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.gplearning.com.au. Check clinical challenge online for this month's completion date.

Rachel Lee

Single completion items

CPD

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

George Hatzis

George Hatzis, 64 years of age, is a retired painter with chronic obstructive pulmonary disease (COPD). He is flying to Greece to visit relatives and brings his travel insurance form in for you to sign.

Question 1

Select a reasonable spirometry based threshold for concerns about flight from the following statements:

A. vital capacity of more than 70% predicted for restrictive lung disease
B. FEV_1 of less than 50% predicted for obstructive lung disease
C. FEV_1 of less than 70% predicted for obstructive lung disease
D. vital capacity of less than 50% predicted for restrictive lung disease
E. FEV_1 of more than 50% predicted for obstructive lung disease.

Question 2

You consider flight safety for patients with COPD more broadly and recall that:

A. patients on long term oxygen with correctable hypoxemia should not fly on commercial aircraft
B. patients with resting saturation of 92–95% require supplemental oxygen during flight
C. patients with good exercise capacity are usually safe to fly
D. patients with saturations less than 88% should increase their oxygen flow rate by 1–2 L during flight
E. patients with saturations more than 95% should be referred for a hypoxia challenge test.

Question 3

George has known minor bullous lung disease. Select the best statement about flight risks for patients with bullous disease or pneumothorax:

A. the risk for patients with bullous lung disease is maximal on long haul flights
B. travel should be delayed 14 days after resolution of a spontaneous pneumothorax treated conservatively
C. pneumothorax treated with pleurodesis is very likely to recur
D. travel is considered safe 14 days after a traumatic pneumothorax if the lung is fully inflated
E. travel is considered safe 6 weeks after a recent traumatic pneumothorax if the lung is fully inflated.

Question 4

George also has stable angina. Select the best statement from the following:

A. the threshold for recommending oxygen is lower for COPD patients with significant cardiac disease
B. George's low dose aspirin will prevent venous thromboembolism
C. knee length graduated compression stockings are not indicated for venous thrombo-embolism prevention for any patients
D. there should be a period of at least 6 months after cardiac surgery before any routine flight
E. a single dose of low molecular weight heparin is indicated for all patients with cardiac disease taking flights of more than 4 hours duration.

Case 2

Olivia Chen

Olivia Chen, 50 years of age, is a nurse with a 26 pack-year smoking history. She presents with chronic cough.

Question 5

Which of the following is NOT an accepted indication for spirometry:

A. evaluation of chronic cough or wheeze
B. evaluation of acute breathlessness
C. early detection of lung damage in the presence of known risk factors
D. monitoring of chronic lung disease such as bronchiectasis
E. objective assessment of disability.

Question 6

You arrange spirometry for Olivia. Select the most correct statement about spirometry in this setting:

A. three manoeuvres to within 0.2 L for FEV_1 and FVC should be obtained
B. the average measure of each parameter should be taken as the result
C. the smallest measure of each parameter should be taken as the result
D. a ratio of FEV_1 to FVC of more than 0.7 is evidence of significant airflow limitation
E. in restrictive lung disease the ratio of FEV_1 to FVC is reduced.

Question 7

Olivia asks you about imaging as she thinks a CT might be prudent. You explain:

A. high resolution CT samples the majority of the lung making it ideal for detecting small lesions

B. CT would be useful to investigate her cough if plain X-ray is normal
C. chest CT involves low doses of radiation
D. approximately one in 2500 people exposed to the level of radiation from chest CT could be expected to develop a fatal cancer from this exposure
E. plain chest X-ray is rarely useful in detecting symptomatic primary lung tumours.

Question 8

You diagnose and manage Olivia's COPD and she successfully quits smoking. You see her later with another condition that requires bronchoscopy. Which of the following is NOT an accepted indication for fibreoptic bronchoscopy:

A. suspected foreign body inhalation
B. mass on chest X-ray
C. haemoptysis
D. recurrent pneumonia in the same area
E. chronic chough with normal spirometry.

Case 3

Patrick O'Grady

Patrick O'Grady, 72 years of age, is a retired bank clerk and ex-smoker with established COPD.

Question 9

In nonsmokers, which of the following is NOT a risk factor for COPD:

A. passive smoking
B. male gender
C. asthma
D. air pollution
E. occupational exposure.

Question 10

Patrick's COPD is well controlled. Select the best option about COPD management:

A. pulmonary rehabilitation reduces symptoms, hospitalisations and improves function
B. long term low flow oxygen therapy has not been shown to prolong life but improves symptoms
C. outreach case management for severe disease improves mortality but does not prevent hospitalisation
D. frequent exacerbations are not correlated to more rapid lung function decline
E. pneumococcal vaccination has been shown to prevent pneumococcal exacerbations of COPD.

Question 11

Patrick has moderate COPD. Select the correct statement about the definition of moderate disease and appropriate therapy:

A. moderate disease is defined by postbronchodilator FEV_1 of 60–80% of predicted
B. moderate disease involves dyspnoea on minimal exertion
C. tiotropium 18 µg twice per day is an appropriate treatment for moderate disease
D. tiotropium is only appropriate in severe disease
E. long acting beta-2 agonists are indicated when frequent deterioration in symptoms occurs with symptomatic bronchodilator use.

Question 12

Patrick presents today with an infective exacerbation of COPD. Select the best option:

A. antibiotics should be instituted only if there are X-ray changes
B. antibiotics should be instituted only if Patrick is febrile
C. oral corticosteroids for 7–14 days are indicated if Patrick is significantly more breathless and has no contraindications
D. short acting beta-2 agonists should not be used more than four times per day
E. oral corticosteroids must always be tapered gradually in patients with COPD.

