

7. A 49-year-old man is admitted to the intensive care unit (ICU) with a diagnosis of an inferior myocardial infarction. His heart rate is 35 bpm and blood pressure 90/ 50 mm H g. His ECG shows a Mobitz type I heart block. Which of the following is the best next step?

- A. Atropine
- B. Transvenous pacer
- C. Lidocaine
- D. Observation
- E. Amlodipine

8. A 68-year-old man with a history of end-stage renal disease is admitted to the hospital for chest pain. On examination, a pericardial friction rub is noted. His ECG shows diffuse ST-segment elevation. Which of the following is the best definitive treatment?

- A. NSAIDs
- B. Dialysis
- C. Steroids
- D. Kayexalate (sodium polystyrene sulfonate)
- E. Observation

9. A 45-year-old man was brought to the emergency room (ER) after vomiting bright red blood. He has a blood pressure of 88/ 46 mm H g and heart rate of 120 bpm.

Which of the following is the best next step?

- A. Intravenous fluid resuscitation and preparation for a transfusion
- B. Administration of a proton pump inhibitor
- C. Guaiac test of the stool
- D. Treatment for *H pylori*
- E. Blood transfusion

10. A 22-year-old man complains of acute haemoptysis over the past week. He denies smoking or pulmonary disease. His blood pressure is 130/ 70 mm H g, and his physical examination is normal. His urinalysis also shows microscopic haematuria and red blood cell casts.

Which of the following is the most likely aetiology?

- A. Metastatic renal cell carcinoma to the lungs
- B. Acute tuberculosis of the kidneys and lungs
- C. Systemic lupus erythematosus
- D. Good pasture disease (antiglomerular basement membrane)
- E. Pyelonephritis

4. A 50-year-old woman presents to accident and emergency complaining of excessive lethargy. In addition, she mentions that she has been constipated. On examination, there are clinical features of dehydration. Blood tests have revealed a corrected calcium of 3.3 mmol/L. Her chest x-ray shows bilateral streaky shadowing throughout both lung fields. She is given 3 L of saline in 24 hours after admission. The following day her blood tests are repeated and her corrected calcium level is now 3.0 mmol/L. Results of parathyroid hormone levels and thyroid function tests are still awaited. What is the most appropriate management?

- A. Intravenous saline rehydration
- B. Intravenous saline rehydration and pamidronate
- C. Pamidronate
- D. Calcitonin
- E. Intravenous saline rehydration plus calcitonin

5. A 25-year-old man presented to the emergency department complaining of feeling unwell with diffuse, dull, aching, central chest pain that was preceded by some localized retrosternal sharp pains (these had subsided). He was known to have arrhythmogenic right ventricular cardiomyopathy and had an implantable cardioverter defibrillator implanted five days ago after presenting with syncopal ventricular tachycardia. On examination, he had a resting pulse of 101 beats per minute and a blood pressure of 100/60 mmHg. His JVP was slightly elevated otherwise physical examination was normal. His ECG showed T wave inversion in the right-sided precordial leads. What is the best step in his management?

- A. Aspirin, clopidogrel, and fondaparinux
- B. Chest X-ray
- C. Echocardiography
- D. Implantable cardioverter defibrillator check and data download
- E. Serum troponin

6. A 36-year-old man presented to the outpatient clinic with a six-week history of right-knee pain and swelling. He played football regularly, but could not recall sustaining an injury. The knee was constantly painful and occasionally felt like it was going to 'give way', although it had never actually done so. He had a seven-year history of plaque psoriasis. On examination, there was a moderate warm effusion of the right knee, with flexion limited to 0–70°. McMurray's test was negative. What is the most appropriate investigation?

- A. Colour flow ultrasound scan of the knee
- B. Contrast MR scan of the knee
- C. Synovial fluid analysis
- D. Three-phase isotope bone scan
- E. Weight-bearing X-ray of the knee

43. A 54 year old man with chronic hepatitis C presents with lower limb palpable purpura, arthralgia and neuropathy. His alanine aminotransferase (ALT) is 80 U/L (10-60 U/L), albumin 32 g/L (35-50 g/L), C reactive protein 18 mg/L (<6 mg/L), platelets $90 \times 10^9/L$ ($150-400 \times 10^9/L$), complement C4 0.08 g/L (0.15-0.5 g/L); urinalysis confirms proteinuria and microscopic haematuria. Which one of the following statements is true?

