT3 result suggests that “the body is coping with the excessive dose of T4 at present”. The concern is that stress of surgery; fasting etc. may reduce the body’s handling of T4, and thus tip the patient into a hyperthyroid state. The suggested management (involving the GP) would be to stop thyroxine altogether for one week, and then re-start on a lower dose (about 175 micrograms per day). Easy enough for this case. In an emergency it would be reasonable to go ahead and use a non-selective beta-blocker to control symptoms of hyperthyroidism if it was suspected. A true ‘thyroid crisis’ would be extremely unlikely.

TOPIC 2: Newly diagnosed Atrial Fibrillation

A 74 year old man awaiting a hip replacement to be done in two weeks’ time is noted to have atrial fibrillation. He reports that he feels well and has not noticed anything unusual about his heart rate in recent weeks. He has not been noted to be in AF before, but most recent ECG was more than 12 months ago. The patient has a heart rate of 71 on ECG. He has a past history of hypertension which is well treated but is otherwise well. Exercise tolerance is limited by hip pain at present but he has previously been fit and active. How should this be managed?

Discussion: - (Advice from Cardiologists). Although the patient reports he feels well and no recent medical events, a focussed history and clinical examination should confirm this. FBC, UEC and thyroid function tests should be done, but will probably be normal. An echocardiogram to identify any valvular heart disease, and to assess left ventricle function. The findings on the Echo may lead to reconsideration of timing of surgery, or may change assessment of perioperative risk, particularly if there are segment wall-motion abnormalities. It may be falsely reassuring if the patient is not tachycardic in the absence of pharmacological rate control (as in this case), as it may imply impaired conduction may be exacerbated during anaesthesia. To clarify this, a **Holter**¹ monitor recording is appropriate to check if he is going more slowly intermittently. (n.b. Holter recordings can be easily organised through the hospital cardiology, or through external private pathology services, covered by MBS.)

Opinions vary as to whether a new diagnosis of atrial fibrillation in general practice is necessarily an indication for referral for specialist cardiology evaluation. This may be particularly appropriate in younger patients where AF is less usual and hence may justify more detailed evaluation.

Should anticoagulation be commenced? Given the short time period in the lead up to surgery, traditional advice would have been to not start Warfarin, which takes time to stabilise, and then requires cessation four days preoperatively. The net risk per week of non-anticoagulated atrial fibrillation is low, even at higher CHADS scores. That said, if the patient’s renal function is normal it would not be unreasonable to consider commencing a NOAC (e.g. apixaban or rivaroxaban) as they are ‘easier to start and easier to stop’:- they are relatively well tolerated by the patient, no need for dose stabilisation, and the cessation time preoperatively is less than with Warfarin. In this situation decision-making and drug choice would be appropriate to discuss with the general practitioner.

TOPIC 3: Surgery shortly after an acute illness with troponin rise

A 62 year old man with insulin-dependent type 2 diabetes is awaiting surgery in ten days for cervical neuropathy (cervical foraminotomy). Two weeks ago he was admitted to hospital after an episode of severe gastro upset in diabetic ketoacidosis. He recovered well with conventional treatment of rehydration and insulin infusion, but was noted to have a troponin rise to 6500. A coronary angiogram shortly afterwards showed no acute lesion (i.e. thrombosis or stenosis or suggestion of plaque rupture). Two weeks later the patient is feeling well and 'back to normal':- he reports that the day before clinic visit he climbed Mount Tomaree "in twelve minutes" (!). The patient is on now anticoagulants and awaiting cardiology follow up.

Question: - Should surgery be delayed after such an acute illness?

Discussion:- The patient has made a very good recovery, however there is general consensus (in the absence of evidence) that it would be inappropriate to go ahead with surgery within 6-8 weeks of the myocardium being "stunned" such as during this episode. But there is no evidence to base this opinion.

After discussion, the coronary angiogram was re-examined:- Although there were no large vessel lesions, there was widespread small-vessel disease, typical of a patient with long-standing diabetes. It is unsurprising that the patient had a large troponin leak in the context of severe systemic illness.

Question: - Is there a role for BNP and Troponin assay? The recent Canadian cardiology guidelines propose BNP and Troponin for assessment and for risk stratification in all patients over 65, and patients over 45 with risk factors. This is 'elective' surgery, and risk stratification may be useful for shared decision making purposes.

Discussion: - Given that the patient's exercise tolerance has returned to normal, it would be difficult to imagine that the BNP would be anything but normal. Therefore it is difficult to justify. Pragmatically, BNP assay is not funded by MBS, and would be at cost to the patient. Troponin assay may be more appropriate. It is recognised that some patients with microvascular heart disease have an ongoing troponin leak and that this is associated with adverse perioperative outcomes. Thus a preoperative troponin assay may aid preoperative risk assessment and shared decision making. It may also be useful as a 'baseline' in case someone does a troponin post operatively. Finally, and pragmatically, given that the patient is having cervical neurosurgery, there needs to be a clear understanding that if the patient does have a further cardiac event immediately postoperatively that anticoagulation (and thrombolysis) is contraindicated.

¹ **Historical footnote:-**

Note the spelling and capitalisation. It is not, as commonly thought, a misspelling of 'halter' (as in a fashion garment or tether around a horses head). The Holter monitor was developed at the Holter Research Laboratory in Helena Montana by experimental physicists Norman Jefferis "Jeff" Holter (1914 – 1983) and Bill Glasscock. (Their work would now be described as biomedical engineering.) They were inspired by a suggestion from the pre-eminent US cardiologist Paul Dudley White in the early 1950s, to work towards development of a wearable cardiac monitoring device. The Holter monitor was released for commercial production in 1962. Holter donated the rights to his invention to medicine.