



## “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 14/10/21

**Attendance** : Ross Kerridge, Lisa Doyle, Gabrielle Papeix, Steve Bruce, Jennifer Mackey, Mark Davies, Neelam Bhala, Emma Hewitt, Elizabeth Freihaut, Paul Barnard, Phil Beames, Daniel Zardawi, Pragya Ajitsaria, Victoria Fraser, Ashok Dharmalingam.

#### **TOPIC 1:      Excision of Lower limb aneurysms in a patient with ‘Marfans characteristics’**

76-year-old man for excision and reconstruction of right tibio-peroneal trunk, posterior tibial and peroneal aneurysms

#### **Background**

- Marfan-like syndrome - dilated aortic root, aneurysms, high-arched palate
- AF - apixaban and metoprolol
- OSA - compliant with CPAP
- CVA - right MCA in 2019. Residual Left hemiparesis
- Monoclonal gammopathy - surveillance

#### **Issues**

##### **Type A aortic dissection**

- AVR and ascending arch repair in 2005
- Known residual aneurysm
- Aortic Root and Ascending aortic aneurysm increasing in size - reviewed by CTS and deemed unsuitable for further surgery. High complexity and multiple co-morbidities

##### **Exertional dyspnoea**

- Increasing in severity over last 7/12
- NYHA class 2
- Decreased exercise tolerance - 3.6 MET's. Limited by dyspnoea
- No orthopnoea, PND, angina.
- Overtly fluid-overloaded with pitting oedema to both knees at clinic
- Admission in March with Dyspnoea - treated for Strep Viridans endocarditis
- ECHO/TOE - no evidence of endocarditis, Severely Dilated ascending aortic aneurysm (75mm), severely dilated AR (49mm), Moderate RA dilation, severe LA Dilation, LV and RV function normal.
- No regular cardiology follow-up

##### **Lower Limb Aneurysms**

- Asymptomatic
- Risk of rupture requiring emergency intervention
- Previous superior gluteal artery aneurysm rupture requiring repair with glue after failed embolization
- Option for surveillance

## Discussion

### Optimisation

- Current fluid overload concerning
- Cardiology review and optimisation of therapy required preoperatively
- Patient feels not at best baseline and keen to wait until cardiology review
- Surgery not time-critical

### Conduct of anaesthesia

- Surgery will be long and complex
- GA recommended to provide optimal surgical conditions and minimise physiological stress response
- Spinal discussed however consensus that haemodynamic changes more difficult to control and surgery will require patient to lie very still for prolonged period.

### Plan

- Cardiology review preoperatively
- Postpone surgery for 3 months

## TOPIC 2:     **Consult for EVAR post Prehabilitation**

67-year-old man for re-consideration of EVAR

### Background:

- 5.5cm infra-renal AAA
- Previous perioperative assessment and CPET for this procedure
- Deemed too high risk based on CPET results
- Progress over last 6/12;
  - Optimised from cardiac perspective, has commenced Entresto and fluid balance improved
  - Commenced a daily exercise program
  - 30 minutes daily on treadmill at 3.6km/hr
  - DASI 5.6 MET's
  - 14kg weight loss

### Issues:

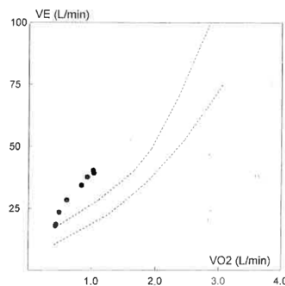
- IHD
  - Inferior MI 2008. Multiple stents to distal RCA 90% stenosis
  - Infrequent episodes of stable angina. On maximal medical therapy
  - SESTAMIBI - large, fixed perfusion defect in anterior wall with no reversibility demonstrated
- HFrEF - 49%. Hypokinesis of inferior and posterior walls. Moderate Pulmonary hypertension, Increased LV filling pressures.
- NIDDM - HbA1c = 6.7%
- BMI 45, after recent 14kg weight loss
- Severe OSA/OHS
  - compliant with CPAP. AHI = 97, SpO2 = 94% RA, HCO3 = 28
  - AHI reduced to 1 with CPAP however pressures inadequate and patient reluctant to increase.
  - SpO2 82% overnight with CPAP
- Asthma/COPD - post-BD FEV1 = 2.47 (84%), FVC = 4.2 (112%), DLCO = 67%

- ICU admission 2021 with PR bleeding and type II respiratory failure requiring NIV

## CPET:

### 1<sup>st</sup> CPET - April 2021

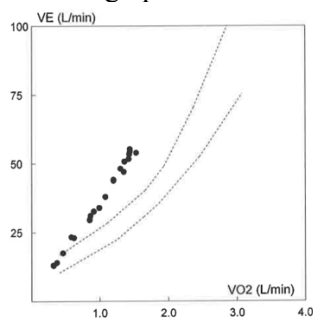
- Sub-maximal test
- Stopped after 2 minutes of cycling due to hypertension (SBP>180 as per AAA protocol)
- Excessive ventilatory response - as demonstrated by VE/VO<sub>2</sub> slope



- CPET MDT advised that patient was not a suitable candidate for any surgery.
- Recommended prehabilitation

### 2<sup>nd</sup> CPET - October 2022

- Sub-maximal test - RER 1.05
- Stopped due to SBP exceeding 200mmHg
- Peak VO<sub>2</sub> 12.2ml/kg/min
- AT 1.5L/min or 9.2ml/kg/min
- Nadir VE/VCO<sub>2</sub> 34.8 (using actual body weight)
- HRR 7bpm
- VE/VO<sub>2</sub> graph for second test:



## Discussion:

### Optimisation

- CPET results reassuring that patient has been optimised
- Symptomatic HF treated - can now lie flat, previous orthopnoea
- Exercise also beneficial physically and psychologically in this case
- Remains a high-risk patient, RCRI 3, NSQIP risk of death 2%, cardiac complication 3.5%, and serious complication 15%.
- Patient and family understand and are accepting of risks
- Discussed with surgeon - surgery carries prognostic and QoL value even if life-expectancy limited.