- A. Diagnostic serum analysis can be reliably undertaken on routine blood sampling
- B. Systemic lupus erythematosus (SLE) is most likely
- C. Type I cryoglobulinaemia is most likely
- D. Type II cryoglobulinaemia is most likely
- E. With a normal C3, genetic C4 deficiency is most likely

44. A 78-year-old lady was referred to the cardiologist during her inpatient stay for increasing attacks of angina. She is currently using PRN GTN spray, verapamil and enalapril. She has noticed that the frequency of her angina attacks is increasing and her symptoms are becoming more severe at rest. What changes in her medications will improve her symptoms?

- A. Change verapamil to diltiazem and start isosorbide mononitrate.
- B. Give regular nitrates.
- C. Change ace inhibitor.
- D. Add in beta-blocker.
- E. Start digoxin.

45. An 81-year-old gentleman is admitted to hospital with chest pain and a diagnosis of a Non-ST Elevation MI (NSTEMI) is made. Which of the following is the most appropriate immediate medical management?

- A. Aspirin, warfarin and beta-blocker.
- B. Aspirin, clopidogrel, clexane and GTN spray.
- C. Clopidogrel, GTN spray and warfarin.
- D. Clopidogrel, clexane and warfarin.
- E. Clexane, warfarin, beta-blocker and statin

46. A 45-year-old woman presents to the clinic with a three month history of sweats and weight gain of 7 kg. Her sweats tend to be worse in the morning and with exercise and she often feels light headed. On examination she has a BMI of 30 kg/m but no abnormality is noted. Urinalysis negative. What is the likely diagnosis?

- A. Acromegaly
- B. Diabetes mellitus
- C. Insulinoma
- D. Pheochromocytoma
- E. Primary ovarian failure

47. According to ADA guidelines, the diagnosis of diabetes is made when the fasting blood glucose is more than:

- A. 126 mg/dl
- B. 100 mg/dl
- C. 140 mg/dl
- D. 200 mg/dl

48. A 45-year-old man reports to his primary care physician that his wife has noted coarsening of his facial features over several years. In addition, he reports low libido and decreased energy. Physical examination shows frontal bossing and enlarged hands. An MRI confirms that he has a pituitary mass. Which of the following screening tests should be ordered to diagnose the cause of the mass?

- A. 24-hour urinary free cortisol
- B. ACTH assay
- C. Growth hormone level
- D. Serum IGF-1 level
- E. Serum prolactin level

49. A 54-year-old woman undergoes total thyroidectomy for follicular carcinoma of the thyroid. About 6 hours after surgery, the patient complains of tingling around her mouth. She subsequently develops a pins-and-needles sensation in the fingers and toes. The nurse calls the physician to the bedside to evaluate the patient after she has severe hand cramps when her blood pressure is taken. Upon evaluation, the patient is still complaining of intermittent cramping of her hands. Since surgery, she has received morphine sulfate 2 mg for pain and Compazine 5 mg for nausea. She has had no change in her vital signs and is afebrile. Tapping on the inferior portion of the zygomatic arch 2 cm anterior to the ear produces twitching at the corner of the mouth. An electrocardiogram (ECG) shows a QT interval of 575 milliseconds. What is the next step in the evaluation and treatment of this patient?

- A. Administration of benztropine 2 mg IV
- B. Administration of calcium gluconate 2 g IV
- C. Administration of magnesium sulphate 4 g IV
- D. Measurement of calcium, magnesium, phosphate, and potassium levels
- E. Measurement of forced vital capacity

25. An 18 year old woman has a raised C-reactive protein, a rash consistent with erythema marginatum and pyrexia. However, the clinician remains uncertain about the diagnosis of acute rheumatic fever. Rapid response to which treatment will help to confirm the diagnosis?

- A. Aspirin
- B. Bed rest
- C. Diuretics
- D. Glucocorticoids
- E. High-dose antibiotics

26. A 75 year old man with no past medical history presents with increasing shortness of breath over 6 months. He previously worked at a shipyard where he had significant exposure to asbestos. He has a large right-sided pleural effusion. Pleural aspiration is performed and reveals an exudate but cytopathological examination identifies no malignant cells. CT scanning reveals circumferential pleural thickening but no other abnormalities. Which test is most likely to give a diagnosis?

