

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](http://www.racgp.org.au/clinicalchallenge). Check clinical challenge online for this month's completion date. **Kath O'Connor**

## 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 – Brendan O'Donnell

Brendan O'Donnell, 50 years of age, is an airline pilot. He presents complaining of palpitations to the emergency department of Byron District Hospital in Byron Bay where you are the GP locum on call. When you arrive he is hooked up to a cardiac monitor and an ECG has been performed. Brendan has a rapid heart rate but there is no evidence of haemodynamic compromise. The ECG shows a regular narrow complex tachycardia with a rate of 140 bpm. You can't see any P waves. You suspect a supraventricular tachycardia (SVT).

#### Question 1

**What is your initial management?**

- A. DC cardioversion
- B. trial of valsalva/carotid sinus massage and then IV adenosine
- C. trial of valsalva/carotid sinus massage and then IV sotalol
- D. trial of valsalva/carotid sinus massage and then IV flecainide
- E. catheter ablation.

#### Question 2

**Which of the following is true regarding adenosine?**

- A. SVT is unlikely to respond to a 12 mg IV dose
- B. if a SVT is terminated a rebound sinus bradycardia is common
- C. it is safe when given IV without cardiac monitoring
- D. it blocks the AV node so in patients with Wolff-Parkinson-White (WPW) syndrome administration may result in ventricular tachycardia
- E. patients should be warned that they will feel an overwhelming sense of joy on administration of the drug.

#### Question 3

**Brendon's SVT is terminated after 10 seconds. He wants to know what happens next. You explain that the following further investigation will be necessary:**

- A. an ECG in sinus rhythm and possibly an echocardiogram
- B. an angiogram
- C. electrophysiological studies
- D. an exercise thallium test
- E. an echocardiogram.

#### Question 4

**Brendan asks what impact his job as a pilot will have on his future medical management. You explain that:**

- A. he will need to see a specialist
- B. a 'pill in the pocket approach' is appropriate
- C. he can manage any future episodes with self administered Valsalva techniques
- D. he will need to start warfarin as higher altitudes increase risk of stroke
- E. DC reversion is required.

### Case 2 – Deborah Greenberg

Deborah Greenberg, 67 years of age, presents to your practice with 4 days of fever, cough and sputum. On examination, she is febrile and has decreased air entry to the right lung base. You note that her heart rate is 100 bpm and irregular. A chest X-ray shows a lobar pneumonia and an ECG shows atrial fibrillation (AF).

#### Question 5

**Deborah has a history of hypertension and no past history of CVA/TIA, mitral valve disease, diabetes or left ventricular failure. Which of the following is true regarding her thromboembolic risk:**

- A. on reversion to sinus rhythm her risk drops immediately to zero
- B. she is at high risk
- C. she is at intermediate risk
- D. she is at low risk
- E. risk is minimal as she has only been in AF for a few days.

#### Question 6

**Deborah remains in AF at a rate of 90–100 after treatment of her chest infection. Which of the following is true:**

- A. she should be anticoagulated but does not need rate control
- B. a beta blocker such as metoprolol or atenolol should be used as first line for rate control
- C. the efficacy of pharmacological treatment in controlling rate is nearly 100%
- D. digoxin is first line for rate control
- E. cardioversion should be performed.

#### Question 7

**Deborah remains in AF and her rate does not respond to drug treatment. You refer her to a cardiologist. You explain that one option is ablation of the AV node and insertion of a permanent pacemaker. Which of the following is true regarding this procedure:**

- A. it is a last resort and not usually effective
- B. it causes reversion of AF to sinus rhythm
- C. persistent AF may require long term anticoagulation
- D. it is not used in patients who are susceptible to hypotension
- E. it is not used in patients with tachycardia induced cardiomyopathy.

#### Question 8

**The cardiologist recommends a trial of cardioversion for Deborah. She asks you whether this is necessary and what it entails. You tell her:**

- A. cardioversion is essential in all patients with AF
- B. cardioversion can be achieved with medication or direct current reversion (DCR)
- C. amiodarone is the drug of choice
- D. cardioversion with catheter techniques to scar the atrium is the first line treatment
- E. DCR is the better than drug treatment to maintain sinus rhythm.

