

SAQ 9

A 65yr old female with a history of depression and osteoporosis presents with two weeks of increasing confusion and malaise.

Vital signs on arrival:

GCS 13
HR 100 bpm
BP 130/85
Temp 36°C

Her blood results are below:

| | | | Reference Range |
|-------------------------------|------|------------|-----------------|
| Na ⁺ | 144 | mmol/L | 134-146 |
| K ⁺ | 4.2 | mmol/L | 3.4-5 |
| Cl ⁻ | 98 | mmol/L | 98 - 106 |
| HCO ₃ ⁻ | 38 | mmol/L | 22-32 |
| Urea | 17.2 | mmol/L | 3-8 |
| Creatinine | 258 | micromol/L | 45-90 |
| Glucose | 5.4 | mmol/L | 3.5-5.5 |
| Calcium | 4.47 | mmol/L | 2.1 – 2.5 |
| Phosphate | 0.92 | mmol/L | 0.75 – 1.4 |
| Albumin | 40 | g/L | 35 - 50 |

a. List 3 key abnormalities on this patient's blood results (3 Marks)

- *Metabolic alkalosis*
- *Renal failure*
- *Severe hypercalcaemia*

b. List 3 potential causes of the patient's main problem (3 Marks)

- *Malignancy*
- *Hyperparathyroidism (Primary)*

- *Drugs - thiazides, vit D, lithium, vit A*
- *Thyrototoxicosis*
- *Acromegaly*
- *Hypoadrenalism*
- *Phaeochromocytoma*
- *Factitious*
- *Milk-alkali syndrome*
- *TB*
- *Sarcoidosis*

c. Outline key steps in the management of her hypercalcaemia (4 Marks)

- *Hydration*
 - *I.V. Normal saline, aim UO 100-150 ml/hr*
 - *Nil marks for frusemide as per Cameron 4th Edition*
- *Enhanced renal excretion*
 - *Dialysis*
- *Inhibit bone resorption*
 - *Zoledronic acid 4mg iv infusion*
 - *Pamidronate 60-80mg iv infusion*
 - *Steroids if cause haematological malignancy, vit D toxicity, sarcoid or TB*
- *Treat underlying cause*
 - *e.g. tumour specific therapy for malignancy*

Question taken from FACEM VAQ question 2009.2.6