- A. Abrams needle biopsy
- B. Bronchoscopy
- C. Echocardiogram
- D. Repeat pleural aspiration
- E. Thoracoscopy

27. A 23 year old woman has been diagnosed with primary pulmonary hypertension following right heart catheterisation and extensive investigation to exclude alternative causes of her presentation at a specialist unit.

Which of the following therapies may be indicated in primary pulmonary hypertension?

- A. Bosentan
- B. Cyclizine
- C. Etanercept
- D. Infliximab
- E. Isosorbide mononitrat

37. All of the following scenarios require an LDL goal of 100mg/dL, ideally less than 70mg/dL, except:

- A. 45-year-old female complaining of polydipsia found to have random sugar of 250mg/dL
- B. 55-year-old male found to have Non-ST-Segment Myocardial Infarction (NSTEMI) and undergoes cardiac stenting
- C. 68-year-old male smoker found to have 2.5cm abdominal aortic aneurysm on an ultrasound
- D. 51-year-old female with dizziness found to have severe carotid artery stenosis
- E. 39-year-old obese male with hypertension on lisinopril

38. 23-year-old female goes to medical school in the Caribbean islands to complete her basic science training. Due to her hectic study schedule, she is always eating out at fast food restaurants. After she completes her basic science training that lasted 18 months, she comes back to the United States for her clinical rotations. For a few months, she complains of diarrhea, abdominal pain and seven pound weight loss. Stool studies are all negative. The patient has mild anemia and increased mean corpuscular volume (MCV).

Which of the following would you expect to find in this patient?

- A. Increased folate, decreased vitamin B12
- B. Decreased folate, normal vitamin B12
- C. Normal folate, decreased vitamin B12
- D. Decreased folate, decreased vitamin B12
- E. None of the above

39. 62-year-old male with a 40 packs per year smoking history presents with shortness of breath and increased productive cough. He quit smoking two months ago. Pulmonary function testing reveals an FEV1/FVC of 68% with an FEV1 of 65%. He is currently on albuterol as needed.

Which of the following would be the best addition to his current regimen?

- A. Inhaled corticosteroids
- B. Montelukast
- C. Theophylline
- D. Long acting beta agonists
- E. Refer him for lung reduction surgery

- C. Parathyroid carcinoma
- D. Secondary hyperparathyroidism
- E. Tertiary hyperparathyroidism

79. A 60-year-old woman is evaluated 1 month after completing a 14-day course of *Helicobacter pylori* eradication therapy consisting of amoxicillin, clarithromycin, and omeprazole. Initial upper endoscopy before treatment showed patchy gastric erythema with no ulcers or erosions, and biopsies revealed *H. pylori* gastritis. Currently, she reports alleviated symptoms. She is otherwise healthy and takes no medication. Which of the following is the most appropriate test to perform next?

- A. Serologic antibody testing for *H. pylori*
- B. Upper endoscopy with gastric biopsy
- C. Urea breath test
- D. No further testing

80. A 39-year-old man is evaluated for a 3-month history of dry, intermittent cough. He reports no other associated symptoms and has had no unusual environmental exposures. He is a lifelong non smoker. Medical history is significant for hypertension, for which he was started on lisinopril and hydrochlorothiazide 4 months ago. He has no known allergies. On physical examination, vital signs are normal. There is no pharyngeal erythema or exudate. Lungs are clear to auscultation. A chest radiograph is normal.

Which of the following is the most appropriate management?

- A. Discontinue lisinopril
- B. Initiate intranasal glucocorticoid therapy
- C. Obtain spirometry
- D. Start proton pump inhibitor therapy

81. A 22-year-old woman is evaluated in the ED for a 2-day history of progressive fatigue and shortness of breath. Medical history is significant for sickle cell disease diagnosed at age 6 years. Her sickle cell disease is under good control with rare crisis. Medications are hydroxyurea and folic acid. O/E temperature and BP are normal, pulse rate is 125/min, and RR is 25/min. O₂ sat is 93% breathing ambient air. Lungs are clear without wheezing. Other examination findings are unremarkable.

Laboratory studies:

- Hemoglobin: 4g/dL (40 g/L)

85. A 65-year-old man with a history of hypertension presents to the ED with sudden-onset tearing chest pain that radiates to his jaw. His BP is 205/110 mm Hg, HR is 90 beats/minute, RR is 20 breaths/minute, and oxygen saturation is 97% on room air. He appears apprehensive. On cardiac examination, you hear a diastolic murmur at the right sternal border. A CXR reveals a widened mediastinum. You call for a stat bedside transesophageal echocardiogram (TEE) which confirms your suspected diagnosis. Which of the following medications should be administered first in the treatment of this patient?

