



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. *Jenni Parsons*

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 – Bill Percival

Bill Percival, aged 55 years, attends for a life insurance medical. He has a family history of ischaemic heart disease and is a nonsmoker. He has osteoarthritis of his knees and hips but has no other known medical problems. Your examination reveals a BP of 145/85 mmHg, a BMI of 29 kg/m² and a waist circumference of 105 cm. When his blood tests come back you note that his creatinine at the upper limit of normal range and his eGFR is 58 mL/min/1.73 m².

Question 1

Your lab uses the MDRD formula for calculating the eGFR. This equation:

- A. requires accurate weight measurement
- B. requires accurate height measurement
- C. is accurate in children
- D. is more accurate than the Cockcroft-Gault equation when the GFR is below 60 mL/min/1.73 m²
- E. is accurate in the GFR range of 30–120 mL/min/1.73 m².

Question 2

Assuming Bill's results persist they indicate:

- A. stage 3 chronic kidney disease (CKD)
- B. stage 2 CKD
- C. stage 1 CKD
- D. normal renal function for age as his creatinine is still normal

- E. CKD only if Bill has other evidence of renal disease such as proteinuria or renal scarring.

Question 3

Bill returns for the results of the additional tests you order. He has a 24 hour urinary protein of 0.5 g/24 hours but no haematuria. He asks you to prescribe some medication for his arthritis because the over-the-counter naproxen he is taking is 'not strong enough'. Choose the correct statement:

- A. Bill has double the risk of a cardiac death than a man of his age without CKD
- B. treatment with an ACE inhibitor is not required
- C. Bill's self medication may be worsening his kidney function
- D. interventions can slow deterioration of renal decline but do not appreciably reduce cardiac risk
- E. A and C are correct.

Question 4

Treatment targets for Bill are:

- A. reduce waist circumference to <88 cm and BMI to <25
- B. protein intake of 0.5 g/kg body weight per day
- C. BP <135/85
- D. proteinuria <1 g/24 hours
- E. total cholesterol <5.5.

Case 2 – Sarah Nugent

Sarah, aged 21 years, presents with marked peripheral oedema. She has had no recent respiratory or other infections and is not diabetic. On examination she has a BP of 125/75 with a normal cardiovascular examination. She has 3+ protein on urine dipstick but no haematuria.

Question 1

Initial assessment confirms heavy proteinuria of 3.6 g/24 hours and hypoalbuminaemia. Antinuclear antibodies are negative. You diagnose the nephrotic syndrome. Of the following conditions, which would be the most likely to fit with Sarah's presentation.

- A. membranous nephropathy
- B. poststreptococcal GN
- C. IgA nephropathy
- D. ANCA vasculitis
- E. focal segmental glomerulonephritis (FSGS).

Question 2

In the nephrotic syndrome all the following statements are true except:

- A. hypoalbuminaemia is improved by increasing dietary protein
- B. patients are at increased risk of thromboembolism
- C. hyperlipidaemia is very common
- D. oedema is caused by low serum albumin and excretion of sodium by the distal nephron
- E. patients are more prone to cellulitis.

Question 3

Sarah has normal urea, electrolytes and creatinine, and a GFR of 90 mL/min/1.73 m². Choose the correct statement:

- A. these results prove Sarah has normal renal function
- B. further monitoring of GFR is not required as Sarah does not have haematuria
- C. the normal GFR in a person of Sarah's age is 120 mL/min/1.73 m²
- D. patients can lose a maximum of 25% of renal function before creatinine becomes abnormal
- E. C and D are correct.

Question 4

Sarah has an ultrasound that reveals normal size kidneys and a somewhat echogenic cortex. You refer her to a renal physician who arranges a biopsy and then commences Sarah on steroids and immunosuppressant therapy. Other important therapeutic strategies include:

- A. moderate fluid and sodium restriction
- B. increased dietary protein
- C. thiazide diuretics
- D. avoiding ACE inhibitor therapy unless Sarah develops hypertension
- E. influenza and MMR vaccination.

