



MS AKT Practice Paper 5

A suite of practice papers is available to help medical students prepare for the UK Medical School Applied Knowledge Test (MS AKT). Please note that while this practice paper reflects the style and type of questions that students will encounter in the MS AKT, it is not blueprinted to the MLA Content Map.

This practice paper comes with and without the answer options.

We would like to recognise the contribution of medical schools, and members of the AKT working groups in particular, for their help in preparing these which we hope students will find a valuable resource.

Please note the practice papers are reviewed on an annual basis and updated accordingly. Items that may have appeared in earlier versions may now have been retired as part of this exercise. Should you have any questions about the clinical content of the practice exam please speak to the Assessment Lead in your school in the first instance.

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1. A 52 year old woman has a right-sided wide local excision and sentinel lymph node biopsy for a 25-mm invasive oestrogen-receptor-positive breast cancer. There are clear surgical margins. Three sentinel lymph nodes are removed and all contain metastatic cancer.

What is the most appropriate next management step?

- A. Adjuvant chemotherapy
- B. Axillary node clearance
- C. CT scan of chest, abdomen and pelvis
- D. Mastectomy
- E. Tamoxifen

2. A 53 year old woman has had a non-productive cough for 3 months. She has felt fatigued and has gained weight around her face and abdomen. She used to smoke with a 30-pack year smoking history.

She has multiple purple, wide striae on her abdomen. She has bruising on her arms. Her BP is 179/100 mmHg.

Investigations:

CT scan of chest: 3 cm lesion in the left lung apex

What is the most likely histological diagnosis?

- A. Adenocarcinoma
- B. Sarcoidosis
- C. Small cell carcinoma
- D. Squamous cell carcinoma
- E. Tuberculosis



- 3.** A 65 year old man has left leg claudication at 100 metres due to left superficial femoral artery stenosis.

His ankle brachial pressure index (ABPI) is 0.84.

He has been given lifestyle advice.

What is the most appropriate additional initial management?

- A.** Above knee femoral-popliteal reversed vein bypass graft
- B.** Balloon angioplasty
- C.** Below knee femoral-popliteal bypass graft
- D.** Commence vasodilator medication
- E.** Supervised exercise programme

- 4.** A 41 year old man is admitted with an acute myocardial infarction. His father died of a myocardial infarction aged 52 years.

Investigations:

Fasting glucose	8.2 mmol/L	(3.0–6.0)
Cholesterol (fasting)	9.2 mmol/L	(3.5–6.5)
Triglycerides (fasting)	1.9 mmol/L	(<2.3)
HDL cholesterol	1.0 mmol/L	(>1.2)

What is the most likely cause of his hyperlipidaemia?

- A.** Chylomicronaemia
- B.** Diabetes mellitus
- C.** Familial combined hyperlipidaemia
- D.** Heterozygous familial hypercholesterolaemia
- E.** Polygenic hypercholesterolaemia

5. A 6 year old boy has mild abdominal pain, a non blanching rash on his lower extremities (see image) and arthralgia. He had an upper respiratory tract infection two weeks ago and has now recovered.

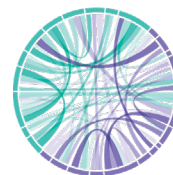
His temperature is 36.8°C, pulse 95 (80–120) bpm, BP 110/72 (97–115/57–76) mmHg, respiratory rate 23 (20–25) breaths per minute and oxygen saturation 96% breathing air.

Urinalysis: protein 2+



What is the most likely diagnosis?

- A. Acute lymphoblastic leukaemia
- B. IgA vasculitis
- C. Immune thrombocytopenic purpura
- D. Meningococcal septicaemia
- E. Post streptococcal glomerulonephritis



- 6.** A 2 year old girl has four weeks of a smelly discharge from her left nostril, sometimes tinged with blood. More recently, she has had a persistent sneeze. She is normally fit and well.

She has mucoid discharge in her left nostril.

What is the most likely diagnosis?

