Answers book

PAH SAQ Trial exam 2019.2

Guide for marking

- Answers are a rough guide only
- They have not been prepared with the same rigorous oversight as the questions
- There will be many acceptable answers that have not been included in the answer template
- Use your judgement to identify critical errors of omission or commission
- pass mark is given after question number
- items in bold are essential to score a pass for that Q – ie 50% of the mark for that Q

Pass mark

Book 1

80/117

Book 2

81/116

Book 3

80/117

TOTAL

241/350

First book

Q1 16/23

1.

Medications – new meds or changes in dose of drugs that are associated with hyponatraemia (ie thiazides, SSRIs, anticonvulsants)

GIT illness with volume loss – could produce hypovolaemic hyponatraemia

Hx of liver disease (or surrogate ie increasing abdominal distention – hypervolaemic hyponatraemia

Hx of CCF – hypervolaemic hyponatraemia

Hx excessive water intake – ie psychogenic polydipsia

Hx malignancy (lung or brain) – risk for development of SIADH

Hx of weight loss, nightsweats etc – possible undiagnosed malignancy

Hx of previous hyponatraemia

Really anything here could be ok ie Hx of thyroid dysfunction

Alcohol intake – seeking potomania

2.

Volume status (ie accept one of – peripheral oedema, ascites, pulmonary congestion) as evidence of hypervolaemic hypontraemia

ALSO accept one of significant dehydration ie tachycardia, tachypnoea, dry mucous membranes etc as evidence of possible hypovolaemic hyponatraemia

Pulmonary findings of malignancy ie focal consolidative signs/crackles, unilateral effusion or better answers to be more specific to pulmonary malignancy ie unilateral hand wasting, HPOA, brachial plexopathy or Horner's syndrome to suggest apical lung malignancy

Goitre or other signs of thyroid disease (expothalmus, tremor)

3.

TFTs – hypernatraemia causally linked to SIADH

Other electrolytes ie if K, Cl also low suggestive of potomania

(note not accepting osmolarity or BSL as not useful in determining cause)

BNP would be weak here

Renal function and/or LFTs likely acceptable if justified through cause of hypervolaemic hyponatraemia (not just Chem20)

Urine osmol/Na – useful in identifying sodium wasting of SIADH

Cortisol – if suspected hypoadrenalism

CXR – seek malignancy/ other pulmonary process (abscess/empyema) – must state one path process

Other – CT Head – malignancy/abscess/ infarct

Sputum cytology – must state seek small cell lung cancer

4.

Comminuted fracture Rt femur

- Intertrochanteric fracture
- Spiral fracture of proximal femoral shaft with shortening and displacement
  (one mark for description – displacement/angulation)

5.

Lignocaine - accept 3-5mg/kg

Bupivicane – accept 2-2.5mg/kg

6.

Open disclosure of events around fall and femoral fracture

Apologise for events and injuries sustained in hospital

Explain that incidents will be investigated through hospital processes

Ensure understanding of severity of father's presentation – severe hyponatraemia

Explanation of need for fixation of femoral fracture

Seek clarification around father's history and premorbid level of function

Seek clarification around pre-existing documentation around advanced health directives etc

Q2 8/11

1.

Two large, focally dilated loops of small bowel

Paucity of bowel gas

Crescent sign with soft tissue mass projecting into dilated loop of bowel

2.

Intussusception

3.

I/N fentanyl 1.5mcg/kg ie 15mcg

IV Morphine 0.1mg/kg

IV Fentanyl 1mcg/kg

4.

Air enema (radiologic)

Surgical

5.

Bowel Ischaemia/necrosis

Bowel Perforation with peritonitis

Vomiting with aspiration

Shock with cardiovascular collapse

Q3 7/11

1.

Demand ie Surge (ie major event)/ Pandemic

Lack of primary health care availability (ie public holidays/ long weekend)

Other health services on 'bypass' or redirect (due to internal disaster)

Lack of senior staff

Delayed decision-making

Delay to inpatient review

Absolute staff deficiency/sick leave/ rostering etc

Delayed turn around of investigations/reporting (pathology/ radiology)

Lack of alternate treatment spaces (ie SSW at capacity, lack of ambulatory care space)

ED treatment areas full of admitted patients

Hospital occupancy over census

Delays to discharge of inpatients

Poor discharge planning

Lack of alternate services ie Hospital In The Home, early outpatient clinics

2.

