FOR SHORT ANSWERS
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FOR LONG ANSWERS
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PICTURE QUIZ
Pigmentation and confusion

A previously well 51 year old Cypriot woman presented to the emergency department with a five day history of vomiting. She reported no diarrhoea, fever, or abdominal pain. She had no unwell contacts or recent foreign travel. Her medical history included recently diagnosed depression and a review by dermatologists two years previously for generalised darkening of her skin. Her dentist had biopsied an area of discoloration on her gums.

On examination, her pulse was 100 beats/min, temperature 37.9°C, and blood pressure 107/63 mm Hg. She was dehydrated and had mild epigastric tenderness. Initial blood tests showed a haemoglobin concentration of 118 g/L (normal range 120-152 g/L), white cell count of 2.8×10^9/L ($4.1\text{-}10\times10^9$/L), neutrophil count of 1.2 mm^3 (2.5-7.5 mm^3), sodium concentration of 131 mmol/L (135-145 mmol/L), potassium concentration of 4.4 mmol/L (3.5-4.5 mmol/L), corrected calcium concentration of 1.98 mmol/L (2.15-2.61 mmol/L), alanine transaminase concentration of 92 U/L (64-83 U/L), alkaline phosphatase concentration of 56 U/L (‹55 U/L), bilirubin concentration of 7 µmol/L (0.2-1.3 µmol/L), and C reactive protein concentration of 45 mg/l (‹1 mg/L).

The patient was admitted to a general medical ward and overnight became confused, disorientated, and agitated. Observations showed that her heart rate had changed to 110 beats/min, her blood pressure was 98/55 mm Hg, and her temperature had increased to 38°C. Her Glasgow coma scale score was 12, and she had developed brisk reflexes and bilateral extensor plantar responses. Her arterial blood gas showed a pH of 7.29, pO_2 of 12.7 kPa, pCO_2 of 2.8 kPa, base excess of −15 mmol/L, chloride concentration of −109 mmol/L, and bicarbonate concentration of −10 mmol/L. Her plasma glucose concentration was 1.1 mmol/L.

Figure 1 shows the patient during admission, and figure 2 is a photograph of the patient that was taken three years earlier.

1 What is the most likely diagnosis?
2 What do the pictures show?
3 What investigations would you do to confirm the diagnosis?
4 How should this condition be managed?
5 What other conditions are associated with this diagnosis?

Submitted by Wui-hang Cheung, Janet Dua, Johanna Reed, and Sabina Russell
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Fig 1 | The patient at admission

Fig 2 | A photograph of the patient taken three years earlier

STATISTICAL QUESTION
Meta-analyses VII

Researchers undertook a meta-analysis of the effects of monitoring blood pressure at home. Randomised controlled trials were included if participants had essential hypertension and were attempting to achieve blood pressure targets. Home blood pressure monitoring was achieved with ambulatory monitors, whereas the control intervention was standard blood pressure monitoring in the healthcare system. An extensive search of electronic databases of reports and journal publications identified 13 randomised controlled trials. For these trials, the length of intervention varied between 2 and 36 months.

The meta-analysis reported that home blood pressure monitoring resulted in lower systolic blood pressure than standard monitoring, with an overall mean difference of 4.2 mm Hg (95% confidence interval 1.5 to 6.9). Potential publication bias was investigated by Egger's test (P=0.038).

Which of the following statements, if any, are true?

a Publication bias would have occurred if trials with results that were not statistically significant were not published
b Publication bias would have occurred if only studies published in English were included in the meta-analysis
c The results of Egger's test showed that publication bias existed for this meta-analysis

Submitted by Philip Sedgwick
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ON EXAMINATION QUIZ
Vaccination

This week's question is on vaccination and is taken from the onExamination revision questions for the MRCGP exam.

A woman presents with her child who has a congenital heart disease and was born prematurely at 32 weeks.

Which one of these statements is true in this situation?

A Congenital heart disease is a contraindication for vaccination
B If the child has symptoms of a cold then vaccination should be deferred
C Live vaccines can be given at the same time
D Single vaccination for the components in the mumps, measles, and rubella (MMR) vaccination are available through the NHS
E Vaccination should be delayed until the adjusted birth date not the actual birth date