- A. Amiodarone
- B. Esmolol
- C. Nicardipine
- D. Nifedipine
- E. Nitroprusside

86. When should the COVID-19 vaccine be given to pregnant women ?

- A. The COVID-19 vaccine should not be given to pregnant women
- B. During pregnancy, the COVID-19 vaccination can be started anytime
- C. She should be vaccinated soon after the delivery
- D. None of the above
- C. She should be vaccinated soon after the delivery
- D. None of the above

87. What are the precautions that need to be taken to protect from the coronavirus?

- A. Cover your nose and mouth when sneezing.
- B. Add more garlic into your diet.
- C. Visit your doctor for antibiotics treatment
- D. Wash your hands after every hour

88. Which of the following diseases are related to coronavirus?

- A. MERS
- B. SARS
- C. Both A and B
- D. Neither A nor B
- E. Para influenza virus

58. A patient presents with history of intermittent fever, abdominal pain and headache. Abdominal examination shows tenderness and hepatosplenomegaly. His blood culture is positive for salmonella typhi. The antibiotic of choice for this patient is:

- A. Ciprofloxacin
- B. Gentamycin
- C. Metronidazole
- D. Tetracycline
- E. Vancomycin

59. A patient of embolic stroke is taking warfarin. He comes to dental outdoor for tooth extraction. The most useful investigation to see the effect of warfarin is:

- A. Bleeding time
- B. Haematocrit
- C. Platelet count
- D. Prothrombin time
- E. Thromboplastin time

60. A 42-year-old woman comes to the physician with bilateral knee pain that severely limits her mobility. She also complains of diffuse morning joint stiffness that takes several hours to improve. She has been taking over-the-counter ibuprofen and aspirin but has experienced little relief of symptoms. She has no other medical problems and does not use tobacco, alcohol, or illicit drugs. Her vital signs are within normal limits. Physical examination shows tenderness and swelling of multiple metacarpophalangeal joints, as well as both wrists and knees. Laboratory results are as follows :

Hemoglobin 8.4 g/dl Serum iron 30 ug/dL (normal 50-150 ug/dL) Total iron-binding capacity 320 ug/dL (normal 250-460 ug/dL) Ferritin 300 ng/ml (normal 15-200 ng/ml) Which of the following is the most appropriate next step in management of this patient's anaemia ?

- A. Cyanocobalamin supplementation
- B. Erythropoietin
- C. Folic acid supplementation
- D. Iron supplementation
- E. Methotrexate

- Leukocyte count: 13,000/ μ L (13×10^9 /L)
- Platelet count: 500,000/ μ L (500×10^9 /L)
- Reticulocyte count: 0.1% of erythrocytes

Chest radiograph is normal.

Which of the following is the most likely diagnosis?

- A. Aplastic anemia
- B. Hyperhemolysis syndrome
- C. Myelodysplastic syndrome
- D. Parvovirus B19 infection

82. A 44-year-old man is evaluated in the ED in January for a 3-day history of dyspnea, cough, and fever. Medical history is otherwise unremarkable, and he takes no medications. O/E temperature is 38.5 °C, BP is 118/80 mm Hg, pulse rate is 113/min, and RR is 33/min. O₂ sat is 89% breathing 6 L/min oxygen by nasal cannula. The patient appears uncomfortable and is oriented only to person. Breath sounds are decreased bilaterally with scattered crackles. No rash is noted.

Laboratory studies:

- Leukocyte count 19,000/ μ L (19×10^9 /L)
- Platelet count 274,000/ μ L (274×10^9 /L)
- Blood urea nitrogen 36 mg/dL (12.9 mmol/L)
- Creatinine 1.45 mg/dL (128 μ mol/L)

Sputum Gram stain shows 2+ polymorphonuclear cells and 1+ epithelial cells; no organisms are seen. A respiratory viral panel from a nasopharyngeal swab is positive for rhinovirus. ACXR showed bilateral lobar infiltrate. The patient will be transferred to the ICU. Which of the following is the most appropriate treatment?

