EDUCATION

Clinical challenge

Questions for this month's clinical challenge are based on articles in this issue. The style and scope of questions is in keeping with the MCQ of the College Fellowship exam. The quiz is endorsed by the RACGP Quality Assurance and Continuing Professional Development Program and has been allocated 4 CPD points per issue. Answers to this clinical challenge will be published next month, and are available immediately following successful completion online at: www.racgp.org.au/clinicalchallenge.

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SINGLE COMPLETION ITEMS

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

Case 1 – Ernest Henry

Dr Wilhelmina Conrad practises with three other GPs in the shadow of St Maxim's Hospital, a large teaching hospital in the centre of a capital city. She usually orders radiological investigations from the private laboratory nearby, but more recently has become aware of new technologies available from the hospital's department of medical imaging. Dr Conrad's first patient for the morning is Ernest Henry, 79 years of age, who complains of several days of right pectoral pain.

Question 1

The most appropriate next step is:

A. call for a paramedic crewed ambulance immediately
B. send him straight next door to the emergency department
C. order an urgent chest radiograph
D. establish IV access and administer morphine
E. take an appropriately focused history.

Question 2

Mr Henry tells Dr Conrad that the pain is sharp and worse on inspiration. He coughed up some blood yesterday, which frightened his wife. They have just returned from visiting their family in London. He's relieved it didn't happen en route. The most appropriate next step is:

A. call for a paramedic crewed ambulance immediately
B send him straight next door to the emergency department
C. order an urgent chest radiograph
D. order an urgent Doppler ultrasound of his legs
E. perform an appropriate physical examination.

Question 3

Dr Conrad has a strong clinical suspicion that Mr Henry has suffered a pulmonary embolus. Apart from a chest X-ray, which of the options listed below is the most appropriate investigation for confirming this diagnosis:

A. D-dimer
B. multi-detector CT coronary angiography
C. Doppler ultrasound of the legs
D. myocardial perfusion imaging (MPI)
E. MRI of the thorax.

Question 4

If it were Mr Henry's pregnant granddaughter whom Dr Conrad was investigating for suspected pulmonary embolism, which of the following imaging modalities would be most appropriate:

A. ventilation/perfusion scan
B. multi-detector CT coronary angiography
C. Doppler ultrasound of the legs
D. MPI
E. MRI of the thorax.

Case 2 – Ernest Henry continued

Mr Henry makes a good recovery but returns some months later with further episodes of chest pain on exertion that are making him extremely anxious. These definitely sound cardiac in nature, although exercise ECG stress testing 3 years ago was negative. He is reluctant to try medication without a firm diagnosis. Myocardial perfusion imaging is available at St Maxim's and is an option for Mr Henry.

Question 1

In discussing MPI with Mr Henry, it is true for Dr Conrad to say:

A. 'Even if it's normal, there's still a good chance you could have a heart attack'
B. 'A stress MPI study is safer than a standard exercise ECG'
C. 'MPI is not an option for people with diabetes'
D. 'An abnormality during exercise might be due to a previous episode of heart muscle damage'
E. 'MPI allows us to open up any arterial narrowings there and then'.

Question 2

Mr Henry injured himself in a fall last week and is unable to exercise. An MPI study can still be undertaken using:

A. adrenaline
B. bretylium
C. caffeine
D. dipyridamole
E. ergotamine.

Question 3

When preparing for his MPI study with pharmacologic stress, Mr Henry needs to avoid:

A. coffee
B. tea
C. cola
D. brondecon expectorant
E. all of the above.

Question 4

If Mr Henry's MPI study is normal but he is subsequently found to have significant stenoses on coronary angiography, this could be due to:

A. balanced triple vessel disease
B. revascularisation
C. coronary artery spasm
D. impaired coronary vasodilatation
E. all of the above.

Case 3 – Ernest Henry continued

Despite optimal treatment for his ischaemic heart disease and pulmonary embolus, Mr Henry has more vascular problems ahead. During an upper abdominal ultrasound during which cholelithiasis was diagnosed, he is found to have an aortic aneurysm. Dismayed at the thought of a major operation, Mr Henry asks Dr Conrad if there are any alternatives.