Notify ambulance services to consider load-sharing

Notify ED/hospital executive to activate hospital wide processes such as Code Yellow/ Disaster Plan

Assign staff to review ramped patients and ensure deterioriating/critically ill are identified

Clear ED treatment space by admitting suitable patients directly to ward, moving suitable patients to Short Stay or alternate space ie waiting room for ambulant patients awaiting test results/prescriptions

Ensure adequate staffing – call in on-call staff if staffing deficiency

Early rounding in ED to ensure early decision making

Q4 8/12

1.

Antidepressants:

MAOIs - any

SSRIs - any

SNRIs - any

TCAs - any

Opioids – tramadol, buprenorphine

Anticonvulsants (Valproate, Carbamazepine)

5-HT3 antagonists - ondansetron

Metoclopramide

Lithium

Amphetamines

Antibiotics – ciprofloxacin, erythromycin

2.

Exam features:

Cognitive – agitation, confusion, convulsions, coma

Autonomic – shivering, diaphoresis, fever, tachycardia, nausea, diarrhoea

Somatic – myoclonus (LL >UL), ocular clonus, hyperrflexia, tremor

3.

Benzodiazepines ie diazepam

Serotonin Antagonists – Cyproheptadine, Chlorpromazine, olanzapine

Q5 10/12

1.

Agitation/Anxiety/ Hypervigilence

Paranoia/Hallucinations

Psychomotor agitation – restlessness, tremor

Pressured speech

Sweating, flushed skin

Teeth Grinding, Jaw clenching

Mydriasis

Hypertension

Tachycardia

2.

Anything from SADPERSONS really:

Examples:

Hopelessness

Despair

Anger

Psychosis

Lack of engagement

Poor support network

Financial stress, unemployment

Major stress – legal prosecution or child custody issues

Recent major loss/trauma or anniversary

Stated plan

Access to firearms

Drug/Alcohol dependence or withdrawal

3.

Droperidol 10mg IM/IV

Lorazepam IM/IV 2mg

Ketamine 4mg/kg IM

Also accept:

Midazolam 5mg IM

Olanzapine 10mg IM

Halperidol 5-10mg IM/IV

Q6 7/12

1.

Erythematous rash

Macular (accept morbiliform)

Widespread with areas of confluence on trunk and limbs

2.

Scarlet Fever

3.

Measles (Rubeola)

Rubella

Enterovirus

Drug Rash (ie EBV with amoxicillin)

4.

Penicillin with dose

Analgesia, antipyretics, hydration doses needed

5.

Renal failure

Rheumatic heart disease

Abscess – peritonsillar or retropharyngeal

Bacteraemia/ Sepsis

Pneumonia

Hepatitis

Q7 8/12

1.

Bilateral

patchy alveolar opacities

both lung fields – widespread distribution

2.

Pulmonary Haemorrhage (goodpastures)

LRTI ie staph pneumonia, influenza

Opportunistic infection (immunosuppressed) – ie Pneumocystis

Cryptogenic Organising Pneumonia/ Bronchiolitis Obliterans Organising Pneumonia

Congestive Cardiac Failure

Malignancy with lymphatic dissemination ie Lymphangitis Carcinomatosis

3.

Steps in Intubation:

Fluid load – 0.9% saline 10ml/kg bolus, repeat to SBP >100mmHg

Augmented induction agent – ie ketamine IV at reduced dose ie 0.5-1mg/kg, rocuronium 1.2mg/kg

Co-administration of inotrope at induction – 1mcg/kg adrenaline with induction

Optimised pre-oxygenation with ongoing NRBM at 15lpm PLUS NP O2 at 15lpm

NP O2 at 15lpm throughout induction stage

Mitigate hypoxia/acidosis by bagging through induction with BVM O2 at 15lpm

Intubate at 30 degrees to minimise risk of hypoxia

Q8 8/12

1.

Unheralded

Seated or supine

Exertional

Fam Hx of sudden cardiac death

Personal History of prior unexplained syncope

Congenital cardiac disease

2.

Heralded Syncope (lightheadedness, diaphoresis)

Inciting event (ie visual, pain, fear)

Post syncopal vagal symptoms – diaphoresis, nausea/vomiting

History of similar events

3.

ECG – suspected arrhythmogenic syncope

Chem20/ (or potassium) – suspected eating disorder

CXR – murmur or signs of cardiac failure

Hb/ FBE – History of menorrhagia/ signs of anaemia

Urine MCS – history of fever or dysuria or equivalent

CT Head – only if signs of trauma indicating possible TBI ie signs of BOS fracture complicating fall OR lateralising neurology/signs of raised ICP

Q9 8/12

1.