- A.** Allergic rhinitis
- B.** Foreign body
- C.** Sinusitis
- D.** Unilateral choanal atresia
- E.** Unilateral nasal polyp

- 7.** A 2 day old boy with trisomy 21 develops recurrent vomiting. The vomit is green in colour. He feeds eagerly but vomits forcefully soon after every feed.

His abdomen is slightly distended, but soft. His anus is patent.

What is the most likely cause of the vomiting?

- A.** Duodenal atresia
- B.** Gastro-oesophageal reflux
- C.** Hirschsprung disease
- D.** Midgut volvulus
- E.** Pyloric stenosis

8. A 34 year old woman has a recurrent itchy rash which lasts for several hours before resolving (see image). She has not identified any triggers. She is systemically well. She is a firefighter and says that she does not want any treatments that may affect her level of alertness.



What is the most appropriate treatment to control her symptoms?

- A. Oral chlorphenamine maleate
- B. Oral loratadine
- C. Oral prednisolone
- D. Topical aqueous cream
- E. Topical hydrocortisone



- 9.** A 33 year old man has 1 month of bilateral ankle pain and a rash on his shins. He feels generally lethargic and has lost 1 kg in weight.

His temperature is 37.2°C. He has swelling in both ankles and several tender round lesions on both shins. His chest is clear.

Investigations:

Calcium 2.75 mmol/L (2.2–2.6)

CRP 28 mg/L (<5)

What additional investigation is most likely to help confirm the diagnosis?

- A.** Chest X-ray
- B.** CT scan of abdomen and pelvis
- C.** Serum ACE
- D.** Serum parathyroid hormone
- E.** Serum protein electrophoresis

- 10.** A 55 year old woman has had a left parotid swelling for 30 years. Over the past 3 months the swelling has increased in size from 3 cm to 5 cm.

She had fine needle aspiration of the lump 6 years ago but she declined surgery at that time.

She has no pain, but there is slight facial weakness. There are no other abnormalities on examination of the head and neck.

What is the most likely explanation of the recent enlargement?

- A.** Parotid adenoma
- B.** Parotid carcinoma
- C.** Parotid lymphoma
- D.** Reactive lymphadenopathy
- E.** Stone in the parotid duct



- 11.** A 63 year old man has 9 weeks of hoarse voice and 2 months of cough. He smokes 20 cigarettes per day and drinks 25 units of alcohol per week. His symptoms have not responded to oral amoxicillin.

His temperature is 37.2°C, pulse 80 bpm, respiratory rate 16 breaths per minute and oxygen saturation 95% breathing air. His chest is clear. There are no palpable neck lumps. Oral cavity appearance is normal.

Investigation: Chest X-ray (4 weeks ago): normal

What is the most appropriate next step in management?

- A.** CT scan of chest
- B.** MR imaging of head and neck
- C.** Repeat chest X-ray
- D.** Spirometry
- E.** Urgent ENT referral

- 12.** A 48 year old woman develops nausea and abdominal pain 2 days after a total abdominal hysterectomy.

Her pulse is 110 bpm and BP 80/40mmHg. Her abdomen is distended and tender. Her urine output for the past 6 hours has been 100 mL.

The on-call surgical doctor has been contacted.

What is the most appropriate immediate management?

- A.** Blood transfusion
- B.** Intravenous 0.9% sodium chloride
- C.** Intravenous adrenaline / epinephrine
- D.** Intravenous morphine
- E.** Urethral catheterisation



13. A 28 year old man has sudden onset right-sided chest pain and dyspnoea.

His oxygen saturation is 98% breathing air.

Investigation:

Chest X-ray: Right pneumothorax with a 4 cm rim of air measured at the hilum. There is no mediastinal shift.

What is the most appropriate initial management?

- A.** Admit for observation
- B.** Arrange CT scan of chest
- C.** Insert a chest drain with underwater seal and suction
- D.** Perform aspiration
- E.** Refer to thoracic surgeons for urgent pleurodesis

14. A 45 year old woman has 3 months of weight loss, dizziness, nausea and lethargy.

She has a BP of 100/70 mmHg lying and 75/50 mmHg standing.

