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CME Endocrinology SAQs (80447)

Self-assessment questionnaire

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SAQs and answers are ONLINE for RCP fellows and collegiate members

The SAQs printed in the CME section can only be answered online to achieve external CPD credits.

Any comments should be sent in via email only: clinicalmedicine@rcplondon.ac.uk

Format

SAQs follow a best of five format in line with the MRCP(UK) Part 1 exam. Candidates are asked to choose the best answer from five possible answers.

The answering process

1 Go to **www.rcplondon.ac.uk/SAQ**
2 Log on using your usual RCP username and password
3 Select the relevant CME question paper
4 Answer all 10 questions by selecting the best answer from the options provided
5 Once you have answered all the questions, click on **Submit**

Registering your external CPD credits

Carrying out this activity allows you to claim two external CPD credits. These will be automatically transferred to your CPD diary, where you can review the activity and claim your points.

1 A 37-year-old woman was brought to the emergency department having been found confused at home by her husband. While in the emergency department she had a series of generalised seizures and afterwards was post-ictal. She had a history of depression and mild asthma. Her medication comprised oral fluoxetine, which had been started recently and salbutamol inhalers. There is no history of chronic alcohol use.

On examination she was drowsy with a Glasgow coma score of 13/15. She was apyrexial. Her heart rate was 100 beats-per-minute and regular, her blood pressure was 122/76 mmHg and she was clinical euvolaemic. Her respiratory rate was 22 breaths-per-minute and her oxygen saturation was 95% on 35% oxygen. Blood tests from 1 month ago had shown normal serum electrolytes.

Investigations:

serum sodium	104 mmol/l (137–144)
serum potassium	4.2 mmol/l (3.5–4.9)
serum urea	3.5 mmol/l (2.5–7.0)
serum creatinine	68 μmol/l (60–110)
urinary osmolality	580 mosmol/kg (350–1000)
urinary sodium	78 mmol/l

What is the most appropriate treatment?

(a) 0.9% sodium chloride infusion
(b) 3% sodium chloride infusion
(c) demeclocycline
(d) fluid restriction to 800 ml/day
(e) tolvaptan

2 A 77-year-old man was referred to the medical admissions unit with a 3-day history of confusion. He had lost 7 kg in weight over the previous 4 months. He had a history of type 2 diabetes and epilepsy. His medication comprised metformin, gliclazide and carbamazepine.

On examination, his heart rate was 68 beats-per-minute and his blood pressure was 134/86 mmHg sitting with no orthostatic drop. His jugular venous pressure was normal and he had no oedema. His abbreviated mental state score was 5/10, but there were no focal neurological signs.

Investigations:

serum sodium	120 mmol/l (137–144)
serum potassium	4.2 mmol/l (3.5–4.9)
serum urea	3.1 mmol/l (2.5–7.0)
serum creatinine	70 μmol/l (60–110)
serum total bilirubin	26 μmol/l (1–22)
serum alanine aminotransferase	100 U/l (5–35)
serum alkaline phosphatase	240 U/l (45–105)
haemoglobin A_{1c}	70 mmol/mol (20–42)
serum cortisol (9am)	220 nmol/l (200–700)
serum thyroid-stimulating hormone	4.4 mU/l (0.4–5.0)
serum free T4	12.2 pmol/l (10.0–22.0)
urinary osmolality	523 mosmol/kg (350–1000)
urinary sodium	69 mmol/l

What is the most likely cause for the hyponatremia?

(a) Addison's disease
(b) hepatic cirrhosis
(c) hypothyroidism
(d) syndrome of inappropriate ADH (SIADH)
(e) uncontrolled diabetes

3 A 35-year-old woman was referred to the outpatient clinic following abnormal thyroid results. She was entirely asymptomatic and the blood tests were organised as part of a routine screen. Some of her relatives have been told that their thyroid results are abnormal but that they do not need any specific form of treatment.

Examination was normal.

Investigations:

serum thyroid-stimulating hormone (TSH)	8.5 mU/l (0.4–5.0)
serum free T4	30.6 pmol/l (10.0–22.0)
serum free T3	9.7 pmol/l (3.0–7.0)
sex hormone binding globulin (SHBG)	30 nmol/l (15–40)

What is the most likely diagnosis?

