

Medical Quiz: SBA – Answers

Question No. 1: Correct Answer – E

Streptococcus pneumoniae and *Neisseria meningitidis* account for 80% of acute bacterial meningitis in adults. Meningitis caused by *Neisseria meningitidis* is called meningococcal meningitis. The presence of a non-blanching, petechial rash indicates that the meningitis is caused by *Neisseria meningitidis*. While Varicella Zoster Virus can cause viral meningitis, the presence of the rash should indicate that this is not the correct answer. *Neisseria gonorrhoea* causes gonorrhoea while *Listeria monocytogenes* is an important cause of neonatal meningitis.

Question No. 2: Correct Answer - E

This patient is likely to be suffering from psychogenic polydipsia. The water deprivation test is the most appropriate investigation to confirm this diagnosis. In a normal patient, the serum osmolality remains within the normal range (275–295 mOsm/kg), while the urine osmolality rises to >600 mOsm/kg as water is reabsorbed. In diabetes insipidus (DI), the serum osmolality is elevated with no compensatory concentration of urine osmolality. If the patient responds to desmopressin, this confirms cranial DI rather than nephrogenic DI, hence a water deprivation test is the most appropriate answer. An MRI scan is most appropriate for investigating a pituitary tumor. The fasting plasma glucose would be appropriate for investigating a patient with suspected diabetes mellitus, however this is often accompanied by weight loss. Serum osmolality would be useful in gauging how serious the patient's degree of dehydration is, but would not be diagnostic. Urinary electrolytes and fasting plasma glucose would be useful in gauging the severity of the patient's clinical state, but would not confirm the diagnosis.

Question No. 3: Correct Answer - C

The history and examination should raise the suspicion of cauda equina syndrome. This is a medical emergency

and permanent neurological deficit may occur without urgent intervention. The shooting pain down the left leg, absence of ankle jerk reflex and urinary retention suggest that the L5/S1 disk has prolapsed into the cauda equina and nerve root. The patient must be sent without delay for assessment, MRI of the spine and subsequent neurosurgical referral. Therefore, sending the patient home is inappropriate. A complete neurological examination is desirable, but should not delay transfer to for MRI. Similarly, the patient will require a catheter but this should not delay transfer to accident and emergency. It is important to note that while intramuscular NSAID analgesia can be used for patients with cauda equina syndrome, stronger opiates analgesia may be required.

Question No. 4: Correct Answer - E

Since polycythaemia rubra vera is a point mutation abnormality, the bone marrow produces excess myeloid lineage cells. This feeds back negatively upon erythropoietin production from the renal cells, such that a raised red cell mass but low erythropoietin level is measured. In a renal cell cancer, erythropoietin levels may be uncontrollably raised causing a correspondent increase in red cell mass. Conversely, renal failure causes a reduction in erythropoietin therefore red cell mass can be lowered. In bone marrow failure raised erythropoietin levels have no impact on increasing red cell mass. In the absence of disease, erythropoietin and red cell mass are at homeostatic levels.

Question No. 5: Correct Answer - D

Acanthosis nigricans, as described above in the question stem, is commonly associated with gastric carcinoma, although it has also been seen in Hodgkin's lymphoma, obesity, acromegaly, diabetes mellitus and thyroid disease.