Case 4

Lyndal Booth

Lyndal Booth, 45 years of age, presents with progressive breathlessness and a nonproductive cough.

Question 13

You arrange lung function testing and chest X-ray. What finding is most typical for a diagnosis of interstitial lung disease:

A. increased diffusing capacity for carbon monoxide (DLCO)
B. a mixed obstructive and restrictive lung defect on spirometry
C. a reduction in lung volumes on spirometry
D. a normal chest X-ray
E. normal DLCO.

Question 14

Unfortunately you diagnose Lyndal with interstitial lung disease (ILD). Which of the following is NOT a MAJOR criteria for the diagnosis of idiopathic pulmonary fibrosis in the absence of surgical biopsy:

A. restriction and impaired gas exchange on lung function tests
B. bibasal inspiratory crackles
C. bibasilar reticular abnormalities with minimal ground glass opacities on HRCT
D. hypoxia
E. bronchoalveloar lavage showing no features to support an alternative diagnosis.

Question 15

You consider aetiologies of Lyndal's ILD. Select the most correct statement:

A. drug induced ILD is common
B. hypersensitivity pneumonitis generally has a favourable prognosis if the allergen is avoided
C. the incidence of pneumoconioses is increasing
D. ILD secondary to rheumatoid arthritis has a good prognosis
E. median survival for idiopathic pulmonary fibrosis is 7–10 years.

Question 16

Luckily Lyndal appears to have sacroidosis. When is treatment indicated for sarcoidosis:

A. progressive disease on radiology and lung function
B. hilar lymphadenopathy is visible on plain X-ray
C. patient is unable to quit smoking despite nicotine replacement and specialist support
D. comorbid depression, anxiety or cardiovascular disease exist
E. none of the above.

Answers to January/February clinical challenge

Case 1
Summer McNabb

1. Answer E
Positive patella apprehension test does not in itself warrant surgical referral whereas the other symptoms and signs do. Fracture, lipo-haemarthrosis and neurovascular compromise warrant urgent review.

2. Answer C
The swelling from an ACL rupture typically develops very rapidly and can complicate examination in the acute setting. Pain is usually immediate but may settle after minutes. Instability walking down stairs and posterior sag sign are typical of PCL rupture. Valgus injury through a flexed knee typically causes collateral ligament rupture.

3. Answer D
Grade 3 MCL injuries may be less painful as the ligament has ruptured but they allow significant laxity (>10 mm.) MCLs are managed conservatively and grading helps predict speed of recovery not management. A hinged knee brace compensates for instability. Lateral collateral ligament injury is rare and requires referral.

4. Answer B
Joint line tenderness is very typical of meniscal injury and the more restricted medical meniscus is more commonly injured. A 'shift' sensation occurs with ACL rupture or patella dislocation. Some small meniscal injuries can be managed conservatively.

Case 2
Paul Odinga

5. Answer B
Inappropriate training program design is usually the most important factor in shin bone stress reactions resulting in excessive running loads for that individual. The other factors may contribute to stress fracture except for inadequate stretching.

6. Answer A
Medial tibial stress reactions or fractures typically commence with activity, improving after warm up but may progress to more constant symptoms and nocturnal ache. Rarer anterior tibial stress fractures are at risk of catastrophic fracture, may be visible as a horizontal cortical fracture on plain X-ray and occasionally require internal fixation.

7. Answer E
Fasciectomy is indicated if massage fails and typically facilitates return to full function after 2–3 months. Deep tissue massage is the only effective conservative treatment but must generally be continued to maintain benefit.

8. Answer D
Paul's new symptoms are typical of vascular entrapment and this is commonest at the popliteal artery. Duplex ultrasound can confirm the diagnosis demonstrating stenosis with gastrocnemius contraction.

Case 3
Tina Murmer

9. Answer A
Progression of symptoms should raise concern about a structural head injury as should symptoms beyond 14 days. A brief period of loss of consciousness or concussive convulsion does not raise alarm of a structural injury and headache is a common symptom in concussion.

10. Answer A
Blurred vision or visual disturbance can occur in concussion but is not one of the most specific symptoms.

11. Answer B
5–10% of concussed athletes take longer than 10–14 days to recover but only 1% have symptoms beyond 3 months. There is a 2–3 fold increase risk of depression and acute progressive diffuse cerebral oedema is rare.

12. Answer B
24 hours is a suggested minimum between graduated activity levels and a graduated program is recommended to ensure safe return to play. Early physical and cognitive rest is advised and sedation should be avoided. Unfortunately there is no gold standard assessment tool.

Case 4
Simon Chan

13. Answer C
The inability to weight bear unaided for more than four steps indicates X-ray is appropriate. A cracking noise or the feeling that the ankle bent double does not help differentiate fracture from ligamentous injury. Limited range of movement and lateral tenderness is common, both to fracture and sprain.

14. Answer E
Posterior talofibular tenderness is not typical of syndensmosis injury whereas the other factors are suggestive of this injury.

15. Answer D
The base of the fifth NOT fourth metatarsal is a commonly missed fracture. The others are all commonly missed fractures in ankle injuries.

16. Answer C
Proprioceptive exercises reduce the risk of re-injury by up to 80%. NSAIDs are not appropriate in the short term and brief immobilisation is only required for severe injuries. Taping or bracing is useful during pain or exercise and the initial goals or rehabilitation is to normalise range of motion and achieve normal gait.

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