Bacterial

- Unilateral
- Dryness of the eye and surrounding skin
- Purulent discharge
- TREATMENT: Antibiotic drops/ointment

Viral

- Bilateral
- Erythema
- Watery Discharge/excess lacrimation
- TREATMENT: Conservative

Allergic

- Itching
- Oedema of conjunctiva and eyelid
- TREATMENT: Steroid drops, antihistamine drops, cool compresses

Second book

Q10 9/12

1.

IM Adrenaline (Epipen Jr) or 0.15mg

2.

Further dose IM Adrenaline 0.15mg or IV adrenaline with proper dose (accept IV 1mcg/kg or infusion)

IV Fluid 10ml/kg bolus (est 150ml 0.9% saline)

O2 ie via NRB mask to target Sats >94, decreased resp distress

Steroid – ie HCT 4mg/kg IV

3.

Refractory hypoxia

Cardiac arrest

Upper airway obstruction

Apnoea/ loss of respiratory drive

Coma or obtundation

Refractory shock

4.

Ensure adequate education re: technique (parental education)

Script must include at least two pens for different locations – ie home/school/car etc

Letter for school to ensure they are aware and can store +/- administer Epipen

Q11 6/10

1.

Ascites

Albumin

INR

Encephalopathy

Bilirubin

2.

SBP: Ascitic tap for organisms, WCC

GIT bleed: PR exam for malaena

Head Trauma ie subdural: CT Head

Alcohol Intoxication/Withdrawal: Serum ETOH

Other drug ingestion ie Benzodiazepines: UDS

Hypoglycaemia: BSL

Vascular ie portal or hepatic vein thrombosis: USS/ CT Abdo with contrast

Q12 11/17

1. AP Compression fracture (Open-Book) with:

Diastasis of symphysis

Opening of Rt Sacroiliac joints

Binder too high

Large amount soft tissue swelling right side

2.

APCIII

3.

Massive pelvic haemorrhage

Free fluid on CT +/- FAST; Blush on CT

Management: Interventional Rad +/- OT

Bladder injury

Contrast extravasation/ Indistinct Bladder dome on RUG

Management: IDC to decompress, OT for repair

Urethral Injury

Blood at meatus/ boggy swelling in perineum

Inability to pass IDC

Contrast extravasation on RUG

Management: Surgical Repair

Bowel Injury

PR Bleeding

Management: Surgical Repair in OT

Sacral Plexus injury

Foot drop/ Incontinence

Management: Reduce Fracture +/- Nerve repair

Other answers acceptable

Q13 9/12

1.

Large Rt subacute **Subdural Haemorrhage**

Extra-axial collection

Crossing suture lines

Sulcal Effacement

Midline Shift

Subfalcine Herniation

2.

INR – assess capacity for withdrawal

Electrolytes – exclude hyponatraemia

FBE – exclude thrombocytopaenia

ECG – assess AF control given confusion and possible compliance issues

Renal Function – exclude renal injury given confusion and possible compliance issues, presence of nephrotoxic meds

CXR – assess cardiac status given med Hx and need for OT

Urine M/C/S – exclude precipitants for fall ie cause of subdural - UTI

Gp&Hold – if any indication for transfusion in setting of OT

3.

Prothrombin Complex Concentrate (Prothrombinex or equivalent) 50u/kg

End-Point INR <1.5

Q14 8/12

1.

CNS infection (ie Aspergillus, cryptococcus) – CSF pleocytosis, organisms, high opening pressure

Pulmonary infection ie CMV, Pneumocystis - dyspnea, hypoxia, pulmonary infiltrates on CXR

Surgical Site Infection –fluctuant collection on USS of transplant kidney or in wound area

Pyelonephritis of transplant kidney –organisms on urine micro

Gastrointestinal infection post antibiotics ie C Difficile – C.Diff toxin on stool

Acute rejection (ie inadequate suppression) - acute renal failure

Other lupus complications ie Pericarditis – ECG changes, effusion on USS

Q15 11/16

1.

Polymorphic VT (TdP)

2.

Very Broad QRS 200ms

Tachycardia rate (36 x 6 = 216/min)

Shifting axis

3.

Electrolytes – hypoK, hypoMg

Drugs ie Sotalol

Congenital ie long QT syndrome

Infiltrative ie Cardiac Amyloid

Structural ie Dilated Cardiomyopathy

Ischaemia

4.

