**ANATOMY QUIZ**

**Angiogram of right lower leg**

Identify the structures labelled A, B, C, D, and E in this digital subtraction angiogram of the right lower leg.

Submitted by A Nair

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**CASE REPORT**  

**Acute global limb weakness**

A 31 year old man presented with a two day history of sudden onset, bilateral upper and lower limb weakness. Bulbar, sensory, and bladder function were unimpaired. A transient episode of bilateral hand and leg weakness had occurred one week earlier. Medical history included alcohol dependence (abstinent for one year) and acute kidney injury secondary to use of non-steroidal anti-inflammatory drugs. He had no family history of muscle disorders. He denied using diuretics, laxatives, or recreational drugs.

On examination his body mass index was 24, he was afebrile and tachycardic (135 beats/min), and he had a blood pressure of 135/63 mm Hg. Respiratory and abdominal examinations were normal. He showed grade 4 symmetrical global limb weakness with normal tone, reflexes, sensation, and cranial nerve function. He had no muscle tenderness, wasting, or fasciculation.

Laboratory investigations showed sodium 137 mmol/L (reference range 135-145), potassium 1.6 mmol/L (3.5-5.0), urea 7.3 mmol/L (2.5-6.7), creatinine 134 pmol/L (70-120), calcium 2.28 mmol/L (2.2-2.65), magnesium 0.92 mmol/L (0.75-1.05), chloride 115 mmol/L (95-105), free thyroxine 13.0 pmol/L (9-25), thyroid stimulating hormone 2.2 mIU/L (0.35-5.5), pH 7.23 (7.35-7.45), partial pressure of oxygen (pO₂) 14 kPa (10.6), partial pressure of carbon dioxide (pCO₂) 3.3 kPa (4.6-6.0), bicarbonate 13.3 mmol/L (24-30), base excess −15, urine pH 7.0 (4.5-8), urine potassium 43.4 mmol/L (14-120), urine potassium:creatinine ratio 3.2. Autoantibodies (including nicotinic receptor antibodies) and extractable nuclear antigen screens were negative. Electrocardiography showed sinus tachycardia. No neurophysiological evidence of neuropathy or myopathy was seen. Renal ultrasonography showed normal sized kidneys, global cortical thinning, and echo bright medullae.

1. What is the cause of the muscle weakness?
2. What is the underlying cause?
3. How should the patient be managed?

Submitted by Jackie Gilbert, Saad Youssif Saheeea, and Victor Oguntolu

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**STATISTICAL QUESTION**  

**Analysis by per protocol**

A randomised controlled trial evaluated the effectiveness of an integrated care programme in facilitating the return to work for patients with chronic low back pain. The programme was a combined patient and workplace directed intervention. Control treatment was the usual care programme. Trial participants were recruited from primary and secondary care if they were aged 18-65 years and had had low back pain for more than 12 weeks.

The primary outcome was length of time until a fully sustained return to work was significantly shorter for patients receiving integrated care compared with usual care.

Which one of the following statements best describes the principle of per protocol analysis?

- a) Patients were included in the analysis only if they agreed to follow the treatment protocol of the care programme originally allocated
- b) Patients were included in the analysis only if they started the care programme originally allocated
- c) Two groups of patients were compared on the basis of the treatment originally allocated
- d) Two groups of patients were compared on the basis of those who completed the treatment protocol of the care programme originally allocated

Submitted by Philip Sedgwick

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**ON EXAMINATION QUIZ**  

**Abnormal liver function**

This week’s question is on abnormal liver function and is taken from the on examination revision questions for the MRCP Part 1 exam.

A 54 year old man comes to the endocrine clinic for review. He has a history of type 2 diabetes which is currently managed with gliclazide 80 mg twice daily.

Most recently he has been diagnosed with abnormal liver function, which his general practitioner suspects is cirrhosis, although he claims he does not drink more than three to four glasses of wine a week.

He has split from his partner and admits to erectile dysfunction of three years’ duration.

On examination he looks tanned and has signs of chronic liver disease. He has sparse secondary sexual hair.

Investigations show: haemoglobin 148 g/L (reference range 135-180), white cell count 6.0×10⁹/L (4-10), platelets 222×10⁹/L (150-400), sodium 139 mmol/L (134-143), potassium 4.7 mmol/L (3.5-5), creatinine 130 μmol/L (60-120), alanine aminotransferase 230 U/L (5-40), and glucose 10.5 mmol/L (6.0).

Which of the following is the most useful single test that could help identify the underlying diagnosis?

- A  Hepatitis serology
- B  Serum ferritin
- C  Serum iron
- D  Serum testosterone
- E  Transferrin saturation