Investigations:

Sodium	125 mmol/L (135–146)
Potassium	6.1 mmol/L (3.5–5.3)
Urea	8.5 mmol/L (2.5–7.8)
Creatinine	100 µmol/L (60–120)

What is the most likely diagnosis?

- A.** Addison disease
- B.** Congenital adrenal hyperplasia
- C.** Conn syndrome
- D.** Cushing syndrome
- E.** Hypopituitarism



- 15.** A 59 year old man has had 6 months of difficulty getting an erection. He has had numbness in his feet and intermittent dizziness when he stands up for the last year. He has type 2 diabetes mellitus and had a thyroidectomy 2 years ago for thyrotoxicosis. He takes aspirin, atorvastatin, insulin and levothyroxine.

His BP is 140/90 mmHg lying and 110/80 mmHg standing. His peripheral pulses are all palpable.

What is the most likely cause of his erectile dysfunction?

- A.** Autonomic neuropathy
- B.** Benign prostatic enlargement
- C.** Drug side effects
- D.** Hypothyroidism
- E.** Vascular disease

- 16.** A 60 year old man has had persistent dull lower back pain for 3 months. He was previously a keen hill walker, but is now breathless walking on the flat.

His BP is 152/82 mmHg. He is tender over his lumbar vertebrae. His urinalysis is normal.

Investigations:

Haemoglobin	90 g/L (130-175)
White cell count	$3.2 \times 10^9/\text{L}$ (3.0-10.0)
Platelets	$70 \times 10^9/\text{L}$ (150-400)

Creatinine	190 $\mu\text{mol/L}$ (60-120)
Adjusted calcium	2.8 mmol/L (2.2-2.6)
Albumin	35 g/L (35-50)
Total protein	92 g/L (60-80)

Chest X-ray: normal X-ray of lumbar spine: generalised osteopenia, multi level vertebral collapse

What initial investigation is most likely to help establish the diagnosis?

- A.** Plasma parathyroid hormone
- B.** Serum prostate specific antigen
- C.** Serum protein electrophoresis
- D.** Serum vitamin D
- E.** Thyroid function tests

- 17.** A 91 year old woman has a small skin lesion on her left cheek that has been gradually increasing in size over the past year (see image). She has advanced vascular dementia and ischaemic heart disease. She lives in a nursing home and no longer recognises her daughter, who visits regularly and is her next-of-kin. She is unable to hold a conversation about her health.

The nursing manager of the nursing home requests an opinion from the GP.



What is the most appropriate next step in management?

- A.** Discuss the diagnosis with the patient's daughter
- B.** No further action
- C.** Prescribe a topical steroid
- D.** Refer urgently to dermatology clinic
- E.** Removal of lesion by GP under local anaesthetic



18. A 70 year old man has felt tired for 6 months. He has hypertension and open angle glaucoma. He takes amlodipine, latanoprost eye drops, ramipril, simvastatin and timolol eye drops.

His pulse is 46 bpm and regular. Examination is otherwise normal.

Which drug is the most likely cause of the clinical findings?

- A.** Amlodipine
- B.** Latanoprost
- C.** Ramipril
- D.** Simvastatin
- E.** Timolol

19. A 45 year old man thinks that he is dead and that he does not exist. He says that he feels miserable most of the time. His wife left him for another man 5 months ago. He has increased his alcohol intake over 4 months to three pints of lager every day. He also occasionally smokes cannabis. He has lost 7 kg in weight over 3 months.

What is the most likely psychiatric diagnosis?

- A.** Alcohol-induced psychosis
- B.** Delusional disorder
- C.** Depressive episode with psychotic symptoms
- D.** Psychosis secondary to illicit drug use
- E.** Schizophrenia



- 20.** A 23 year old man attends his GP with 2 months of low mood, lack of pleasure, persistent tiredness, poor sleep, poor appetite and low self-esteem. He sometimes has thoughts of taking his life, with no specific plans. There is no past psychiatric history.

The GP diagnoses depression and starts an antidepressant.

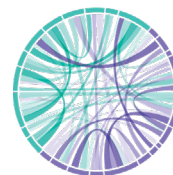
What is the most appropriate follow-up?