Cardioversion (synchronized) – 200J

Magnesium 10mmol over 5 mins

Fix cause eg hypoK

5.

Chemical pacing – isoprenaline infusion 5-30mcg/min, aiming for HR >100/min

Electrical overdrive pacing – synchronized pacing at rate 100/min, increase current to achieve electrical and mechanical capture

Q16 9/12

1.

Conclusion 1: There is acute on chronic respiratory failure with elevated CO_2 and low pH, however shift is less than predicted if all acute, and HCO_3 elevated suggesting chronic compensation.

Conclusion 2: She has a large A-a gradient with PAlv O_2 of 266 and gradient of approx. 170 (elevated) – indicative of shunt.

2.

Ventilation – commence BiLevel NIV with initial settings something sensible ie IPAP 10-15, EPAP 5-8cmH_2O, FiO_2 titrated to sats of 88-92%, titrate NIV to work of breathing, improved CO_2 clearance and minute ventilation.

Antibiotics – emipiric cover for CAP ie Ceftriaxone IV 1gm + Azithromycin IV 500mg

Steroids – Hydrocortisone 4mg/kg IV or equivalent PO/alternate agent

Fluids – not unreasonable, unlikely to be able to tolerate diet on NIV – IV N/Saline 10ml/kg, repeat aim HR <100

Bronchodilators – Salbutamol 5mg + Ipratropium 0.5mg in-line with NIV, aim resolution of wheeze

Q17 8/12

1.

IVDU

Immunosuppression

History of faecal incontinence or urinary retention

New LL weakness/ paralysis

2.

New motor deficit

New sensory deficit

Asymptomatic urinary retention on bladder scan

Lax anal tone

Fever

3.

Allows prolonged period of observation (up to 24hrs vs 4hrs)

Allows titration of oral medication

Allows for allied health input ie Physiotherapy

Allows for inpatient consultation to facilitate further outpatient review or investigation, or to assist in discharge planning

Q18 10/13

1.

Acute suppurative Otitis Media

Bulging tympanic membrane

Erythematous tymopanic membrane

Pus visible behind TM

2.

Paracetamol 15mg/kg

Ibuprofen 10mg/kg

I/N Fentanyl 1.5mcg/kg

Anything else sensible ie PO oxycodone 0.05 - 1mg/kg

3.

Prior hearing impairment

Failure of conservative Rx (ie worsening Symptoms at 48hrs)

Cochlear Implant

Immunosuppression

4.

Tympanic Membrane Perforation

Mastoiditis

Cholesteatoma

Intracranial Extension

Chronic Otitis media with effusion

Hearing loss

Third book

Q19 17/24

1.

Refractory hyperkalaemia

Uraemic Encephalopathy

Volume Overload

Refractory Acidosis

Uraemic pericarditis

2.

Taking a Cultural History

Incorporating culturally diverse health beliefs and priorities into ED care and management plans

Access to support people based on cultural needs

Ability to speak to a cultural/religious representative of their choosing

Access to professional interpreter services

Establishing effective relationships with local primary health carers who service culturally diverse populations

Feedback mechanisms for consumer engagement for those from culturally diverse backrounds

Department fosters a work ethic of reflection and non-judgemental review of approach to cultural safety and competency

3.

Hyperkalaemia

Loss of P waves

Very broad QRS

Tall T waves

Bizarre morphology with atypical LBBB

4.

Salbutamol – acts on b-receptors to stimulate K+ reuptake – minutes

Insulin – facilitates increased uptake of K into cells – 15 - 60 minutes

NaHCO3 – Alkalosis shifts K directly into cells through action on H+-K+ channels - minutes

Calcium – Stabilises cardiac membrane – protects against hyperkalaemic effect -seconds - minutes

Q20 7/12

1.

Vaginal Discharge

Prior PID

Multiple sexual partners

Unprotected sex

Presence of recently inserted IUD

Dyspareunia

2.

Urine PCR – sensitive for chlamydial and gonococcal infections,

High-vaginal swabs – allows culture for STI organisms

b-HCG – pregnancy for both differential diagnosis, and also altering antimicrobial prescribing

Pelvic USS – exclude tubo-ovarian abscess

3.

Antibiotics - eTG

Analgesia

Sexual health/ Infection Control follow up

Counselling re: safe sexual practice

Contact Tracing information

Q21 8/11

1.

