



QI&CPD
Accredited Activity
CATEGORY 2

Questions for this month's clinical challenge are based on articles in this issue. The clinical challenge is endorsed by the RACGP Quality Improvement and Continuing Professional Development (QI&CPD) program and has been allocated four Category 2 points (Activity ID:65643). Answers to this clinical challenge are available immediately following successful completion online at <http://gplearning.racgp.org.au>. Clinical challenge quizzes may be completed at any time throughout the 2014–16 triennium; therefore, the previous months' answers are not published.

Each of the questions or incomplete statements below is followed by four or five suggested answers or completions. Select the most appropriate statement as your answer.



Clinical challenge

Case 1

Joan, 70 years of age, is a long-term patient at your clinic. She has controlled hypertension, a history of cerebral aneurysm clipping and left-sided breast cancer treated with mastectomy eight years ago. She presents with a one-week history of persistent headache.

Question 1

What would be the most appropriate first-line brain imaging modality to exclude a sinister cause of Joan's symptoms?

- A. Contrast-enhanced computed tomography (CT)
- B. Magnetic resonance imaging (MRI)
- C. Non-contrast CT
- D. Positron emission tomography (PET)
- E. Ultrasonography

Question 2

Which of the following patient characteristics would be a contraindication to contrast-enhanced CT?

- A. Claustrophobia
- B. Cognitive impairment
- C. Contrast allergy
- D. Moderate renal impairment
- E. Total hip replacement

Further information

Joan mentions she has been experiencing right-sided neck pain for

the past six months that radiates down her arm and is gradually worsening.

Question 3

Which of the following statements regarding patients with chronic neuropathic pain in Australia is most correct?

- A. They are more likely to be male.
- B. Rates increase up to the 45–64-year age group.
- C. They are more likely to be from high Socioeconomic Index for Areas groups.
- D. None of the above is correct.

Further information

Six months later, Joan presents urgently with a sudden onset, two hours earlier, of slurred speech. You suspect acute stroke and arrange urgent hospital transfer.

Question 4

Which of the following statements is true regarding the choice of brain imaging in this scenario?

- A. Contrast-enhanced CT of the brain is required in the setting of acute stroke to exclude intracranial haemorrhage or stroke mimics.
- B. MRI of the brain is the first-line investigation of choice for suspected acute stroke.

- C. MRI is a more appropriate choice than CT because of the large dose of ionising radiation involved in CT of the brain.
- D. Non-contrast CT is very sensitive for acute brain infarction if performed within four hours of symptom onset.
- E. Sensitivity of non-contrast CT for ischaemic stroke increases significantly after 24 hours.

Case 2

Lucy, a banker aged 35 years, presents with a two-day history of progressive, left-sided facial paralysis. She was previously well.

Question 5

Which of the following associated symptoms would be considered a 'red flag' indicative of a diagnosis other than Bell's palsy?

- A. Dryness of the eye
- B. Dryness of the mouth
- C. Diplopia
- D. Hyperacusis
- E. Taste disturbance

Further information

You conduct a thorough physical examination of Lucy. You note facial asymmetry at rest and no forehead movement.

Question 6

On the basis of the above findings, which House-Brackmann grade does Lucy fall into?

- A. Grade I
- B. Grade III
- C. Grade IV
- D. Grade V
- E. Grade VI

Further information

You explain the diagnosis to Lucy and discuss treatment options to maximise her chances of full recovery.

Question 7

Which of the following treatment modalities is supported by high-level evidence of efficacy?

- A. Acupuncture
- B. Electrotherapy
- C. Oral antiviral therapy
- D. Oral corticosteroid therapy
- E. Surgical nerve decompression

Further information

Lucy is concerned that she may be left with facial disfigurement.

Question 8

What can you tell her about the likelihood of full recovery on the basis of the available evidence?

- A. Approximately 50% of patients recover fully by three months.
- B. Approximately 40% of patients who received antiviral therapy have residual facial dysfunction at six months.
- C. Approximately 20% of patients who received corticosteroid therapy have residual facial dysfunction at six months.
- D. Approximately 10% of patients who received corticosteroid and antiviral therapy have residual facial dysfunction at six months.

Case 3

Jayden, 14 years of age, is a long-term patient with difficult-to-control epilepsy. His treating specialists are currently

planning surgical management and he is undergoing functional MRI (fMRI) as part of the work-up for this procedure. You undertake some research to better inform yourself about this imaging technique so you will be able to answer some of Jayden's questions.

Question 9

Which of the following statements regarding blood oxygen level-dependent (BOLD) imaging is most correct?

- A. It is an invasive procedure.
- B. The ratio of oxygenated to deoxygenated haemoglobin across the neural capillary bed is measured.
- C. It quantifies directionality of water molecule movement along white matter tracts.
- D. A low level of patient cooperation is required.
- E. It requires a specialised MRI scanner.

Question 10

Presently, the main use for fMRI before epilepsy surgery is:

- A. correlation with the 'Wada' test
- B. identification of epileptogenic foci
- C. identification of language processing regions and hemispheric dominance
- D. predicting memory impairment
- E. replacement of an electroencephalogram.

Further information

Jayden is worried that the surgery will damage other areas of his brain and he will have trouble with memory and speaking after the surgery. You are able to explain that often in cases like his, the brain is able to adapt and use different locations to perform these functions if necessary.

Question 11

This process is known as:

- A. cortical activation
- B. cortical eloquence
- C. cortical reorganisation
- D. neural acquisition
- E. neurovascular coupling.

Question 12

When considering the reliability of fMRI, which one of the following statements is correct?

- A. Absence of activation does not imply a lack of cortical importance.
- B. Activation always corresponds to functional significance.
- C. fMRI is not affected by motion artefact.
- D. The amount of BOLD signal generated by responses to neural activity is large.
- E. There is low consistency of the BOLD haemodynamic response within subjects.