- A. Azithromycin
- B. Ceftazidime plus azithromycin
- C. Ceftriaxone plus levofloxacin
- D. Piperacillin-tazobactam plus ciprofloxacin
- E. Erythromycin

volume is <50 ml. He is given normal saline and albumin Intravenously with no change in his serum creatinine concentration. This patient's kidney dysfunction can be best corrected by which of the following ?

- A. Angiotensin-converting enzyme Inhibitors
- B. Broad-spectrum antibiotics
- C. Corticosteroids
- D. High-dose spironolactone
- E. Liver transplantation

70. A 38-year-old man who recently emigrated from Eastern Europe comes to the physician with a 2-month history of exertional shortness of breath and easy fatigability. He has been taking isoniazid for latent tuberculosis for the last 5 months. He also became a vegan 5 months ago. Physical examination shows severe conjunctival pallor and areas of depigmentation on his arms suggestive of vitiligo. His tongue appears shiny. The spleen is not palpable. Laboratory results are as follows :

Hemoglobin 6.5 g/dl

Mean corpuscular volume 110 fL

White blood cells 4,100/mm³

Platelets 135,000/mm³

Which of the following is the most likely diagnosis ?

- A. Chronic myeloid leukemia
- B. Dietary vitamin B12 deficiency
- C. Isoniazid toxicity
- D. Myelodysplastic syndrome
- E. Pernicious anaemia

71. A 25-year-old female presents to your office complaining of exertional dyspnea and fatigue. Her past medical history is insignificant. She does not smoke or consume alcohol. Her blood pressure is 110/70 mmHg and heart rate is 90/min. Physical examination reveals pale conjunctiva. The laboratory values are :

ESR 15 mm/hr

Hemoglobin 7.5 g/dL

MCV 70 fL

MCHC 29%

Leukocyte count 7,000/cmm

Segmented Neutrophils 55%

Bands 3%

89. In a study, which cells are found in COVID-19 patients 'bode well' for long-term immunity?

- A. P-cell
- B. D-Cell
- C. T-Cell
- D. B-Cell
- E. Endothelial Cells

90. A patient with nephrogenic diabetes insipidu is best treated with which of the following?

- A. Hydrochlorothiazide
- B. Triamterene
- C. Furosemide
- D. Spironolactone
- E. Acetazolamide

91. A 46-year-old male patient has Cushing's syndrome that is due to the presence of an adrenal tumour. Which of the following drugs would be expected to reduce the signs and symptoms of this man's disease?

- A. Betamethasone
- B. Cortisol
- C. Fludrocortisone
- D. Ketoconazole
- E. Triamcinolone

92. A 26-year-old female presents with a six week history of galactorrhoea. She has no other symptoms but takes medication for contraception, dyspepsia and migraine. Examination reveals slight galactorrhoea with expression from both breasts but is otherwise normal. Investigations show: Prolactin 915 mU/L (< 450) Which one of the following drugs may be responsible?

- A. Codeine phosphate
- B. Metoclopramide
- C. Omeprazole
- D. Oral contraceptive pill
- E. Sumatriptan

67. A 45-year-old woman comes to the physician with a 3-month history of exertional dyspnea and nonproductive cough. She has also been having difficulty swallowing. Her other medical problems include Raynaud phenomenon, heartburn, and poorly controlled hypertension. The skin over her hands, arms, and trunk is thick and firm. Which of the following is the most likely cause of her pulmonary complaints?

- A. Interstitial lung disease
- B. Parenchymal granulomatous nodules
- C. Pleural effusion
- D. Pulmonary arterial hypertension
- E. Restricted chest wall movement

68. A 43-year-old woman comes to the office due to intense generalized pruritus for the past 4 months. She has used several over-the-counter products, including emollients and antihistamines, but did not get any relief and K. finally decided to see a doctor." The patient has also felt extremely fatigued and frequently takes naps during the daytime. She feels refreshed after waking up and has no dyspnea or night time sleep problems. The patient does not use tobacco or alcohol. Vital signs are normal. Physical examination is notable for skin excoriations and mild hepatomegaly. Laboratory testing shows total bilirubin is 1.6 mg/dl and antimitochondrial antibody is positive. With her disease progression, this patient is at greatest risk for developing which of the following conditions?