Hypoxic Brain Injury- sedate, prevent secondary injury ie ETCO2 normal, Sats >92%, Maintain cerebral perfusion

Hypercapnoea – ventilate to normal CO2

Pool water Pulmonary Aspiration – PEEP and consider antibiotic prophylaxis

Hypothermia – active warming to Temp >33 degrees, passive to T <36

Metabolic Acidosis – volume resuscitation, restore normal haemodynamics

Cervical Spine Injury – immobilize until radiologic clearance, consider MRI

Hypoglycaemia – correct with parenteral glucose 2-5ml/kg of 10% dextrose

2.

Demonstrates resuscitative efforts of medical team

Can provide important patient information (history, meds, allergies etc)

Can aid in grieving process if resuscitation unsuccessful

Q22 7/12

1.

Iron Deficiency – microcytic, hypochromic; target cells, pencil cells

Acute Leukaemia – blasts on film

Aplastic Anaemia – low reticulocyte count

GIT bleed (ie Meckel's diverticulum) – elevated reticulocytes

Haemoglobinopathy ie thalassaemia – nucleated RBCs, microcytes

Congenital Haemolysis ie sickle cell disease sickle cells

Acquired Haemolysis ie HUS – schistocytes, red cell fragments

Abnormal red cells – ie spherocytosis - spherocytes

Q23 9/12

1.

Acute Ischaemia

Arrythmia (ie new AF, AV block)

Medication changes/compliance issues

Electrolyte derangement (ie hypokalaemia)

2.

NIV – CPAP 10cm H20 – mechanism – preload reduction through impeding SVC/IVC emptying into Rt Heart (secondary effect of improving gas exchange at alveolar-capillary membrane – End-Point SBP <140 or similar/ decreased resp distress/ normoxia

GTN infusion – 10-50mcg/min IV - mechanism – vasodilation and preload reduction (mild benefit on myocardial work/oxygenation through afterload and vasodilatory effects) – end-point – SBP <140mmHg

Q24 9/12

1.

Necrotic 2nd toe

Erythema with ?deroofed blister or desquamation of dorsum of mid/forefoot

Cellulitis extending into 1st and third toes

pus

2.

Diabetic foot infection

evidence of gangrene of 2nd toe

3.

CT Angio of leg – define ischaemic status

XR Foot – exclude gas gangrene

Wound -swab – for directed Antimicrobial therapy

Ankle-brachial index – define macrovascular insufficiency

Blood Culture – direct antimicrobials

CXR – pre-op given age and medical comorbidities

BSL – to optimize BSL control

Renal function – given diabetes – may impact antimicrobial strategy

Q25 8/11

1.

Multiple displaced Rib Fractures – displaced rib fractures seen posteriorly

Rt TENSION Pneumothorax – expansion Rt hemithorax, deviation NGT to left, visible lung edge, subcut emphysema

Rt Pulmonary Contusion – Increased opacification throughout Rt lung field

Lt Pneumothorax – subcutaneous emphysema

Left Clavicle fracture – comminution of mid-clavicle

2.

Rt thoracostomy tube

Lt Thoracostomy tube

Increase FiO2

Increase PEEP

Q26 8/11

1.

Rt posterior Elbow dislocation

Displaced fracture of radial head

2.

Major peripheral nerves – ulnar, radial, median, P.I.N., appropriate motor/sensory exam

Brachial Artery dissection/ kinking – peripheral pulse deficit, delayed CRT

Ligamentous Injury – Medial /Collateral Ligamentous Injury - ?tough in exam/ laxity on testing whilst under anaesthesia

Compartment syndrome – compartment pressure high, vascular / sensation deficits

3.

Reduction under procedural sedation

Plaster immobilization

Orthopaedic review to facilitate timely fixation

Q27 7/12

1.

Unilateral

Throbbing nature

Preceeding Aura/ scotoma

Nausea

Hx of similar headaches

Phono/photophobia

2.

Metoclopramide 10mg IV

Prochlorperazine 12.5mg IM or PO 5-10mg

Aspirin 900mg

Paracetamol 1gm

Sumatriptan 50-100mg PO or 20mg Intranasal or 6mg subcut

Steroid controversial (but recommended as 2nd line in pregnancy – prednisolone 50mg

3.

Sumatriptan 6mg subcut

Ketorolac IMI 30mg

Chlorpromazine 12.5mg IV

4.

Amitryptilline 10mg nocte

Candesartan 4mg daily

Pizotifen 0.5mg nocte

Propranolol 20mg nocte

Na Valproate 200mg nocte

Verapamil SR 90mg