



“From the Trough”

Perioperative Interest Group Notes

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.

Date 01/07/21

TOPIC 1: ‘Not seen’ warning note

60-year-old lady for elective lumbar foraminotomy

Background

- NIDDM – HbA1C = 7%
- OSA – on CPAP
- Hypertension
- Current smoker
- Radiculopathy – bilateral foraminotomies at a lower level 6 months ago without issue

Issues

- Timing of booking/covid backlog/increased workload at periop clinic – no time to perform a perioperative consult
- Not seen warning note generated
- Cancelled on DOS as on SGLT2 inhibitor, not discontinued

Discussion

Could this cancellation have been avoided?

- Multiple factors contributing to failure to cease SGLT-2 inhibitor.
 - Patient had same surgery recently and it was ceased at that time
 - Discharge medications and recent perioperative instructions highlighted she was taking this medication
 - SGLT-2 not flagged on the RFA
- Patient may not remember medication instructions
- Surgical registrars often fill the RFA and may not be aware of the perioperative requirements for SGLT-2 inhibitors.
- Additionally, perioperative nurses are triaging many cases per day, they rely on the GP referral/RFA and often don’t have enough time to read through the previous clinic notes

Would it have been appropriate to proceed?

- Ultimately it is the decision of the procedural anaesthetist
- According to most recent ANCZA/ADS statement, it may be appropriate to perform day surgery on patients who have continued SGLT-2 inhibitors under certain conditions. (See table below)
- This surgery may be complex due to previous surgeries
- Patient has good glycaemic control but significant co-morbidities.

- Elective procedure, consensus that best to postpone

Table: Suggested Management of CLINICALLY WELL patients who have NOT ceased SGLT2i

Ketones	Base Excess	Comments
<1	> -5	No ketosis and no metabolic acidosis. Consider proceeding with day surgery: hourly monitoring of blood ketones during the procedure, and 2nd hourly following the procedure until eating and drinking normally or discharged. Provide the patient with written post-discharge advice. Where blood gas analysis is not available proceed only if added risk is consistent with goals of care. More extensive surgery requires considering goals of care and collaboration with endocrinology and critical care. Perioperative insulin and dextrose infusions may reduce risk.
>1	> -5	Ketosis without metabolic acidosis. Seek endocrinology or general medicine advice. Ketosis without acidosis may reflect starvation, particularly in patients with HbA1c < 9% (<75 mmol/mol). Consider proceeding, but with perioperative insulin and dextrose infusions to reduce risk of ketosis and acidosis (DKA).
>1	< -5	Ketosis with metabolic acidosis. Strongly consider postponing non-urgent surgery. Escalate care with endocrinology and critical care.

Footnote: Blood gas analysis is recommended to assess for presence of metabolic acidosis. Where blood gas analysis is not readily available, and the ketones are > 1.0 the procedure should not be performed.

TOPIC 2: Acute psychosis and hernia repair

37-year-old lady for elective repair of an epigastric hernia

Background

- Significant mental health history with multiple inpatient admissions – voluntary and involuntary
- Polysubstance abuse
- Multiple previous hernia repairs

Issues

- On day of surgery, patient thought she was being admitted for a caesarean section
- Support person confirmed this, and alleged patient had been using amphetamines recently
- Procedural anaesthetist reviewed patient who reiterated she was pregnant, and it was her due date.
- Patient thought that the investigations for the hernia were for obstetric purposes
- Beta-HCG negative
- Postponed in conjunction with surgical team
- Psych liaison contacted and recommended admission, but patient absconded post review
- Outpatient welfare visit and psychiatry follow-up organised by Psych-Liaison nurse

Discussion

Could the acute Psychiatric deterioration have been identified preoperatively?

- Unlikely, may have been very acute. Alleged recent excessive amphetamine use.
- Difficult via phone consult

Management of Patient

- Appropriate care provided to patient
- Unable to consent at time of elective procedure
- Psych Liaison services available at JHH and very helpful with this case

TOPIC 3: Blood product Consent

49-year-old lady for Laparotomy and Hysterectomy for fibroid uterus and menorrhagia

Background:

- Very large multi-fibroid uterus
- Menorrhagia – Fe deficiency anaemia in past requiring Iron infusion
- Fit and healthy lady
- Active, normal BMI

Issues

- Jehovah's witness, Provided advanced care directive regarding acceptable blood products
- Inconsistency between products listed on ACD and those available for use in Australia, for example, haemoglobin

Discussion

Consent for Blood Products

- Frequently find ACD from Jehovah's witness patients that list products not available in Australia
- Helpful strategy is to direct patients to the Red Cross website, explain available blood products and ask them to discuss with relevant advisors as to which they are happy to accept
- Essential that patients are adequately informed and consented preoperatively
- Jehovah's witness website has many resources, may be helpful for anaesthetists to review information that patients are provided by church
- Majority of people agreed that they document patient's wishes with regards to blood products in the event of a life-threatening emergency.
- This is best done at the perioperative consult as patient may need time to consult with family and church

Clinical Strategies to avoid Blood transfusion in this case

Preoperatively:

- Optimising Haematinics, anaemia screen and replacement as appropriate
- Consider use of tranexamic acid or Mirena in menorrhagia
- Fibroids – embolization, Zoladex – reduces size, takes 6 months to work and undesirable side effects.
- Nutrition advice and weight loss if appropriate

Intraoperatively:

- Liaise with surgical team regarding expected blood loss/difficult of surgery
- Consider use of cell salvage

- Intraoperative tranexamic acid to be considered

Plan:

- All above strategies employed
- Liaise with surgeon and procedural anaesthetist
- Consider update of clinic guideline/proforma – ongoing

