**SAQ VBG (9 Marks) Dane Horsfall Cabrini**

You are managing a 70 year old man with drowsiness. He has a history of type II diabetes.

You have been provided with his Venous Blood Gas.

His weight is 50kg.

Venous Blood Gas:

pH 7.38 (7.35 - 7.45)

pCO2 49 (41 - 51)

pO2 31 (20 - 40)

Bicarb 28 (21 - 30)

Na 151 (135 - 145)

K 5.1 (3.5 - 5.0)

Cl 110 (95 - 107)

Lactate 1.9 (0.5 - 2.0)

Glucose 49.6 (3.0 - 10.0)

Urea 15 (3.5-10.0)

Creatinine 130 (60-115)

A.Perform 3 calculations using the above results to assist with interpretation. (3 marks)

**-**Correction of Na for glucose: 151 + (49/3) = 167 (135-145)

-Calculation of osmolality: 2 x Na + Urea + Gluc = 2 x 151 + 15 + 49 = 366 (275-295)

-Calculate Total body water deficit: (measured Na-normal Na)/normal Na x total body water (2/3 x weight) = (167-140)/140 x 2/3 x 50kg = 6.4L

Accepted

-Anion Gap

-Urea/Creatinine ratio since less relevant

½ mark if showed working and used correct formula but made maths error

CO2 not relevant

B.What is the likely diagnosis (1 Mark)

B.Hyperosmolar Hyperglycaemic Syndrome, accept HONK

(Diagnostic Criteria -serum osmolality > 320mosmol/L,

-serum glucose > 33mmol/L,

-profound dehydration (elevated urea:creatinine ratio)

-no ketoacidosis)

C.State 5 management priorities in this patient (5 Marks)

Management:

-**Replace fluid deficit slowly**: N/saline/Hartmanns, correct fluid deficit over 48-72 hrs ( ½ mark if < 36 hrs)

-**Insulin infusion insulin** at 0.05 U/kg/hr ½ mark if incorrect insulin dose

-Replace electrolytes - Potassium, Magnesium, Phosphate, Calcium (need at least one electrolyte otherwise ½ mark)

-Thromboprophylaxis (SCD’s, clexane, TEDS) -> high risk of VTE/stoke/AMI/other ischaemic events

-Seek and treat precipitating cause – dehydration, infection, compliance, MI, CVA

-Disposition – HDU/Endo/Gen Med, serial bsl/electrolytes/volume state assessment

-avoid/manage complications: (only allow one complication)

* Delirium - coma eg airway
* Cerebral oedema monitor Na– should not change more than 10mmol in 24 hours (prevent by resuscitation with isotonic fluid and slow correction of glucose) drowsy. Headache, confusion, cerebella signs Rx with Mannitol, CT, stop IVF
* Seizures (focal and generalized)
* Severe dehydration and shock
* Renal failure
* Fluid overload and congestive heart failure

**Comments:**

Pass score 6 out of 9

12 passed our of 33

6 no attempt ? out of time, so 12 out of 27 = 45% pass rate

Issues

Calculations:

- Incorrect formulae or maths

- Irrelevant calculations

- Not explaining significance of calculation

Management priorities (Management= supportive, specific and disposition)

-Incorrect IVF rate - stat

-incorrect or omitted insulin dose/rate

-‘exclusion of sepsis/intracranial event/AMI’ 3 out of 5 management priorities