- A.** Admit to psychiatric unit
- B.** GP review in 1 month
- C.** GP review in 1 week
- D.** Referral to a community psychiatric nurse
- E.** Referral to a psychiatrist

- 21.** A 25 year old woman has recurrent episodes of sudden onset of excessive sweating, dry mouth, 'butterflies' in her stomach, difficulty breathing and a fear that she is going to die. These symptoms have been occurring twice weekly for the past two years.

What is the most likely diagnosis?

- A.** Dissociative disorder
- B.** Generalised anxiety disorder
- C.** Hypochondriasis
- D.** Panic disorder
- E.** Somatisation disorder



- 22.** A 75 year old woman has low back and pelvic pain made worse by walking. She has weakness of hip flexion bilaterally.

Investigations:

Haemoglobin	137 g/L	(115–150)
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Calcium	2.0 mmol/L	(2.2–2.6)
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Phosphate	0.75 mmol/L	(0.8–1.5)
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Alkaline phosphatase	250 IU/L	(25–115)
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CRP	<5 mg/L	(<5)
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What is the most likely diagnosis?

- A. Fibromyalgia
- B. Osteomalacia
- C. Paget's disease of the bone
- D. Polymyositis
- E. Spinal stenosis

- 23.** A 75 year old woman has 6 weeks of painless muscle weakness affecting her shoulders and thighs.

She has a pale mauve discolouration of her eyelids, diffuse erythema over the metacarpophalangeal joints dorsally, and reduced power (3/5) in arm abduction and hip flexion.

Investigations:

CRP	70 mg/L	(<5)
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Rheumatoid factor	negative
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Antinuclear antibody	1:320	(<1:20)
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What is the most appropriate blood test to help establish the diagnosis?

- A. Anti-acetylcholine receptor antibodies
- B. Anti-neutrophil cytoplasmic antibodies
- C. Anti-smooth muscle antibodies
- D. Creatine kinase
- E. Erythrocyte sedimentation rate



- 24.** A 69 year old man has 3 months of stiffness in both knees at the end of the day. He also has intermittent, sharp pain in his left knee that occurs when he is walking or playing tennis. The pain resolves with rest. He has hypertension and takes lisinopril.

There is reduced range of movement in both knees. His left knee has crepitus, a small effusion and tenderness to palpation along the joint line. His BMI is 28 kg/m².

Investigations:

Creatinine 77 µmol/L (60–120)

He is given advice on weight loss and exercise.

What is the most appropriate additional treatment?

- A.** Oral chondroitin sulfate
- B.** Oral co-codamol
- C.** Oral hydroxychloroquine sulfate
- D.** Topical capsaicin
- E.** Topical ibuprofen

- 25.** A 70 year old man has a sharp stabbing pain in his jaw and cheek that lasts for seconds. He reports that the pain is triggered when brushing his teeth, cold wind and touching his face.

What is the most appropriate treatment?

- A.** Carbamazepine
- B.** Indometacin
- C.** Morphine
- D.** Prednisolone
- E.** Pregabalin



- 26.** A 79 year old man has difficulty breathing. He had a carotid endarterectomy 2 hours ago.

His pulse is 120 bpm, BP 92/52 mmHg and oxygen saturation 97% breathing high-flow oxygen by mask. His neck is swollen and he appears anxious and distressed, with loud stridor.

What is the most likely explanation for his deterioration?

- A.** Acute superior vena caval obstruction
- B.** Anaphylactic reaction
- C.** False aneurysm between carotid artery and jugular vein
- D.** Haemorrhage compressing the airway
- E.** Surgical emphysema

- 27.** A 53 year old woman has 4 months of lower abdominal pain and bloating. She has no urinary or bowel symptoms. She has normal periods with a regular cycle.

Her abdomen is distended, but there is no tenderness or masses on palpation.

Investigations:
CA125 50 U/mL (<35).

What is the most appropriate initial radiological investigation to perform?

- A.** CT scan of abdomen and pelvis
- B.** Hysterosalpingogram
- C.** MR scan of abdomen and pelvis
- D.** Ultrasound scan of abdomen and pelvis
- E.** X-ray of abdomen



- 28.** A 17 year old girl has delayed menarche and short stature. She has had recurrent ear infections as a child.