TOPIC 4: Dental extractions in preparation for cardiac surgery

67-year-old man for 2 dental extractions in preparation for AVR

Background:

- Asthma – daily Ventolin for dyspnoea but no admissions or steroids
- OSA – compliant with CPAP
- TIA – 2019
- Chronic kidney disease – stage 3
- Chronic cellulitis and lymphoedema – on long term antibiotics

Issues:

- Severe AR – awaiting AVR.
- HFrEF – 39%
- AF – Apixaban and Sotalol
- Pulmonary hypertension – recent right heart catheter; PAP = 57mmHg
- NYHA class 3 Dyspnoea

Discussion:

Anaesthetic techniques

- High risk patient for low-risk procedure
- Dental extractions under local anaesthesia would be lowest risk
- General anaesthesia would carry significant risk of cardiovascular morbidity and require arterial line/prolonged recovery stay

Anticoagulation

- Maxillo-facial surgeons happy to perform 1-2 dental extractions on anticoagulation

Plan:

- Local anaesthetic approach with continuation of anticoagulation
- Discuss with procedural anaesthetist and surgeon

TOPIC 5: Hysteroscopy and IUD insertion in Patient with BMI 77

56-year-old lady with endometrial hyperplasia for hysteroscopy, D&C, Mirena

Background

- Obesity Hypoventilation syndrome – on home BiPAP, compliant
- Asthma – recent admission with exacerbation of asthma and type 2 respiratory failure
- Spirometry; FEV1 = 0.8 (33%) and FVC = 1.4 (42%)
- AF – Apixaban and metoprolol. Rate-controlled.

- Hyperthyroidism

Issues

- Super-morbid obesity
- Dyspnoea on minimal exertion
- No previous cardiac investigations despite AF and multiple risk factors

Discussion

Perioperative optimisation

- **Dyspnoea** - likely multifactorial due to obesity, respiratory disease, and deconditioning.
- Regular review by respiratory physician ongoing
- Should we exclude cardiac causes? Not required preoperatively for this procedure, but prudent to begin process of investigations as will likely require repeated procedures and ultimately, a hysterectomy.
- Discussed at cardiology meeting – advised proceed as planned, should have BNP and if significantly raised then organise an Echocardiogram

Anaesthetic Management

- Opioid-sparing anaesthetic options discussed: sedation with THRIVE/BiPAP, spinal.
- Similar cases discussed that have been performed under ketamine sedation and using THRIVE
- Difficult to perform as a day case if opioids administered.
- ANZCA document PS15 '**Guideline for the perioperative care of patients selected for day stay procedures.**' advises that patients with confirmed or suspected OSA should have minimal post-operative opioid requirement and ideally discharge analgesia should not include opioids.

BNP as a diagnostic tool

- Increases in Plasma BNP can indicate a diagnosis of HFpEF or HFrEF
- Also used as a biomarker in pulmonary hypertension
- Differentiate between pulmonary cause of dyspnoea and undiagnosed Heart Failure
- The Breathing not properly study (attached article) showed low plasma concentrations of BNP had a negative predictive value of 96%
- Suggested in this case as an Echocardiogram would be technically difficult and may not be required if BNP normal
- Affected by obesity – lower plasma concentrations seen in obese patients

Plan

- Discussed with procedural anaesthetist – aim to perform procedure with BiPAP and sedation
- BNP to be done on admission to hospital as patient has no way to travel to pathology, results to be discussed at cardiology meeting if required

TOPIC 6 ?Fat embolism post-THR

66-year-old lady admitted to ICU with decreased GCS post elective THR

Background

- CREST syndrome – Raynaud's and oesophagitis.

- No DMARD/steroid therapy
- COPD – mild. Distant ex-smoker

Issues

- Revision/re-do THR in Private hospital with standard spinal anaesthetic
- Uneventful intraoperative progress
- Episode of postoperative chest pain. Fentanyl PCA commenced, had 20mcg in total
- 1 hour later, appeared ‘narcotised;’ confusion, pinpoint pupils, and decreased RR
- Fentanyl ceased
- 6 hours post-op, found with GCS 6, no response to naloxone or flumazenil
- BSL, CT brain and CT-Angio normal
- Commenced on Kepra and transferred to JHH ICU
- Intubated on arrival to ICU due to low GCS
- MRI revealed ‘Multiple focal areas of acute infarction and multiple micro-haemorrhages’ involving brainstem and bilateral Thalami.
- Working Diagnosis of fat embolism syndrome
- Troponin rise to 820, no ECG changes. Commenced on aspirin.

Discussion

- Interesting and very unfortunate case
- Unusual presentation, no hypoxaemia reported but did complain of chest pain
- No PFO on post-op echocardiogram
- Diagnosis of fat embolism is usually based on clinical findings, but biochemical changes may be of value. The major and minor diagnostic criteria by Gurd are outlined below.
- The major criteria are based on the classic triad of respiratory insufficiency, neurological impairment, and a petechial rash.
- For the diagnosis of fat embolism syndrome, at least one major and four minor criteria must be present.

Major criteria

Axillary or subconjunctival petechiae
 Hypoxaemia $Pa_{O_2} < 60$ mm Hg; $F_{I_{O_2}} = 0.4$)
 Central nervous system depression disproportionate to hypoxaemia
 Pulmonary oedema

Minor criteria

Tachycardia < 110 bpm
 Pyrexia $< 38.5^{\circ}C$
 Emboli present in the retina on fundoscopy
 Fat present in urine
 A sudden inexplicable drop in haematocrit or platelet values
 Increasing ESR
 Fat globules present in the sputum
