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?
2. Bone metastasis from prostatic cancer
3. Hypervitaminosis D
4. Vitamin D deficiency
5. Paget Disease of the Bone
6. Acromegaly
7. What would you expect to find on blood tests?
8. Normal labs
9. Decreased serum phosphate and calcium levels + increased PTH
10. Increased alkaline phosphate + normal serum calcium and phosphate
11. Increased parathyroid hormone and serum calcium + decreased phosphate
12. 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** that is poorly controlled. You take her blood pressure and she is **hypertensive**. You also note **lower extremity edema.** What should be at the top of your differential for her symptoms?

**Scenario 3**

A 14-year-old girl presents to ED with complaints of progressive weakness, fatigues 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.

Laboratory tests reveal:

Very high morning renin activity

High morning aldosterone concentration

Low serum potassium level.

What diagnosis should you be suspecting?

1. Primary hyperaldosteronism
2. Cushing’s Disease
3. Paget’s Disease
4. Secondary hyperaldosteronism
5. Renal artery stenosis

Which of the following would be seen on further evaluation?

1. High levels of ACTH from a pituitary adenoma
2. High levels of metanephrines excreted in urine
3. Increased 17-hydroxyprogesterone levels
4. Involution of zona glomerulosa of adrenal gland
5. Pleomorphic smooth cells in renal cortex (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. Which of the following serum abnormalities would you expect to see on his lab results?

1. Hyperkalaemia
2. Hypokalaemia
3. Hypercalcaemia
4. Hypocalcaemia
5. Hypermagnesaemia

Which of the following hormone abnormalities could result in this patient’s electrolyte imbalance?

1. Hypoparathyroidism
2. Hyperthyroidism
3. Hypothyroidism
4. 17-hydroxyprogestrone deficiency
5. Hyperaldosteronism

Which of the following is the most common cause of hypoparathyroidism?

1. Kidney failure
2. Steroid use
3. Surgical destruction of parathyroid glands
4. DiGeorge Syndrome

**Thyroid Disorders**

**What is the most common cause of hyperthyroidism in the West?**

**What is the most common cause of hypothyroidism in the West?**

**A 43 year old female presents to the GP clinic with 5kg of weight loss. Upon further questioning/examination, she is found to be/have sweaty palms, fatigue, a HR of 110bpm, wearing thongs and shorts in winter, and has bulging eyes. Her only significant history is rheumatoid arthritis.**

**What are the main differentials for weight loss?**

**What is the most likely diagnosis?**

**What risk factors does she have for the disease above?**

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

**What other clinical feature in Grave’s has the same pathophysiological basis as the sign in the above question?**

**What other clinical features would you ask about/examine for?**

**What investigations would you consider in this patient?**

**What is the first line management in a pregnant vs non-pregnant lady? What to consider if first line management does not work?**

**What is the most feared side effect of antithyroid medications?**

**What are the next 2 most common causes of hyperthyroidism? What are some others?**

**What if - someone presented with hyperthyroidism, but no exophthalmos and rather a headache and peripheral vision loss. What to consider? What would be seen in the TFT?**