Her height is below the 5th centile for her age. She has a broad chest and widely spaced nipples.

Investigations:

FSH	70 U/L	(2–8)
LH	40 U/L	(1–11)

What investigation is most likely to confirm the underlying diagnosis?

- A. Karyotyping
- B. MR scan of pituitary fossa
- C. Serum oestradiol
- D. Thyroid function tests
- E. Ultrasound scan of pelvis

- 29.** A 32 year old woman has had amenorrhoea for 6 months. Before this, she had a normal menstrual cycle. Her menarche was at age 14 years. Her BMI is 18.5 kg/m².

Investigations:

FSH	30 U/L	(2-8)
LH	20 U/L	(1-11)

These results were confirmed 1 month later.

What is the most likely explanation for these findings?

- A. Anorexia nervosa
- B. Hypogonadotrophic hypogonadism
- C. Polycystic ovarian syndrome
- D. Pregnancy
- E. Premature ovarian failure



30. A 28 year old man has had a painful red eye for five days.

He has redness around the border of the sclera and cornea and the eye is watery. Fluorescein staining is normal. The pupil is irregular.

What is the most likely diagnosis?

- A.** Acute closed angle glaucoma
- B.** Acute conjunctivitis
- C.** Anterior uveitis
- D.** Corneal abrasion
- E.** Dendritic ulcer

31. A 72 year old man has three episodes of painless visual loss in his right eye over a two week period. Each episode lasts 20–30 minutes. The symptoms affect his right eye only. He has hypertension, hyperlipidaemia and ischaemic heart disease.

Which artery is most likely to be affected causing his presentation?

- A.** Basilar artery
- B.** Left internal carotid artery
- C.** Left posterior cerebral artery
- D.** Right internal carotid artery
- E.** Right posterior cerebral artery



- 32.** An 80 year man has worsening nausea and occasional vomiting. He has advanced Parkinson disease and takes levodopa. He also takes codeine for muscle pain along with lactulose.

His BP is 140/85 mmHg. His abdomen is soft with normal bowel sounds.

What is the most appropriate treatment of his nausea and vomiting?

- A.** Add domperidone
- B.** Add oral haloperidol
- C.** Add oral metoclopramide
- D.** Increase dose of levodopa
- E.** Switch codeine to tramadol

- 33.** A 30 year old woman has 3 weeks of bilateral loin pain and dark urine. This was preceded by a sore throat. She had a similar less severe episode 2 years ago.

Her temperature is 37.1°C, pulse 80 bpm, BP 153/90 mmHg and JVP + 3 cm above the sternal angle. She has ankle oedema. Heart sounds are normal and chest is clear. Urinalysis shows blood 3+, protein 3+.

Investigations:

Sodium	136 mmol/L	(135–146)
Potassium	4.8 mmol/L	(3.5–5.3)
Urea	18 mmol/L	(2.5–7.8)
Creatinine	250 µmol/L	(60–120)

Anti-neutrophil cytoplasmic antibody is negative

Urinary albumin:creatinine ratio 192.2 mg/mmol (<3.5)

Midstream urine: no growth

Ultrasound scan of kidneys: normal sized unobstructed kidneys

What is the most appropriate diagnostic investigation?

- A.** CT scan of kidneys, ureters and bladder
- B.** Cystoscopy
- C.** MR renal angiography
- D.** Renal biopsy
- E.** Serum protein electrophoresis



- 34.** A 61 year old woman is admitted with acute kidney injury. She has cervical carcinoma, which has recently been treated with radiotherapy. She takes tramadol and paracetamol.

Her temperature is 37.2°C, pulse 84 bpm, BP 124/80 mmHg and JVP is +2 cm from the sternal angle.

Investigations:

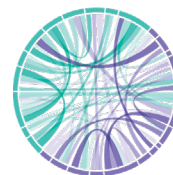
Haemoglobin	98 g/L	(115–150)
White cell count	$12 \times 10^9/\text{L}$	(3.8–10.0)
Platelets	$188 \times 10^9/\text{L}$	(150–400)
Sodium	132 mmol/L	(135–146)
Potassium	5.6 mmol/L	(3.5–5.3)
Urea	36 mmol/L	(2.5–7.8)
Creatinine	592 $\mu\text{mol/L}$	(60–120)

Ultrasound scan of renal tract: bilateral hydronephrosis with good cortical thickness.

