

PAEDS Fellowship PART 2 - ANSWERS

SAQ 1

A 2 year old girl is BIBA after a head injury. Her parents state she had climbed a gum tree in the backyard, before falling 2 metres and landing on her head. A cervical collar has been applied by SAAS. She is making incomprehensible sounds, thrashing about, and has an extensor response with no eye opening to pain. Her BP is 130/65, HR 90, and RR 8.

- a. What is her GCS? Show your calculations for each component. (4 marks)

E 1 V 2 M 2 = GCS 5

- b. List three steps in your immediate management after the child is taken to the resuscitation room. (3 marks)

Intubate child (GCS low)

Paralyse to prevent thrashing about

Prevent secondary brain injury

- c. How is assessment of this child different to that of an adult? (5 marks)

Different physiology – larger head etc

Developmental age – less verbal, etc

Different BP/HR depending on age

Hypotension is a late sign in children

Airway differences – location of larynx, tube sizes etc

Different patterns of injury compared with adults

Need to consider if injury consistent with age, or whether NAI involved

- d. List three consults you will seek for this child. (3 marks)

Neurosurgery

ICU/PICU

CARL/Child protection – likely NAI

SAQ 2

A 14 year old female is BIBA under CPR after being found submerged in her backyard pool for an unknown length of time. Her parents removed her from the pool and called SAAS. CPR was commenced on SAAS arrival. On arrival to ED, she is GCS 3 and an urgent blood gas shows a pH of 7.1.

- a. List five factors in drowning victims that suggest a poor prognosis. (5 marks)

Age <3

Submersion >5 mins

No attempted resuscitation in first 10 mins

Coma on arrival in ED

Metabolic acidosis on arrival (pH <7.1)

**Orlowski scale*

- b. After continued CPR, ROSC is achieved. You intubate the patient for airway protection. Briefly state your approach to ventilation in this patient with justification (3 marks)

Lung protective strategy – likely damaged lungs, high risk ARDS. Low TV (6-8ml/kg), RR 16-18.

- c. Briefly state the evidence for steroids in this patient. (1 mark)

No evidence for steroids in drowning victims.

SAQ 3

Complete the following table comparing croup and epiglottitis. (10 marks)

Symptom/feature	Croup	Epiglottitis
Duration of onset	<i>Hours/days</i>	<i>Acute (hours)</i>
Cause of illness	<i>Parainfluenza</i>	<i>HiB, others</i>
Appearance of child	<i>Looks well</i>	<i>Looks toxic</i>
Cough/stridor	<i>Barking cough, inspiratory stridor</i>	<i>Minimal cough/stridor</i>
Associated symptoms	<i>Minimal</i>	<i>Drooling, dysphagia, dysphonia</i>
Common age affected	<i>3mth-3 years</i>	<i>3-7 years</i>
Temperature	<i><39</i>	<i>>39</i>
Posture	<i>Normal</i>	<i>Won't lie down</i>
Treatment(s)	<i>Neb adren Dexamethasone Humidified Oxygen</i>	<i>Antibiotics - cef Early airway management</i>

SAQ 4

Complete the following table comparing pyloric stenosis and intussusception. (10 marks)

Symptom/feature	Pyloric stenosis	Intussusception
Age of onset	<i>2-6 weeks</i>	<i>3mths-2 yrs</i>
Male:female ratio	<i>5:1</i>	<i>3:1</i>
Cause	<i>Hypertrophy pylorus muscle</i>	<i>Invagination of bowel</i>
Signs/symptoms	<i>Non-bilious projectile vomiting Hungry after vomiting Poor weight gain/LOW</i>	<i>Vomiting Colicky severe pain Poor weight gain Redcurrant jelly stool</i>
Metabolic derangement	<i>Hypochloraemic/natremic/kalemic metabolic alkalosis</i>	<i>HAGMA</i>
Diagnosis	<i>Ultrasound</i>	<i>Ultrasound</i>
Treatment option(s)	<i>Pyloromyotomy</i>	<i>Air/gas enema Surgery if perforation/peritonitis</i>

SAQ 5

A 6 year old boy is brought in by his mother with a 3 day history of initially watery diarrhoea and vomiting. There is now some blood in the bowel actions. The child is pale, lethargic, with a HR of 160 and a rectal temperature of 37.8°C. Initial pathology shows a creatinine of 170 (60-120µmol/L) and Hb of 70.

- a. List five differential diagnoses for the child's presentation. (5 marks)

HUS

Intussusception

Bacterial gastroenteritis

Crohns/UC

HSP

Rectal bleeding/ischaemia/factitious

- b. List four organisms (genera) that may be responsible for his diarrhoea. Underline the most likely cause in this patient. (5 marks)

Campylobacter, Salmonella, Yersinia, E. coli, Shigella.

