Metabolic Endocrine and Blood Gases

# Fellowship SAQ 2017

CAH

Metabolic Acidosis inc Osm gap and AG

Respiratory Acidosis

Metabolic Alkalosis

**Question 1**

**A 56 year old female is brought in by police with what is thought to be a psychiatric condition. She is appears to have an elevated mood and has been found in a shopping centre behaving erratically. She has grazes on her face and arms. The patient is unable to give you any useful information beyond this.**

**Observations**

**P 140**

**BP 150/100**

**Sats 99%**

**RR 30**

**T 39.9**

**GCS 14**

a) List your differential diagnosis (6 marks)

**Blood results shown**

**Hb 140**

**WCC 12**

**Plts 140**

**TSH 0.00**

**Na 156**

**K 5.4**

**Ur 10**

**Cr 140**

**LFT Normal**

**CMP Normal**

**CRP 12**

**UA negative**

**CXR Normal**

**ECG Sinus Rhythm 130bpm, no changes to suggest hyperkalaemic effect**

b) List the initial emergency management steps (10 marks)

**Question 2**

**A 20kg 6 year old boy presents with 2 weeks of lethargy. He is now complaining of abdominal pain and his mother has noticed that he is breathing fast. He has vomited 3 times in the department. He has sunken eyes, reduced skin turgor and hasn’t passed any urine for 16 hrs. He has no history of medical illnesses.**

**P 160**

**BP 80/50**

**Sats 99%**

**RR 60**

**Temp 36.7**

**pH 7.01**

**pCO2 18**

**HCO3 6**

**Lact 7.1**

**Gluc 34**

**K 5.0**

**Na 129**

**Cl 90**

a) Interpret the blood gas including all calculations that you would perform (6 marks)

b) List the management steps in the first hour (8 marks)

**4 hours into the childs management you are still waiting for a bed on the paediatric HDU. The registrar tells you that the child became irritable and is now obtunded with a GCS of 6. He is becoming bradycardic and resp rate has fallen to 15.**

c) What is the likely cause (1 mark)

d) Outline your immediate management (6 marks)

**Question 3**

**A 23 year old woman presents with postural dizziness, lethargy and anorexia. She has vomited several times and describes having been unwell for 3 weeks. She denies taking any medications. On examination she looks mildly dehydrated and has vitiligo. Examination is otherwise unremarkable.**

**Observations**

**P 120**

**BP 80/30 (despite 2L NaCl stat)**

**T 36.7**

**RR 22**

**Sats 98**

**pH 7.23**

**pCO2 28**

**Lact 2.3**

**HCO3 14**

**Na 126**

**K 7**

**Cr 120**

**Gluc 3.1**

**Cl 110**

**LFT normal**

**CMP normal**

a) Interpret the blood results including any calculations

b) List 3 differential diagnoses (3 marks)

Other things such as burns/pancreatitis/bowel obstn/cirrhosis all unlikely given the clinical setting

Normovolaemic and hypervolaemic causes of low Na don’t fit the clinical picture

c) List the most important 3 immediate management steps (3 marks)

d) What test will be most valuable in determining the underlying cause (1 mark)

**Question 4**

**A 65 year old alcoholic male presents after a syncope. He has had a recent chest infection and is on a course of antibiotics. His ECG is shown below.**



a) List the most abnormal finding on this ECG (1 mark)

b) What are 5 likely causes of this abnormality in this man, with justification for each (5 marks)

**As you gathering the canulation trolley the cardiac arrest buzzer is pushed, when you arrive at the bedside the patient has no signs of life and the nurse shows you this.**



c) In the table below list the 4 most important actions you will direct your team to take in the first 2 minutes, with details of each (8 marks)

|  |  |
| --- | --- |
| **Action** | **Details** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**Question 5**

**A 54 year old man presents post ictal after a witnessed seizure. He has the following VBG**

**pH 7.2**

**pCO2 76**

**HCO3 18**

**Lactate 10**

**K 5.4**

**Na 110**

**Cl 109**

a) List some possible causes for his hyponatraemia, classified by fluid status, in the table below (9 marks)

|  |  |  |
| --- | --- | --- |
| **Euvolaemic** | **Hypovolaemic** | **Hypervolaemic** |
|  |  |  |
|  |  |  |
|  |  |  |

**The patient has a further tonic clonic seizure.**

b) How will you raise the Na and by how much will you aim to increase (2 marks)

c) List 10 investigations you will order with justification (20 marks)