- A. Ascending cholangitis
- B. Bile salt diarrhea
- C. Colorectal cancer
- D. Emphysema
- E. Osteomalacia

69. A 45-year-old man with known cirrhosis due to hepatitis C is admitted to the hospital for abdominal discomfort and confusion. His blood pressure is 95/60 mm Hg and his pulse is 100/min. Physical examination shows a distended abdomen, leg edema, and deep yellow discoloration of the skin and sclerae. Bibasilar crackles are heard on chest auscultation. His serum sodium level is 127 mEq/l, potassium is 2.9 mEq/l, and creatinine is 1.6 mg/dl. On day 3 of hospitalization, the serum creatinine is 3.5 mg/dL. Urinalysis results are as follows:

Protein Negative. Glucose negative. White blood cells 5-4/ hpf. Red blood cells 1-0/ hpf. Renal ultrasound is normal and the post-void residual urine

- Leukocyte count: $13,000/\mu\text{L}$ ($13 \times 10^9/\text{L}$)
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- C. Ceftriaxone plus levofloxacin
- D. Piperacillin-tazobactam plus ciprofloxacin
- E. Erythromycin

102. First-line therapy for myasthenia gravis is

- A. Corticosteroids
- B. Anticholinesterases
- C. Thymectomy
- D. Plasmapheresis
- E. Azathioprine

103. The following drugs are nephrotoxic EXCEPT:

- A. Indomethacin
- B. Cyclosporin
- C. Gentamycin
- D. Diltiazem
- E. Amikacin

104. All of the following antibiotics are effective against pseudomonas aeruginosa infection Except:

- A. Ciprofloxacin
- B. Piperacillin
- C. Amikacin
- D. Clarithromycin
- E. Ceftazidim

98. Which one of the following investigations is diagnostic for malaria?

- A. Thin blood film
- B. Full blood count
- C. Blood culture
- D. Serology for *P. falciparum*
- E. Coagulation screen

99. A 21-year-old female presents with a fever, adenopathy and a rash. Blood tests demonstrate a lymphocytosis. Serological diagnosis of a primary viral infection may be made by detection of which viral-specific immunoglobulin?

- A. IgA
- B. IgD
- C. IgE
- D. IgM
- E. IgG

100. A 23-year-old male student has been recently admitted with invasive meningococcal disease. He has made a good recovery but gives a history of a previous episode of meningococcal septicaemia when he was 15 years old. There is no history of other recurrent infections. Which immunodeficiency is most likely in this patient?

- A. Adenosine deaminase deficiency
- B. C7 deficiency
- C. Job's syndrome
- D. Myeloperoxidase deficiency
- E. Selective IgM deficiency

101. Each of the following diseases has an autosomal dominant inheritance except ?

- A. Huntington's chorea
- B. Adult polycystic kidney disease
- C. Marfans syndrome
- D. Haemochromatosis
- E. Neurofibromatosis

83. An unconscious 51-year-old woman is brought to the ED by emergency medical services (EMS). A friend states that the patient was complaining of feeling weak. She vomited and subsequently "blacked out" in the ambulance. The friend states that the patient has no medical problems and takes no medications. She also states that the patient smokes cigarettes and uses cocaine, and that they were snorting cocaine together prior to her blacking out. The patient's BP is 195/80 mm Hg, HR is 50 beats/minute, RR is 7 breaths/minute, and temperature is 98.6°F. What is the eponym associated with her vital signs?

- A. Cushing's syndrome
- B. Cushing's reflex
- C. Cullen's sign
- D. Charcot's triad
- E. Chvostek's sign

84. A 62-year-old woman is evaluated for fatigue and weakness. History is significant for stage G4 chronic kidney disease and hypertension. Her only medication is amlodipine. O/E BP is 135/85 mm Hg; other vital signs are normal. There is no jaundice. Conjunctival rim pallor is noted, and there is no scleral icterus.

Laboratory studies:

- Hemoglobin 8.5 g/dL (85 g/L)
- Leukocyte count normal
- Mean corpuscular volume 80 fL
- Platelet count normal
- Reticulocyte count 1% of erythrocytes
- Ferritin 30 ng/mL (30 µg/L)
- Transferrin saturation 10%
- Estimated glomerular filtration rate 18 mL/min/1.73 m²
- Stool testing for occult blood: Negative
- Colonoscopy performed at age 60 years was normal.

Which of the following is the most appropriate treatment?