**Case 3 – The unknown patient**

You are the only GP on duty in a suburban general practice on a Saturday. Late in the afternoon, the receptionist pages you urgently. An elderly patient has lost consciousness on the path outside the clinic. You approach the patient and call out to him. There is no response. He does not respond to sternal rub, the airway is clear and there is no respiratory effort.

**Question 9**

**You ask the receptionist to call an ambulance. What do you do next:**

- A. wait by the patient
- B. try to find a pulse
- C. give two gentle breaths and start CPR if there is no response
- D. give CPR with a ratio of 30 ventilations to two compressions
- E. insert an endotracheal tube.

**Question 10**

**You ask the receptionist to bring the portable defibrillator and home visit bag to you. It is a new model biphasic defibrillator. The monitor reads the cardiac rhythm. The patient is in ventricular fibrillation (VF). What do you do next:**

- A. deliver a single shock of 200 J and cease CPR for 1 minute to watch the rhythm develop
- B. deliver a single shock of 200 J and continue CPR
- C. deliver two shocks of 200 J and one at 360 J and cease CPR for 1 minute to watch the rhythm develop
- D. deliver two shocks of 200 J and one at 360 J and continue CPR
- E. avoid defibrillation as you know nothing of the patient's past history or resuscitation wishes.

**Question 11**

**You check the rhythm after 2 minutes and find that the patient is still in VF. You attempt defibrillation for a second time. The receptionist is trained in CPR and takes over while you insert an IV line. Which doctor's bag drug do you give:**

- A. lignocaine 1 mg/kg stat
- B. amiodarone 300 mg IV stat
- C. atropine 2 mg IV stat
- D. adrenaline 1 mg IV every 3 minutes
- E. aspirin 300 mg orally.

**Question 12**

**The ambulance arrives and the MICA paramedic places a bag and mask on the patient with high flow oxygen. You check the rhythm again and find the patient still in VF. The paramedic suggests using an antiarrhythmic drug. Which drug is first line in this setting:**

- A. atropine 2 mg IV stat
- B. adrenaline 1 mg stat
- C. lignocaine 1 mg stat
- D. amiodarone 300 mg IV stat
- E. clexane 80 mg stat.

**Case 4 – Max Geld**

Max Geld is 70 years of age and has a history of ischaemic heart disease. Since he suffered a myocardial infarct 1 month ago he has experienced dizziness, light headedness and intermittent syncope secondary to bradycardia. ECG shows complete AV block. His cardiologist has suggested a pacemaker. A few years ago he saw a documentary about the first pacemaker insertion in 1958. He remembered that the patient had his chest cut open to insert the device and that it needed replacing multiple times. He wants to discuss the procedure with you.

**Question 13**

**You explain that pacemakers are now extremely reliable and insertion is:**

- A. via the arterial system at angiography
- B. via a small incision under the clavicle into the cephalic or subclavian vein and fed into the heart through the venous system
- C. still by thoracotomy
- D. via the oesophagus at transoesophageal echo
- E. via a peripheral intravenous catheter fed into the heart through the venous system.

**Question 14**

**Max asks about outcomes and complications of the procedure. You explain that:**

- A. pneumothorax, haematoma, infection and lead dislodgement occur commonly
- B. he will be required to stay in hospital for a week while the device is programmed
- C. pacemaker insertion is only available at private hospitals and costs \$5000 to the uninsured
- D. the pacemaker device will be palpable in the chest wall after the procedure

- E. he will be required to carry the device in his pocket.

**Question 15**

**What type of device is indicated for Max:**

- A. dual chamber
- B. cardiac resynchronisation device
- C. implantable defibrillator
- D. a rate responsive system
- E. single chamber.

**Question 16**

**Max has a pacemaker inserted. He now must:**

- A. not drive for 2 weeks
- B. program the device himself with the accompanying software
- C. carry an ID card with information about the implant device and leads to any MRI appointment
- D. avoid mobile phones
- E. avoid microwave ovens.

**Do you still need category 1 CPD points for this triennium? Do you want to foster communication about clinical issues in your practice?**

### **Then 'AFP in Practice' is for you**

From August 2007 a series of five 'AFP in Practice' questions will accompany the theme topic covered by *AFP* each month. These questions are designed for small group learning activities in the general practice setting.

Requirements to earn 30 category 1 CPD points:

- a minimum of 4 and a maximum of 10 people
- a minimum of 8 hours of discussion in a year
- at least two GPs.