## **CPET**

- Near-maximal test and values for peak VO<sub>2</sub> and AT obtained on recent CPET
- Retrospective data indicates poor long-term prognosis and life-expectancy based on inability to complete the test. See doi:10.1093/bja/aet193
- Results are based on actual body weight and not modified for ideal body weight.
- Maximal SBP values pre-determined in conjunction with vascular surgeon in cases of AAA to minimise risk to patient.

## **Plan:**

- Proceed to EVAR

## **TOPIC 3:      Consult - EVAR vs Open AAA**

75-year-old man for assessment of open AAA Repair vs EVAR

## **Background:**

- 5.5cm AAA, asymptomatic
- COPD - mild, no admissions. 38 pack year smoking history.
- Lumbar spine fusion
- Graves' Disease

## **Issues:**

- IHD - angiogram 03/21 shows moderate non-obstructive CAD and normal LV systolic function. Medical therapy only
- Bilateral foot trauma - work injury many years ago. Multiple surgeries
- DASI 5.3 MET's
- Walks slowly with 4WW due to foot injuries but keeps active, plays lawn bowls.

## **CPET:**

- Normal spirometry, TLCO 78%
- Near-maximal test: RER 1.05 and HRmax 122bpm (82% predicted)
- Test ceased due to knee pain and anxiety
- Peak VO<sub>2</sub> = 14.6ml/kg/min (61% pred), AT 10.3ml/kg/min
- Nadir VE/VCO<sub>2</sub> elevated at 41.1
- HRR 6bpm

## **Discussion:**

### **Open vs Endovascular**

- Consensus that an endovascular approach is preferred in this case
- Age is a significant limiting factor to open AAA surgery in this patient
- Discussed with the surgeon and they are keen to proceed with EVAR
- Ultimately it is a surgical decision, however they value our collaboration in these complex patients
- CPET can help guide this decision-making

## **CPET**

- Performed well on the bicycle
- Limited by anxiety - elevated nadir VE/VCO<sub>2</sub> and low CO<sub>2</sub> are indicative of hyperventilation
- Useful test in this case as patient unable to walk any distance, easy to underestimate functional capacity

### **Rehabilitation post-procedure**

- Unlikely to be required for EVAR
- Bicycle-based rehabilitation available at JHH and would be beneficial to this patient

### **Plan**

- Prehabilitation with cycle-based approach
- Proceed to EVAR

## **TOPIC 4:     Severe PD, spinal surgery**

75-year-old lady for L4 and L5 laminectomy for bilateral leg pain

### **Background**

- Retired Anaesthetist
- IHD - AMI 1997, recent angiogram normal, echo shows posterior RWMA and normal LVEF
- Paroxysmal AF - apixaban and diltiazem
- PE 2020
- Peripheral neuropathy - chronic, affecting both feet.
- BMI 33

### **Issues:**

- Parkinson's - non-tremor dominant. Decreased mobility with rigidity, constipation, depression, and urinary incontinence. On Apomorphine infusion.
- Bulbar symptoms? Quiet voice and slurred speech on telephone. Denies dysphagia but describes frequent choking episodes, particularly at night.
- Recent aspiration pneumonia:
  - Awoke from sleep in middle of the night 'choking'
  - 1-week hospital stay, requiring IV antibiotics.
  - Treated for fluid overload.
  - Commenced on Domperidone with nil further choking episodes.
- TKR - 09/21. Uneventful spinal. Had been discharged a week when developed aspiration. Unable to complete rehabilitation due to pneumonia.
- Frailty - significant decline in functional capacity over recent months. Requires care with all ADL's, currently unable to stand unaided, housebound. CFS = 7
- C1/C2 arthropathy - severe neck pain, referred for regional block

### **Discussion**

#### **Optimisation**

- Frailty and immobility - these are multi-factorial issues. Uncertain if optimisable based on telephone consult.
- Currently re-engaging with physiotherapist to perform rehabilitation for TKR
- Cardiologist review and echo pending

#### **Perioperative risk**

- Risks discussed with patient including death, serious complications, and discharge to nursing home. Understands and is keen to proceed.
- Previously unaware of perioperative risks and thought surgery could be done under local/regional.
- Suggestion of possible early cognitive decline?

- Patient feels that a nursing home admission is inevitable and if she can delay that then she has nothing to lose
- Immobility and urinary incontinence are main factors affecting QoL - these are unlikely to be resolved by lumbar spine surgery.
- Very difficult to make a decision without clinical assessment.

#### **Timing of procedure**

- Recent major surgery and readmission to hospital - choking episode related to Parkinson's/opioids/both?
- Discuss with neurologist regarding disease severity and contribution of Parkinson's to current immobility
- Discussed with neurosurgeon:
  - Laminectomy will only help with back pain/sciatica in this case.
  - He anticipates no improvement in mobility or urinary incontinence.
  - Happy to review in clinic and revisit indications and expected surgical outcomes

#### **Plan:**

- Liaise with neurologist regarding frailty/immobility
- Face to face or video-conference appointment at perioperative clinic
- Neurosurgical review preoperatively