



“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 Prehabiliation

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:

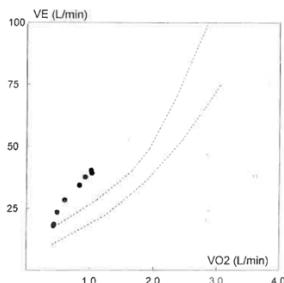
- IHD
 - Inferior MI 2008. Multiple stents to distal RCA 90% stenosis
 - Infrequent episodes of stable angina. On maximal medical therapy
 - SESTAMIBI - large, fixed perfusion defect in anterior wall with no reversibility demonstrated
- HFrEF - 49%. Hypokinesis of inferior and posterior walls. Moderate 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:

1st CPET - April 2021

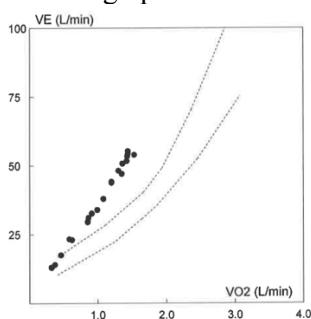
- Sub-maximal test
- Stopped after 2 minutes of cycling due to hypertension (SBP>180 as per AAA protocol)
- Excessive ventilatory response - as demonstrated by VE/VO2 slope



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

2nd CPET - October 2021

- Sub-maximal test - RER 1.05
- Stopped due to SBP exceeding 200mmHg
- Peak VO2 12.2ml/kg/min
- AT 1.5L/min or 9.2ml/kg/min
- Nadir VE/VCO2 34.8 (using actual body weight)
- HRR 7bpm
- VE/VO2 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 VO₂ 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 VO₂ = 14.6ml/kg/min (61% pred), AT 10.3ml/kg/min
- Nadir VE/VCO₂ 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/VCO₂ and low CO₂ 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