



# Year 2 Peer Based Learning 2020

## Endocrine System

Please note – this learning resource has been produced by the GUMS Academic Team. It is possible that there are some minor errors in the questions/answers, and other possible answers that are not included below. Make sure to check with other resources.

### Scenario 1

(1) A 65-year old male comes to your GP clinic complaining of chronic headaches, lower back pain and right hip pain. This all started approximately 6 months ago and seems to be getting worse. History and physical examination are unremarkable except for the patient noting that his hat seems to not fit anymore. A skull x-ray shows a “cotton wool” pattern. A pelvic x-ray shows a thickening of the cortex, accentuation of the trabecular pattern and an increased density of the bone. What is the most likely diagnosis?

- a) Bone metastasis from prostatic cancer
- b) Hypervitaminosis D
- c) Vitamin D deficiency
- d) Paget Disease of the Bone
- e) Acromegaly

(2) What would you expect to find on blood tests?

- A) Normal labs
- B) Decreased serum phosphate and calcium levels + increased PTH
- C) Increased alkaline phosphate + normal serum calcium and phosphate
- D) Increased parathyroid hormone and serum calcium + decreased phosphate
- E) Increased serum phosphate and calcium + decreased PTH

### Scenario 2

A 65 year-old woman comes to your GP clinic complaining of fatigue and weakness. She has a history of **type 2 diabetes mellitus**. Her most recent HbA1c measurement was 11.1%. You take her blood pressure and she is **hypertensive**. You also note **lower extremity oedema**. (3) What would be at the top of your differentials for her symptoms?

### Scenario 3

A 14-year-old girl presents to ED with complaints of progressive weakness, fatigue and headaches persisting for several months. The headaches seem to be increasing in severity and frequency and on examination her blood pressure is 180/90.



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Laboratory tests reveal:

Very high morning renin activity  
High morning aldosterone concentration  
Low serum potassium level.

(4) What diagnosis would you be suspecting?

- A) Primary hyperaldosteronism (Conn's syndrome)
- B) Cushing's Disease
- C) Paget's Disease
- D) Secondary hyperaldosteronism
- E) Excessive licorice ingestion

(5) Which of the following would be seen on further evaluation?

- A) High levels of ACTH from a pituitary adenoma
- B) High levels of metanephrines excreted in urine
- C) Increased 17-hydroxyprogesterone levels
- D) Involution of zona glomerulosa of adrenal gland
- E) CT showing a subcapsular renal mass (juxtaglomerular tumour)

### **Scenario 4**

A 65-year-old man presents to his GP complaining of fatigue and muscle cramps for the last two months. He is on atorvastatin, ramipril and sertraline.

On further questioning, he also reports feeling tingling around his mouth and in his fingers and toes. An ECG is done which reveals prolonged QT interval. (6) Which of the following serum abnormalities would you expect to see on his lab results?

- A) Hyperkalaemia
- B) Hypokalaemia
- C) Hypercalcaemia
- D) Hypocalcaemia
- E) Hypermagnesaemia

(7) Which of the following hormone abnormalities could result in this patient's electrolyte imbalance?



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- A) Hypoparathyroidism
- B) Hyperthyroidism
- C) Hypothyroidism
- D) 17-hydroxyprogesterone deficiency
- E) Hyperaldosteronism

(8) Which of the following is the most common cause of hypoparathyroidism?

- A) Kidney failure
- B) Steroid use
- C) Surgical destruction of parathyroid glands
- D) DiGeorge Syndrome



### Thyroid Disorders

(9) What is the most common cause of hyperthyroidism in the West?

(10) What is the most common cause of hypothyroidism in the West?

### Scenario 5

A 43 year old female presents to the GP clinic with 5kg of weight loss. She has a history of rheumatoid arthritis. Upon further questioning/examination, she is found to have sweaty palms, a HR of 110bpm, wearing thongs and shorts in winter, and has bulging eyes. Her lower legs have non-pitting oedema and plaques as shown below.



(11) Give some differentials for weight loss

(12) What is the most likely diagnosis?

(13) What risk factors does she have for the disease above?

(14) The presence of which clinical feature makes this diagnosis more likely than another cause of hyperthyroidism? Explain why by making reference to the pathophysiology.



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- (15) What other clinical features would you ask about/examine for?
- (16) What investigations would you consider in this patient?
- (17) What is the first line management in a pregnant vs non-pregnant lady? What to consider if first line management does not work?
- (18) What is the most serious side effect of antithyroid medications?
- (19) What are the next 2 most common causes of hyperthyroidism? What are some others?
- (20) What if - someone presented with hyperthyroidism, but no exophthalmos and rather a headache and peripheral vision loss. What would be seen in the TFT?