Groups may include practice nurses, community health workers, allied health professionals.\*

With 'AFP in Practice' you can also earn category 2 points.

So grab a coffee and the August issue and you'll be ready to put *AFP* into practice.

\* For information about small group learning visit [www.racgp.org.au/Content/NavigationMenu/educationandtraining/QACPD/GPforms/20041019smallgrouplearningguide.pdf](http://www.racgp.org.au/Content/NavigationMenu/educationandtraining/QACPD/GPforms/20041019smallgrouplearningguide.pdf)

## ANSWERS TO JUNE CLINICAL CHALLENGE

## Case 1 – Bill Carroll

## 1. Answer D

Seven percent of bony metastases occur in the proximal humerus. 'Red flags' refer to serious disorders not to be missed including bony metastases, inflammatory arthritis, visceral disease, myocardial ischaemia, septic arthritis and fracture or dislocation.

## 2. Answer C

A 'painful arc' (painful abduction 60–120 degrees) indicates rotator cuff dysfunction. Positive apprehension testing indicates glenohumeral instability. Winging of the scapular indicates scapulothoracic dysfunction. External rotation in adduction isolates the shoulder joint and will be painful in shoulder joint arthropathy.

## 3. Answer B

No investigation is warranted as there are no red flags in the case and there is no reason to suspect a full thickness tear.

## 4. Answer C

There is weak evidence that strengthening exercises are of benefit in short and long term improvement. Bill may need some time off work as well as modification of duties on his return. Working above shoulder height may delay recovery. Rest should be avoided. A subacromial injection of corticosteroid is useful. Prednisolone is not indicated in the treatment of rotator cuff tendinosis. Shoulder pain may become chronic (50% of new episodes of shoulder disorders recover within 6 months).

## Case 2 – Anita Mazzetti

## 5. Answer B

The most common cause of anterior knee pain is patellofemoral syndrome.

## 6. Answer A

Patellofemoral syndrome occurs as a result of abnormal mechanics either proximal (anterior pelvic tilt manifesting as increased lumbar lordosis) or distal (excessive rear foot pronation) to the knee.

## 7. Answer C

Asymmetry of posture including increased lumbar lordosis, forward leaning of the body and

increased forward tilt of the pelvis occurs in pelvic (proximal) cross syndrome.

## 8. Answer A

X-rays are not indicated as diagnosis is by pattern recognition. Explanation, encouraging usual activities, correction of ergonomic factors and referral to a manual therapist are all reasonable elements of management plan.

## Case 3 – Wayne Nalangu

## 9. Answer A

The likely diagnosis is osteitis pubis. There is considerable overlap between osteitis pubis and incipient hernia. Adductor tendon pathology should be suspected if the pain is unilateral. Deep anterior hip pain occurs in hip pathology such as labral tear or osteoarthritis. Lateral hip pain occurs in gluteus medius tendonitis.

## 10. Answer E

A CT or MRI showing degenerative changes to cortical bone confirms the diagnosis of osteitis pubis.

## 11. Answer D

An exercise program is the mainstay of treatment including core stabilization, adductor strengthening, abductor, abdominal and lumbar extensor strengthening. Pain with quadrant positioning occurs in hip joint pathology. Sudden escalation in training intensity, training errors and skeletal immaturity are risk factors for osteitis pubis. Preseason training is protective.

## 12. Answer B

A graduated return to training with initial rest from weight bearing exercise is indicated. A case series of AFL players showed that conservative 12 weeks rest from weight bearing exercise is comparable to active treatment with prolotherapy and corticosteroid injections and joint replacement.

## Case 4 – Shelley and Bob Watson

## 13. Answer B

Ultrasound involves no exposure to radiation. There are no contraindications. The results of the test but not the safety are operator dependent. One of the advantages of ultrasound is

that provocative manoeuvres that reproduce the pain can be performed.

## 14. Answer C

The property of a tendon whereby reflection of soundwaves at different angles is variable. This can lead to false report of a rupture in 'inexperienced hands'.

## 15. Answer C

It is appropriate to start treatment immediately and not wait for the urate level. If there are no contraindications, indomethacin 50 mg orally tds is indicated.

## 16. Answer B

It is worth trying low dose colchicine as there is weak evidence that this may reduce GI side effects. NSAIDs are contraindicated in patients with a past history of bleeding ulcer and corticosteroids may make his diabetes worse.