Question 1

Treatment of abdominal aortic aneurysm is indicated if the aneurysm is:

A. pulsatile
B. larger than 5.5 cm in diameter
C. below the origins of the renal arteries
D. associated with femoral atheroma
E. secondary to atheromatous weakening of aortic wall.

Question 2

It is clear from the ultrasound that Mr Henry's aneurysm needs treatment. He asks again whether he can avoid major surgery. Dr Conrad is correct to reply:

A. 'Smoking cessation and control of cholesterol and blood pressure can allow an aneurysm to repair itself'
B. 'Patients can usually leave hospital 2–3 days after open operative treatment of aortic aneurysm'
C. 'Open operation does not provide long term cure, only short term symptom relief'
D. 'Stenting of aortic aneurysms is only an experimental technique at this stage'
E. 'I can see you are concerned. What would you like to know?'

Question 3

Mr Henry remains frightened at the thought of open procedure and asks what the major benefit of aortic stent grafting is. The major benefit is:

A. earlier discharge compared with traditional treatment
B. less graft rejection
C. lower incidence of endoleak
D. less chance of buttock claudication
E. no need for angiography.

Question 4

Mr Henry consults with a vascular surgeon who supports his decision to pursue percutaneous stent grafting. His preoperative work up requires:

A. intravenous pyelogram
B. mesenteric arteriography
C. CT angiography
D. aortic echoangiography
E. electron beam tomography.

Case 4 – Andrea Christian

Dr Wilhelmina Conrad leaves her inner city practice twice a year to relieve a rural GP colleague, 5 hours drive away. She enjoys the contrast between her own group clinic next to St Maxim's, and this solo practice in Ramafife, a small citrus growing town. On her first morning there, Dr Conrad meets Andrea Christian, a 36 year old cannery worker who presents for a Pap test. She also complains of urinary frequency, bloating, constipation and dysmenorrhoea. During a bimanual examination, Dr Conrad detects several large uterine fibroids.

Question 1

In considering the treatment options open to her, which factors might be important to Andrea:

A. time off work
B. time in hospital
C. return to driving
D. likelihood of success
E. all of the above.

Question 2

She asks Dr Conrad which of the therapeutic options open to her have the potential for ongoing fertility. The one discussed by Dr Conrad is:

A. uterine artery embolisation
B. hysterectomy with IVF
C. endometrial ablation
D. GnRH therapy
E. laparoscopic arterial clamping.

Mrs Christian decides to travel to the nearby regional centre to consult a gynaecologist about uterine artery embolisation. She is reluctant to have a hysterectomy not only because she wants to maintain her fertility but because her father recently fell and sustained a compression fracture of his second lumbar vertebra, secondary to prostatic carcinoma. Mr Desmond Gilbert is bedridden in Ramafife District Hospital with a great deal of pain despite a morphine infusion. Dr Conrad pops next door to see him. Mr Gilbert is drowsy but orientated.

Question 3

Mr Gilbert's fracture can be deemed to be refractory to medical therapy when it:

A. fails to heal after 4 months
B. keeps him bedridden for more than 6 weeks
C. requires sedating levels of narcotic analgesia
D. involves three or more vertebral bodies
E. is associated with oedema seen on MRI.

Question 4

Dr Conrad arranges for Mr Gilbert to travel by ambulance to the regional centre with his daughter for assessment for vertebroplasty. If he undergoes the procedure, Mr Gilbert is likely to be able to return to Ramafife:

A. the same or next day
B. after a week's further bed rest
C. when the fracture is healed radiologically
D. when he is able to walk
E. when he is pain free.

ANSWERS TO APRIL CLINICAL CHALLENGE

Case 1 – Prue Brown

1. Answer A
Prue has no personal history of bowel cancer and one first degree relative with colorectal cancer diagnosed over the age of 55 years so she is in risk category 1 – average risk. Recommendations for screening are FOBT at least every 2 years from the age of 50 years.

