

M5 MEQs 2016

Session 3: Lethargy

18/11/16

<http://tinyurl.com/zevjhqu>

Question 1

Mdm Tan is a 78 year old female.

She presents to the emergency department with lethargy. She complains of abdominal pain in the para-umbilical region. She has been passing hard stools with decreasing amounts.

Her daughter noted that she was drinking more water than usual and going to the toilet more often.

Her past medical history included diabetes mellitus for which she is on glipizide 15mg BD, metformin 850mg TDS, hypertension for which she is on hydrochlorothiazide 12.5mg OM.

On examination:

T 36 BP 170/72 HR 100 SpO2 98% on RA

GCS 15, orientated to time, place and person

H S1S2

L Clear

A Soft non-tender slightly distended bowel sounds
sluggish

Culves Supple

Clinically dehydrated

Question 1

Which of the following statements is likely incorrect.

1. Diabetic ketoacidosis is a differential in this patient
2. A CT abdomen and pelvis should be considered as a up front investigation
3. Patient's GCS should be closely monitored
4. The ECG may show a shorten QT interval
5. Hydrochlorothiazide may have worsened the patients underlying condition

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Question 2

Initial investigations are the following:

Hb 8.2 Tw2.3 Plt 120

U 12 Na 127 K 3.6 Bicarb 18 Glu 11 Cr 180

Alb 20 AST 30 ALT 40 TB 3

Ca 2.6 Mg 0.9 PO4 0.5

CXR: No consolidation, no air under the diaphragm

AXR: prominent bowel loops

Question 2

What is the corrected calcium for this patient?

1. 2.1 mmol/L
2. 2.8 mmol/L
3. 3.0 mmol/L
4. 3.2 mmol/L
5. 4.6 mmol/L

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Question 2

Corrected Calcium =

Measured calcium + (40 – Alb)*0.02

Or

**For every drop of 4 g/l Alb => Correct Ca by
0.1mmol/L**

- Approximately 50% of total calcium is protein bound, and the total calcium level will vary with protein-binding capacity.
- Standard lab tests are measuring the total calcium

Question 3

You note the patient has a corrected calcium of 3.0g/L. Indicative of hypercalcemia. Your registrar makes the passing statement that the patients symptoms can be accounted for due to the hypercalcemia and the team would need to monitor the patient for the clinical manifestations and complications of hypercalcemia.

Question 3

Which of the of the following statements is false.

1. One of the cardiac effects is a long QTC
2. Nephrogenic diabetes insipidus resulting in polydipsia and polyuria is a consequence
3. Hypertension may be caused by renal insufficiency, calcium-mediated vasoconstriction
4. Chronic hypercalcemic nephropathy may continue to worsen after correction of hypercalcemia
5. Peptic ulcer disease and pancreatitis are possible gastrointestinal complication

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Question 3



Question 3

Clinical Symptoms and complications:

- Stones (Renal colic and hypercalcaemic stones)
- Bones (Increased osteolysis and fractures)
- Psychic moans (Depression, confusion, hallucinations and coma)
- Abdominal groans (Anorexia, N, V, constipation, PUD, pancreatitis)
- Other
 - Muscle weakness, malaise, hyporeflexia
 - Confusion, apathy, decreased memory
 - Nephrogenic diabetes insipidus (Polyuria and polydipsia)

Question 4

The patient is admitted to the ward with the diagnosis of hypercalcemia and anemia for investigation. IV fluids was started for the patient.

What additional management should be done.