- c. For the most likely organism causing his illness, state three complications and a management option for each. (6 marks)

**Renal failure – dialysis*

**Haemolysis – PRBC transfusion*

Low platelet count – not transfusion, as this may worsen clots.

Hypertension secondary to renal failure – CCB, GTN, labetalol

Electrolyte abnormalities/seizures – usual management

**fail if suggest antibiotics – may release more toxins, worsen situation*

SAQ 6

A 2 year old child is brought to ED after several episodes of haematemesis. His mother is concerned he may have ingested some of her vitamin tablets. His AXR is shown:



- a. What is the likely ingestion? Justify your answer. (2 marks)

Iron tablets. Opaque, rounded objects in stomach on AXR.

- b. What is the risk assessment for this ingestion, i.e. what dose mandates admission/treatment? (2 marks)

40mg/kg of elemental iron is potentially toxic.

- c. List four symptoms that may occur with this ingestion. (4 marks)

Abdominal pain

Vomiting/haematemesis

Melena

Lethargy

Tachycardia

- d. State four investigations you will order and justify each. (4 marks)

ABG/VBG – metabolic acidosis secondary to iron is a good indicator of systemic iron toxicity

Lactate – hypoperfusion

Coags – coagulopathy may result from iron ingestion

LFTs – hepatic necrosis, jaundice may result

FBE – baseline, anaemia from blood loss, elevated WCC can occur in iron toxicity

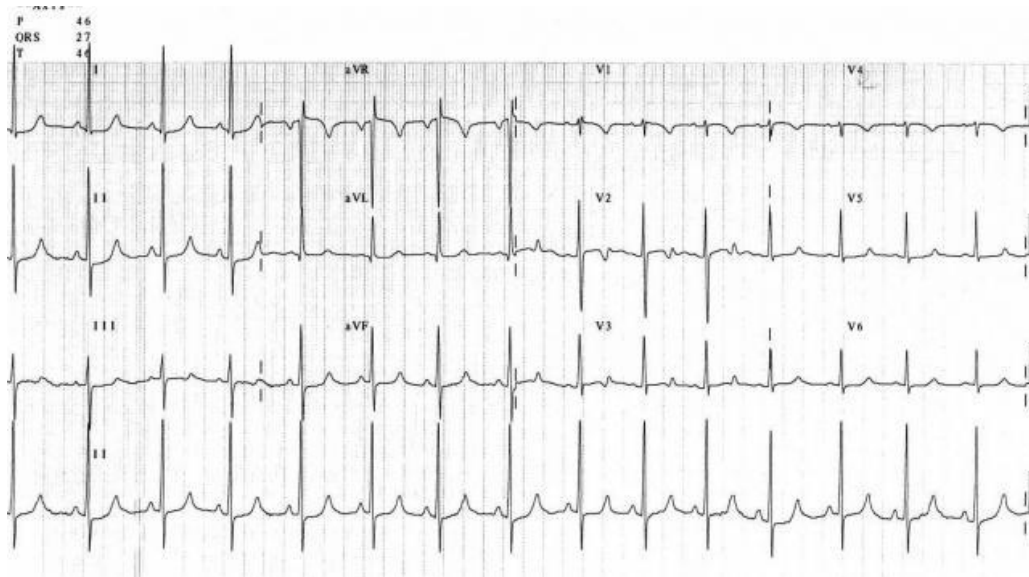
- e. The child is administered an antidote for this ingestion. State a clinical end point for treatment based on the use of this antidote. (2 marks)

Desferoxamine – causes vin rose colour in urine as it chelates iron. Only occurs in 1/3 of patients, so end point of treatment is clinical improvement of child rather than reduction in amount of vin rose urine.

SAQ 7

A 3 year old child is brought in by his distraught mother. The child was being babysat by his grandmother when he was found with a handful of medications. The mother and grandmother are unclear which medications, if any, the child had taken; the grandmother's medications include amlodipine, metoprolol, gliclazide, and digoxin.

The child has a BP of 100/60, HR of 120, and drowsy. His BGL is 0.5. His ECG is shown below:



- a. Of the medications listed, which two are the most likely cause of this child's symptoms? Justify your answer. (4 marks)

Beta blockers – changed mental state, hypoglycaemia

Sulfonylurea – changed mental state, hypoglycaemia

- b. For the other two medications, give a reason why they are unlikely to be the cause of his symptoms. (2 marks)

Digoxin – no bradyarrhythmia, ECG shows no sign digoxin tick, no N/V

Amlodipine – CCBs usually cause hyperglycaemia and don't affect mental state

- c. For the MOST likely toxic cause of his presentation, list two treatment options. (2 marks)

IV dextrose – 2-5 ml/kg of 10% dextrose

Octreotide – infusion, will reduce insulin release