(a) antibody interfering with TSH assay
(b) euthyroid sick syndrome
(c) primary hypothyroidism
(d) thyroid hormone resistance
(e) TSH-secreting pituitary adenoma

4 A 22-year-old woman was reviewed in the thyroid clinic. She had presented with a nodule in her neck two years previously. Fine needle aspiration had shown medullary thyroid cancer and she had gone on to have a total thyroidectomy. Histology had shown an isolated medullary thyroid cancer with no spread outside of the thyroid gland. There was no family history of tumours associated with multiple endocrine neoplasia syndromes, but genetic testing showed a mutation in the RET gene of the patient consistent with multiple endocrine neoplasia type 2A.

On examination she had a thyroidectomy scar. Her blood pressure was 123/73 mmHg. There were no other abnormal signs.

Investigations

serum corrected calcium	2.36 mmol/l (2.20–2.60)
plasma parathyroid hormone	2.9 pmol/l (0.9–5.4)
24-h urinary metanephrine	1.1 µg (<2)
24-h urinary normetanephrine	1.9 µg (<3)
plasma calcitonin	15 pmol/l (<27)

She had a two-year old daughter who had been screened and found to carry the same RET gene mutation.

What is the best advice regarding the management of her daughter?

(a) annual screening with plasma calcitonin levels
(b) computed tomography (CT) scan of the neck every 5 years
(c) prophylactic thyroidectomy at an age based on the specific mutation
(d) screening blood tests after the age of 16 in adult endocrine clinic
(e) screening is unhelpful, so wait for symptoms to appear

5 A 56-year-old man was referred to the outpatient clinic with a 3-month history of general muscle aches, constipation and 6 kg weight loss. He had hypertension and type 2 diabetes diagnosed 5 years previously. His medication comprised bendroflumethiazide, ramipril and metformin. He was also taking an over-the-counter multivitamin and vitamin D. He had a 30 pack-year smoking history.

On examination, his body mass index was 26 kg/m^2 and his blood pressure was 122/65 mmHg. His chest was hyperexpanded, but there were no other abnormal signs.

Investigations:

estimated glomerular filtration rate (MDRD)	54 ml/min (>60)
serum corrected calcium	3.42 mmol/l (2.20–2.60)
serum phosphate	0.8 mmol/l (0.8–1.4)
plasma parathyroid hormone	<0.05 pmol/l (0.9–5.4)
serum cholecalciferol (vitamin D_3)	115 nmol/l (60–105)
24-h urinary calcium	8.9 mmol (2.5–7.5)

What is the most likely diagnosis?

(a) primary hyperparathyroidism
(b) familial hypocalciuric hypercalcaemia
(c) side effect of bendroflumethiazide
(d) small cell lung cancer
(e) vitamin D excess

6 A 50-year-old man was referred to the outpatient clinic with a 3-month history of intermittent episodes of confusion and unsteadiness. Episodes typically occurred several hours after eating and his symptoms improved within a few minutes of consuming simple carbohydrate. Since the onset of symptoms, he had gained 10 kg in weight. On one occasion an ambulance had been called and a capillary blood glucose value of 1.2 mmol/l had been recorded.

His father had a history of parathyroidectomy for hyperparathyroidism.

Examination was normal.

Investigations performed during an admission for a 72-h fast and at the time of symptoms:

fasting plasma glucose	1.9 mmol/l (3.0–6.0)
plasma insulin	230 pmol/l (<21)
serum C-peptide	1100 pmol/l (180–360)
serum corrected calcium	2.96 mmol/l (2.20–2.60)
plasma parathyroid hormone	14.0 pmol/l (0.9–5.4)

An abnormality in which gene is responsible for this condition?

(a) calcium sensing receptor gene
(b) MEN1
(c) RET
(d) succinate dehydrogenase (SDH) B
(e) von-Hippel Lindau gene

7 A 45-year-old man was admitted after he had fallen from his bicycle injuring his head. He had been unconscious for 10 minutes afterwards.

On examination, he had some facial lacerations, but no other injury. His Glasgow Coma Score was 15/15 and there were no

neurological signs in his limbs. He was noted to have a bitemporal hemianopia.