Case 3 – Katie and Sam Baker

Katie, aged 2.5 years, is brought in by her mother, Cassandra. Katie has been complaining of discomfort when she passes urine and appears to be voiding more often than usual.

Question 1

Cassandra has brought in a sample of Katie's urine and you perform urinary dipstick testing. Choose the correct statement:

- A. Katie's symptoms are highly specific for urinary tract infection (UTI)
- B. if there are no leucocytes on testing Katie is very unlikely to have a UTI
- C. the positive predictive value of leucocytes on dipstick testing is over 90%
- D. leucocytes have a higher positive predictive value for UTI than nitrites on urinary dipstick testing
- E. pseudomonas and streptococcal UTIs are frequently nitrite positive.

Question 2

It transpires that Katie does not have a UTI and her symptoms settle spontaneously. However, 2 months later you see Katie's brother Sam. He is 6 years old and has recently recovered from a sore throat. He now presents with macroscopic haematuria. Choose the correct statement:

- A. urinary tract infection does not cause macroscopic haematuria in children
- B. meatal stenosis and ulceration is a rare cause of haematuria in children
- C. presence of red cell casts is associated with glomerulonephritis (GN)
- D. doughnut shaped red cells are usually associated with a glomerular origin

- E. electrolytes and creatinine testing are not useful tests because renal impairment is unlikely to be severe in a child.

Question 3

The following features would all be consistent with poststreptococcal GN except:

- A. a normocytic anaemia
- B. peripheral oedema
- C. hypertension
- D. an elevated complement level
- E. no identifiable prodromal illness.

Question 4

Sam has an elevated antistreptolysin titre and is diagnosed with poststreptococcal GN. He has peripheral oedema, mild hypertension, and mild renal function impairment but normal urine volume. Choose the correct statement:

- A. penicillin treatment is essential to eradicate the streptococcal infection
- B. diuretics are used to treat fluid overload
- C. persistent microscopic haematuria 1 year after diagnosis indicates a poor prognosis
- D. Sam's prognosis is poor because he has renal function impairment
- E. treatment of oedema and hypertension is not required because the prognosis for full recovery is good.

Case 4 – Angela Pagano

Angela Pagano, aged 47 years, has recently been diagnosed with hypertension. She has no other significant medical problems. Although she currently has normal glucose tolerance, she has a strong family history of type 2 diabetes.

Question 1

Choose the correct statement about choice of antihypertensive treatment for Angela.

- A. a thiazide diuretic will reduce Angela's risk of developing diabetes
- B. blockers of the renin angiotensin system increase the occurrence of new onset diabetes
- C. beta blockers decrease the new onset of diabetes in hypertensive patients by 20%
- D. a patient taking an ACE inhibitor and thiazide diuretic combination has a greater risk of developing diabetes than a patient taking a thiazide alone

- E. patients taking ACE inhibitors have a lower occurrence of new onset diabetes than those taking thiazides or beta blockers.

Question 2

Ten years later Angela has developed type 2 diabetes, and at routine review you discover that, for the first time, she has microalbuminuria. Her GFR is 85 mL/min/1.73 m². Angela does not smoke. Her HbA1c is 7.7%. You talk to Angela about diabetic nephropathy and strategies to slow its progression. You tell her:

- A. BP reduction is the most important factor in GFR preservation
- B. the benefit of BP reduction on GFR is only found with ACE inhibitors or angiotensin receptor blockers (ARB)
- C. ACE inhibitors afford renoprotection but ARB do not
- D. achieving target HbA1c of 7% will reduce cardiac risk but not renal risk
- E. ongoing renal deterioration is inevitable with no treatments available to prevent this.

Question 3

Angela is taking an ACE inhibitor but her BP remains above target at 145/90. You consider the use of an ARB:

- A. an ARB should be substituted for the ACE inhibitor because of better BP reduction and renoprotection
- B. the combination of an ACE inhibitor and ARB is first line treatment in all patients with diabetic nephropathy
- C. the combination of an ARB and ACE inhibitor do not give additive BP effects
- D. ACE inhibitors and ARBs can damage kidneys in patients with CKD
- E. there are no significant risks in dual blockade.