A urinary catheter is inserted that drains 50 mL of urine. Urinalysis shows blood 1+.

What is the most appropriate next management step?

- A.** CT scan of kidney, ureter and bladder
- B.** Intravenous 0.9% sodium chloride 500 mL
- C.** Intravenous co-amoxiclav
- D.** Intravenous insulin and glucose
- E.** Nephrostomy insertion



- 35.** A 58 year old man has had 8 months of fatigue. He often has a brief sleep at work due to tiredness.

His pulse is 83 bpm and BP is 159/68 mmHg. His heart sounds are normal and his chest is clear. His BMI is 34 kg/m².

Investigations

Haemoglobin	182 g/L (130-180)
MCV	87 fL (80-96)
White cell count	9.1 x 10 ⁹ /L (4.0-11.0)

Thyroid stimulating hormone 3.0 pmol/L (0.4-5.0)

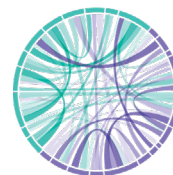
What investigation is most likely to establish the diagnosis?

- A. 24 hour urinary cortisol
- B. Bone marrow aspiration
- C. Echocardiography
- D. Polysomnography
- E. Serum free T4 and T3

- 36.** In 2019, a study was started in which two groups of women (N = 1000 in total) who had surgery for breast cancer were followed up. The women were treated at two different oncology centres. One centre treated women with drug A, and the other with drug B. All women were assessed for recurrence in 2023.

What study design is described here?

- A. Case control
- B. Cross-sectional
- C. Prospective cohort
- D. Randomised control trial
- E. Retrospective cohort



- 37.** In a randomised controlled trial of a new influenza vaccine, 100 patients were randomly allocated to receive the vaccine and 100 to receive placebo. During follow up, 20 patients who had received the vaccine contracted influenza, compared with 30 patients who had received placebo.

What effect did the vaccine have on the relative risk of contracting influenza?

- A.** Decreased by 10%
- B.** Decreased by 33%
- C.** Decreased by 67%
- D.** Increased by 10%
- E.** Increased by 50%

- 38.** A 50 year old man has had 2 months of abdominal and mid-thoracic back pain, diarrhoea and occasional nausea and vomiting. He has lost 5 kg in weight during that time.

Investigations:

Haemoglobin	135 g/L	(130–175)
White cell count	$4.2 \times 10^9/L$	(3.8–10.0)

Alkaline phosphatase	254 IU/L	(25–115)
Bilirubin	28 $\mu\text{mol/L}$	(<17)

Ultrasound scan of abdomen: no abnormality

What is the most appropriate next diagnostic imaging?

- A.** Colonoscopy
- B.** CT scan of abdomen
- C.** Endoscopic retrograde cholangiopancreatography
- D.** Upper gastrointestinal endoscopy
- E.** X-ray of abdomen



- 39.** A 40 year old man has a temperature of 38.5°C. He is receiving cytotoxic chemotherapy for the treatment of acute myeloid leukaemia. His Hickman (central venous) line site is red and tender.

Investigations:

White cell count $0.1 \times 10^9/L$ (3.0–10.0)

Blood cultures from both the Hickman line and peripheral blood yield clumps of Gram positive cocci.

What is the most likely causative organism?

- A.** Enterococcus faecalis
- B.** Escherichia coli
- C.** Micrococcus species
- D.** Staphylococcus aureus
- E.** Streptococcus pyogenes

- 40.** A 72 year old man has a persistent limp 6 weeks after a hip replacement. He has a positive Trendelenburg test.

Which hip muscle group is most likely to be affected?

- A.** Abductors
- B.** Adductors
- C.** Extensors
- D.** External rotators
- E.** Flexors



- 41.** A 24 year old woman has 1 week of watery diarrhoea and abdominal cramping. She is a keen swimmer and there has been a recent outbreak of diarrhoeal disease amongst her swimming club. She is otherwise well.