2. Answer D
FOBT has a positive predictive value (likelihood of bowel cancer being present) of about 7%, higher than that of symptoms such as change in bowel habit or abdominal pain. The sensitivity (proportion with cancer who correctly test positive) for invasive cancer on a single test is about 65% but is increased to up to 90% if two or more specimens are tested.

3. Answer E
Immunochemical FOBT do not require dietary restrictions and have improved sensitivity and specificity over guaniac testing. Apart from cervical cancer screening, Medicare does not fund screening tests. The cost of an immunochemical FOBT is approximately $40.

4. Answer B
This new information means that Prue has two first degree relatives on the same side of the family with colorectal cancer, which places her in category 2, with moderately increased risk of colorectal cancer. Screening is with colonoscopy at age 50 years and every 5 years thereafter, with consideration of FOBT in the intervening years.

Case 2 – Malcolm Burke

1. Answer B
Treatment depends on site of the primary tumour and stage of the disease, but in general, patients with colonic cancer undergo surgical resection and adjuvant chemotherapy. Rectal tumours have higher complication rates and risk of local recurrence. Rectal tumours are therefore often treated with preoperative neo-adjuvant treatment and postoperative chemo-radiation.

2. Answer D
Patients with node positive disease have significant risk of recurrence and adjuvant 5FU based chemotherapy is standard treatment to decrease risk of recurrence. Adding oxaliplatin to standard chemotherapy has improved disease free survival for high risk stage II and III disease.

3. Answer A
Surgical resection of liver isolated colorectal cancer is potentially curable, although in the majority of cases resection is not possible because of tumour size, location or mutifocality or because of inadequate hepatic reserve. Selective internal radiation therapy is showing promising early results but results of further trials are awaited.

4. Answer B
Sandy has a first degree relative with CRC under the age of 55 years so she is at moderately increased risk of CRC (category 2) and should have screening colonoscopy starting when she is 5 years younger than when her father contracted CRC. Eating five or more portions of fruit and vegetables per day and consuming poorly soluble cereal fibre reduces the risk of CRC.

Case 3 – Tony Stricher

1. Answer C
Tony has some 'alarm' symptoms as he is over 40 years of age, his symptoms are 'different', and has had an inadequate response to PPI medication, so an endoscopy is warranted.

2. Answer A
Dysplasia in Barrett's oesophagus is a risk factor for the development of adenocarcinoma. The severity of the dysplasia can be difficult to assess in the presence of severe inflammation. Aggressive acid suppression therapy followed by early repeat biopsy is required in such cases.

3. Answer D
The left thoracoabdominal approach is best suited to tumours at the oesophago-gastric junction. A pyloroplasty can be performed and a jejeunostomy feeding tube can be inserted. The cartilage of the costal margin may heal poorly resulting in pain and 'clicking'.

4. Answer C
Systemic chemotherapy is the mainstay of treatment for stage IV disease, with response rates of up to 50%. Expandable metal stents are effective local therapy for dysphagia, with low complication rates. Laser ablation and Argon plasma coagulation techniques are also used.

Case 4 – Junko Suzuki

1. Answer E
Gastric cancer has a poor prognosis with overall 5 year survival figures of 15–35%. Of patients that relapse after curative surgery, many have locoregional recurrence.

2. Answer E
Common postgastrectomy symptoms include early satiety, postprandial pain and diarrhoea ('early dumping'), reactive hypoglycaemia ('late dumping') and bile reflux. Patients often need to eat 5–6 small meals per day and 3 monthly B12 injections are required lifelong.

3. Answer D
In general palliative resection is not indicated, although patients may require surgery to treat complications such as gastric outlet obstruction or bleeding. External beam radiotherapy can be used in less acute bleeding. In the 20–40% of patients who respond to chemotherapy, it can give survival benefit as well as palliation of symptoms. Palliative bypass procedures for gastric outlet obstruction such as gastroenterostomy or subtotal gastrectomy carry a 20–25% operative mortality.

4. Answer C
In the 20–40% of patients who respond to chemotherapy, it can give survival benefit as well as palliation of symptoms. ECF is a complicated regimen requiring infusional 5FU. Cisplatin is highly emetogenic and requires a high fluid load for delivery and epirubicin can be cardiotoxic.

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