Question 4

You add irbesartan to Angela's medication regimen. Angela should stop her ACE inhibitor and irbesartan in all of the following situations except:

- A. if she develops gastroenteritis
- B. if her creatinine increases by 10% above baseline
- C. if serum potassium is persistently over 6 mmol/L
- D. if her creatinine increases by >30%
- E. all of the above are correct.

ANSWERS TO OCTOBER CLINICAL CHALLENGE

Case 1 – Mick Potter

1. Answer A

Compared to those from the most advantaged areas, Australians from the most disadvantaged areas are more likely to have diabetes, twice as likely to die of cardiovascular disease, twice as likely to smoke and less likely to exercise. Being overweight or obese is more common in women from disadvantaged areas.

2. Answer A

Mick's social circumstances put him at increased risk, so assessing for CVD risk factors is even more important. It is important to avoid blaming the patient and making assumptions that the patient will not be interested in preventive strategies.

3. Answer E

Recent evidence shows strong links between depression and the development and recurrence of coronary heart disease (CHD) and mortality from CHD.

4. Answer E

Allocating more time on a one-to-one basis can assist in addressing preventive health issues and adopting population health approach is also required.

Case 2 – Nathan Long

1. Answer D

Cardiovascular event risk calculators underestimate CHD risk in Indigenous Australians at all ages and in both sexes, but is most marked in those under 35 years of age.

2. Answer E

Particularly in the under 35 years age group, differences in hypertension, raised total cholesterol, self reported obesity and physical activity between Indigenous and non-Indigenous Australians are small and unlikely to account for the wide differential in CHD.

3. Answer D

The greatest mortality differentials from CVD occur in the 25–54 years age group, where CVD mortality is 7–12 times greater in Indigenous Australians than non-indigenous. Higher rates of traditional risk factors such as diabetes and smoking have contributed. However, depression is increasingly recognised as a significant CVD risk factor and much of the excess mortality is likely to have its foundation in social and economic disadvantage.

4. Answer A

Life expectancy for an Indigenous Australian male born in 1998 is 56 years, 20 years shorter than his nonindigenous counterpart.

Case 3 – Adina Belay

1. Answer E

Use of interpreters is always important, even when patients have limited English. Using family members to translate risks a lack of accuracy of translation and confidentiality concerns.

2. Answer C

Despite access to Medicare and PBS medications cost may be an issue. Adina's parents may be unemployed and while PBS medications are subsidised they are not free and spacer devices are not subsidised. Family stresses relating to past traumas and current financial, employment, housing, social and psychological difficulties are all likely to impact adversely on Adina's physical health.

3. Answer D

Children often suffer prolonged psychological distress after resettlement. Refugees from sub-Saharan Africa have particularly high rates of tropical and intestinal infections and initial screening can be complex.

4. Answer A

Patients may be reluctant to talk about their trauma experiences and it is important not to force them to do so. If they do, ensure adequate support is available.

Case 4 – Stan Pearce

1. Answer C

The increased risk of psychosocial stress induced by social isolation, poverty, hopelessness and lack of empowerment is of a similar order to conventional risk factors such as smoking and hypertension, is only partly attributable to health behaviours and remains despite controlling for major risk factors.

2. Answer E

Stan could be viewed as 'noncompliant' with management but the 'rules' of a consultation are culturally specific and are unlikely to fit with Stan's worldview. Stan is unlikely to see his health as separate from all the other things that are happening in his life and his community, and a shared understanding is crucial to establishing concordance.

3. Answer C

Doctors in Australia are likely to have an egocentric worldview and have a clear sense of their own power to effect change. This differs from the sociocentric view in which the individual's wellbeing is embedded in the wellbeing of the group. Adopting a bio-psycho-socio-spiritual view of illness is more helpful in this context and probably for managing nonindigenous patients as well.

4. Answer B

The predominance of female staff within the health sector has been identified as one of the barriers to health care for indigenous males.