A stool sample shows oocysts of cryptosporidium.

What is the most appropriate management?

- A.** Arrange for flexible sigmoidoscopy
- B.** Lactose-free diet
- C.** No therapy required
- D.** Oral ciprofloxacin
- E.** Oral clarithromycin

- 42.** A 59 year old woman attends her GP for a monitoring blood test. She has type 2 diabetes mellitus and hypertension. She takes bendroflumethiazide, metformin, nifedipine, ramipril and simvastatin.

Investigations:

Sodium	139 mmol/L	(135–146)
Potassium	3.9 mmol/L	(3.5–5.3)
Urea	6.2 mmol/L	(2.5–7.8)
Creatinine	109 μ mol/L	(60–120)
Calcium	2.73 mmol/L	(2.2–2.6)

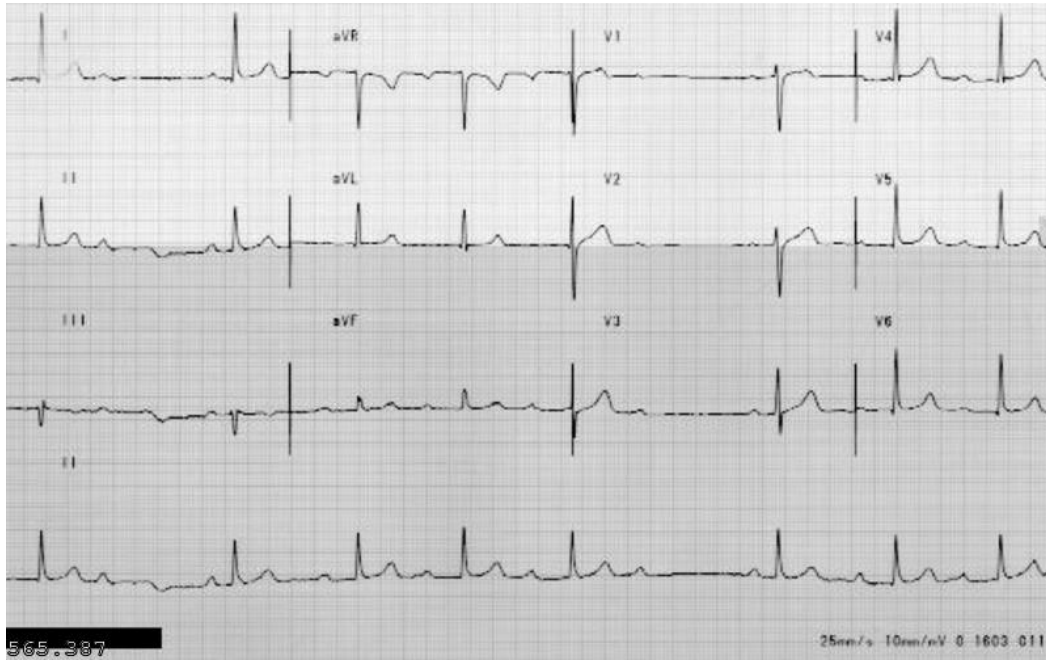
Which of her medications is most likely to contribute to these results?

- A.** Bendroflumethiazide
- B.** Metformin
- C.** Nifedipine
- D.** Ramipril
- E.** Simvastatin

43. A 72 year old woman is admitted after collapsing at home and falling down several stairs.

Her pulse is 55 bpm and irregular, and her BP is 165/88 mmHg.

Her ECG is shown (see image).



What is the best interpretation of the ECG?

- A.** Atrial fibrillation
- B.** Complete heart block
- C.** First degree heart block
- D.** Second degree heart block
- E.** Sinus arrhythmia



- 44.** A 54 year old man attends his GP after he was found to have high BP at a routine medical examination at work. He is well and is not on any regular medication. His friend checked his BP at home and said it was normal.

His BP is checked twice and found to be 146/102 mmHg and 148/98 mmHg.

What is the most appropriate next step?