Investigations:

serum cortisol (9am)	110 nmol/l (200–700)
serum testosterone	1.9 nmol/l (9.0–35.0)
serum follicle-stimulating hormone	1.2 U/l (1.0–7.0)
serum luteinising hormone	0.3 U/l (1.0–10.0)
serum prolactin	1,300 mU/l (<360)
serum thyroid-stimulating hormone	6.8 mU/l (0.4–5.0)
serum free T4	8.4 pmol/l (10.0–22.0)
CT scan of head	4 cm pituitary tumour abutting the optic chiasm

What is the most likely diagnosis?

(a) lymphocytic hypophysitis
(b) macroprolactinoma
(c) microprolactinoma
(d) non-functioning pituitary macroadenoma
(e) thyroid-stimulating hormone secreting tumour

8 A 35-year-old woman was referred to the outpatient department with a 5-day history of severe anterior neck pain, fatigue and lethargy. She had no past medical history and was on no medication.

Examination of her neck showed a smooth, tender, diffuse goitre but no lymphadenopathy. There was no pharyngitis and she was apyrexial. Her heart rate was 100 beats-per-minute and blood pressure 111/65 mm Hg.

Investigations:

white cell count	10.0×10^9/l (4.0–11.0)
neutrophil count	8.0×10^9/l (1.5–7.0)
lymphocyte count	0.9×10^9/l (1.5–4.0)
erythrocyte sedimentation rate	70 mm/1st h (<20)
serum thyroid-stimulating hormone	0.1 mU/l (0.4–5.0)
serum free T4	31.1 pmol/l (10.0–22.0)
serum free T3	8.0 pmol/l (3.0–7.0)
serum anti-thyroid peroxidase antibodies	30 IU/ml (<50)

What is the most likely diagnosis?

(a) auto-immune hyperthyroidism
(b) post-partum thyroiditis
(c) multinodular goitre
(d) Grave's disease
(e) subacute viral (de Quervain's) thyroiditis

9 A 56-year-old man was referred to the outpatient department following the finding of mild hypercalcaemia. He had presented to his general practitioner with a 2-month history of tiredness and fatigue. His mood was generally good, he had no bowel disturbance and no history of nephrolithiasis. He was on no prescribed medication, but took a daily over-the-counter multivitamin preparation. There was no family history of calcium disorder.

Examination was normal.

Investigations:

estimated glomerular filtration rate (MDRD)	88 ml/min (>60)
serum corrected calcium	2.78 mmol/l (2.20–2.60)
serum phosphate	1.0 mmol/l (0.8–1.4)
plasma parathyroid hormone	15.6 pmol/l (0.9–5.4)
serum cholecalciferol (vitamin D_3)	110 nmol/l (60–105)
24-h urinary calcium	8.5 mmol (2.5–7.5)

What is the most likely diagnosis?

(a) familial hypocalciuric hypercalcaemia
(b) malignancy
(c) primary hyperparathyroidism
(d) sarcoidosis
(e) vitamin D excess

10 A 38-year-old woman was referred to the outpatient clinic for investigation of migrainous headaches. A magnetic resonance imaging (MRI) scan of her head had been performed which showed no intracranial lesion, but the report mentioned an incidental 0.9 mm low-density lesion in the pituitary fossa.

Examination was unremarkable with no clinical evidence of pituitary hypersection or hyposecretion.

Investigations:

serum cortisol (9am)	254 nmol/l (200–700)
serum follicle-stimulating hormone	4.1 U/l (>30.0)
serum luteinising hormone	2.2 U/l (>30.0)
serum prolactin	347 mU/l (<360)
serum thyroid-stimulating hormone	0.6 mU/l (0.4–5.0)
serum free T4	12.5 pmol/l (10.0–22.0)
short tetracosactide (Synacthen®) test (250 micrograms): serum cortisol (30 min after tetracosactide)	657 nmol/l (>550)

What is the most appropriate management approach?

(a) hydrocortisone replacement
(b) oral cabergoline
(c) pituitary radiotherapy
(d) consideration of follow-up imaging in 6–12 months
(e) trans-sphenoidal surgery

CME Haematology SAQs

Answers to the CME SAQs published in *Clinical Medicine* April 2013

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
(d)	(a)	(e)	(c)	(c)	(b)	(d)	(c)	(e)	(e)