1. Urgent chemotherapy
2. High cut off hemodialysis
3. Stop hydrochlorothiazide
4. Denosumab
5. Blood transfusion

Question 4

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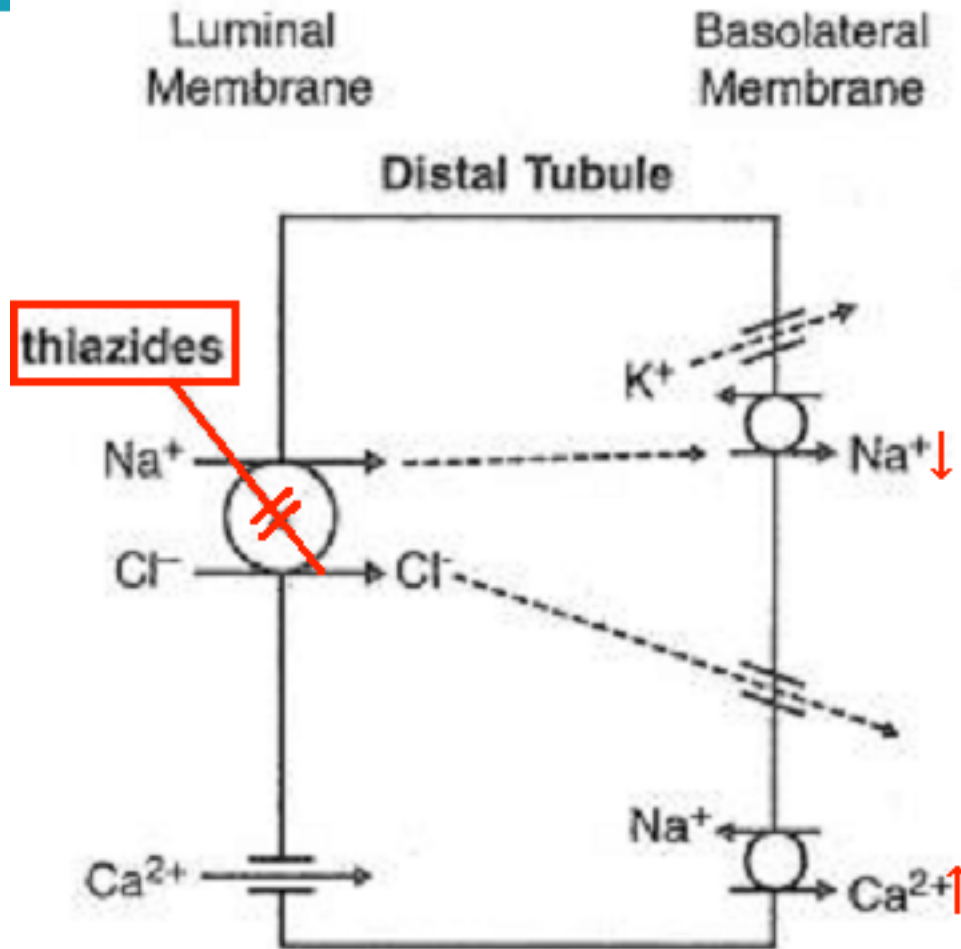
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Question 4

Management of hypercalcemia:

Key to treatment is volume expansion

- **Promote urinary excretion**(if CVS and renal function adequate)
 - Forced saline Diuresis (plus magnesium and potassium) – 300-500ml N saline/hr
 - This replaces lost fluid and forces diuresis
 - Must monitor or replace K and Mg as these will be lost in the urine along with the calcium
 - **NOTE do not give THIAZIDES**, they will worsen condition
 - Treatment with FRUSEMIDE is controversial as it promotes Calcium bone reuptake



Question 4

- **Haemodialysis**
 - Treatment of choice in CVS or renal compromise
- **Calcitonin/EDTA bisphosphonates**
 - Reduce bone resorption and reduce GIT absorption of Calcium
 - Effect in 48 hours and last 15 days

Question 5

Further history reveals that the patient has been having joint pains for the last few months. She has also been having loss of weight and loss of appetite. She also reveals exertion dyspnea and non-vertiginous giddiness.

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What additional investigations would you order?

- OGD and Colonoscopy
- Skeletal Survey
- Bone marrow aspirate
- Myeloma panel and light chains
- CT abdomen and pelvis
- Water deprivation test
- Arterial blood gas
- Iron studies

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Question 5

Multiple myeloma (MM) is characterized by the neoplastic proliferation of a single clone of plasma cells producing a monoclonal immunoglobulin.

Diagnosis:

Clonal bone marrow plasma cells $\geq 10\%$ or biopsy-proven bony or extramedullary plasmacytoma and any one or more of the following CRAB features and myeloma-defining events

Question 5

- (C) Hypercalcemia: >2.75 mmol/L (>11 mg/dL)
- (R) Renal insufficiency: creatinine clearance <40 mL/minc per minute or serum creatinine $>177\mu\text{mol/L}$ (>2 mg/dL)
- (A) Anemia: Hb < 10 g/dL
- (B) Bone lesions: one or more osteolytic lesion on skeletal radiography, CT, or PET/CT. If bone marrow has $<10\%$ clonal plasma cells, more than one bone lesion is required to distinguish from solitary plasmacytoma with minimal marrow involvement

Question 6

Haematology was referred and patient was offered a bone marrow to confirm the diagnosis of multiple myeloma. You are called to take the consent for this patient.

Which of the following statements pertaining to informed consent is true?

1. The consent should be taken by the person doing the procedure
2. A person with a history of schizophrenia can give informed consent
3. A person with a history of dementia cannot give informed consent
4. A consent is valid as long as the patient has signed on the appropriate forms
5. A child below the age of 16 cannot give a valid consent.

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Question 6

Principles of a valid consent:

- The person giving consent must be competent
- Consent must be voluntary and not subject to duress or coercion
- The person must have been given sufficient information to reach a decision
- The treatment must not be unlawful or against public policy.

Other notes:

- Children younger than 16 may consent if they are Gillick competent => sufficient maturity and understanding to make the necessary decision.

Learning Points

- **Clinical presentation of Hypercalcemia**
- **Approach to the workup of Hypercalcemia**
- **Complications of hypercalcemia**
- **Causes of hypercalcemia**