- A.** Arrange ambulatory BP monitoring
- B.** Arrange repeat BP measurement in 2 weeks
- C.** Prescribe a calcium-channel blocker
- D.** Prescribe an ACE inhibitor
- E.** Reassure patient that if his BP was normal when his friend measured it, no treatment is needed

- 45.** A 78 year old woman has a chest infection which is slow to clear despite several courses of broad spectrum oral antibiotics.

Investigations:

Haemoglobin	126 g/L	(115 – 150)
White cell count	$38 \times 10^9/\text{L}$	(3.8–10.0)
Lymphocytes	$32 \times 10^9/\text{L}$	(1.1–3.3)
Platelets	$124 \times 10^9/\text{L}$	(150 – 400)

A large cervical lymph node is biopsied and shows a sheet of mainly small lymphoid cells with 5% larger cells.

What is the most likely diagnosis?

- A.** Chronic lymphocytic leukaemia
- B.** Myeloma
- C.** Non-Hodgkin lymphoma
- D.** Small cell lung carcinoma
- E.** Tuberculosis



- 46.** A 30 year old woman is admitted with 10 days of fever, rigors, breathlessness and back pain. She has a history of intravenous drug use. She is known to be hepatitis C IgG positive.

Her temperature is 40.1°C, pulse 114 bpm, BP 111/65 mmHg and oxygen saturation 96% breathing air. She has a systolic murmur at the left sternal edge. Her chest is clear. She has tenderness over the L1 to L3 vertebrae.

Investigations:

Haemoglobin	96 g/L	(115–150)
White cell count	$10.9 \times 10^9/\text{L}$	(3.8–10.0)
Platelets	$406 \times 10^9/\text{L}$	(150–400)

Urea	10.5 mmol/L	(2.5–7.8)
Creatinine	71 $\mu\text{mol/L}$	(60–120)

Aspartate aminotransferase	42 IU/L	(10–40)
Alkaline phosphatase	310 IU/L	(25–115)

Urinalysis: blood 1+, protein 3+

What is the most likely diagnosis?

- A.** Acute exacerbation of hepatitis C infection
- B.** Infective endocarditis
- C.** Opioid withdrawal
- D.** *Pneumocystis jirovecii* pneumonia
- E.** Pyelonephritis



- 47.** A 68 year old man has worsening breathlessness on exertion. He takes a salbutamol inhaler as required. He has a 40 pack-year smoking history and stopped smoking completely 3 months ago. His oxygen saturation breathing air is 96%.

Investigations:

Spirometry:

Pre-bronchodilator FEV1/FVC ratio: 0.63

Post-bronchodilator FEV1/FVC ratio: 0.64

Chest X-Ray: mild hyperinflation, heart-size normal, no focal lesion

What is the most appropriate next step in the management?

- A.** Add beclometasone with formoterol and glycopyrronium (Trimbow) inhaler
- B.** Add budesonide with formoterol (Symbicort) inhaler
- C.** Add fluticasone inhaler
- D.** Add ipratropium nebuliser
- E.** Add umecclidinium with vilanterol (Anoro Ellipta) inhaler

- 48.** A 68 year old man had an angioplasty of his left femoral artery 3 days ago. He has hypertension, chronic kidney disease, type 2 diabetes mellitus and peripheral arterial disease. He takes aspirin, metformin and ramipril. Metformin and ramipril were stopped before the procedure.

His temperature is 37.4°C, pulse is 80 bpm and BP is 146/80 mmHg. His urine output for the past 24 hours is 900 mL.

Investigations:

	Pre-angiogram	3 days post angiogram	
Sodium	137 mmol/L	134 mmol/L	(135–146)
Potassium	5.2 mmol/L	5.6 mmol/L	(3.5–5.3)
Urea	8.2 mmol/L	14.5 mmol/L	(2.5–7.8)
Creatinine	134 µmol/L	210 µmol/L	(60–120)

What is the most likely cause for the decline in his renal function?

- A.** Cholesterol emboli
- B.** Contrast associated acute kidney injury
- C.** Diabetic nephropathy
- D.** Renal artery stenosis
- E.** Urinary tract infection