- A. Blood transfusion
- B. Bone marrow biopsy
- C. IM vit B12
- D. Erythropoietin-stimulating agent
- E. Iron supplementation

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- E. Restricted chest wall movement

68. A 43-year-old woman comes to the office due to intense generalized pruritus for the past 4 months. She has used several over-the-counter products, including emollients and antihistamines, but did not get any relief and K finally decided to see a doctor." The patient has also felt extremely fatigued and frequently takes naps during the daytime. She feels refreshed after waking up and has no dyspnoea or night time sleep problems.

The patient does not use tobacco or alcohol. Vital signs are normal. Physical examination is notable for skin excoriations and mild hepatomegaly. Laboratory testing shows total bilirubin is 1.6 mg/dl and antimitochondrial antibody is positive. With her disease progression, this patient is at greatest risk for developing which of the following conditions?

- A. Ascending cholangitis
- B. Bile salt diarrhea
- C. Colorectal cancer
- D. Emphysema
- E. Osteomalacia

69. A 45-year-old man with known cirrhosis due to hepatitis C is admitted to the hospital for abdominal discomfort and confusion. His blood pressure is 95/60 mm Hg and his pulse is 100/min. Physical examination shows a distended abdomen, leg edema, and deep yellow discoloration of the skin and sclerae. Bibasilar crackles are heard on chest auscultation. His serum sodium level is 27 mEq/l, potassium is 2.9 mEq/l, and creatinine is 1.6 mg/dl. On day 3 of his hospitalization, the serum creatinine is 3.5 mg/dL. Urinalysis results are as follows:

Protein Negative. Glucose negative. White blood cells 5-4/ hpf. Red blood cells 1-0/ hpf. Renal ultrasound is normal and the post-void residual urinary

76. A 69-year-old man is evaluated in the hospital for four episodes of chest pain at rest in the past 24 hours. Medical history is significant for hyperlipidemia, hypertension, tobacco use, and previous transient ischemic attack. Medications are aspirin, hydrochlorothiazide, atorvastatin, and ramipril. On physical examination, vital signs are normal. The remainder of the examination is unremarkable. Laboratory studies are notable for normal serum troponin levels. An electrocardiogram demonstrates 2-mm ST-segment depressions in leads V4 through V6. Metoprolol, nitrates, clopidogrel, and heparin are initiated.

Which of the following is the most appropriate management?

- A. Adenosine nuclear stress testing
- B. Coronary CT angiography
- C. Exercise stress electrocardiography
- D. Urgent angiography

77. An 18-year-old man is evaluated for a murmur detected during a college sports physical examination. He reports no symptoms and has no history of cardiac disease. He takes no medications. On physical examination, vital signs are normal. He has a normal central venous pressure, waveform, precordial palpation, and S1. A continuous murmur is heard beneath the left clavicle that envelops the S2. The remainder of the examination is unremarkable. Which of the following is the most likely cause of this patient's murmur?

- A. Bicuspid aortic valve with aortic regurgitation
- B. Patent ductus arteriosus
- C. Pulmonary regurgitation
- D. Ventricular septal defect

78. A 21-year-old woman is seen in the office following parathyroidectomy for hyperparathyroidism. The pathology of three resected enlarged parathyroid glands showed hyperplasia. Her medical history is significant for oligomenorrhea. Family history is notable for hypercalcemia and kidney stones in her father, who died at age 49 from pancreatic cancer, and a pituitary tumor in her sister at age 16. Her vital signs are normal. Skin findings include dermatofibroma. Her physical examination is normal with the exception of the surgical scar on her neck.

Which of the following is the most likely diagnosis?

- A. Familial hypocalciuric hypercalcemia
- B. Multiple endocrine neoplasia type 1 (MEN1)

- C. Parathyroid carcinoma
- D. Secondary hyperparathyroidism
- E. Tertiary hyperparathyroidism

79. A 60-year-old woman is evaluated 1 month after completing a 14-day course of *Helicobacter pylori* eradication therapy consisting of amoxicillin, clarithromycin, and omeprazole. Initial upper endoscopy before treatment showed patchy gastric erythema with no ulcers or erosions, and biopsies revealed *H. pylori* gastritis. Currently, she reports alleviated symptoms. She is otherwise healthy and takes no medication. Which of the following is the most appropriate test to perform next?

- A. Serologic antibody testing for *H. pylori*
- B. Upper endoscopy with gastric biopsy
- C. Urea breath test
- D. No further testing

80. A 39-year-old man is evaluated for a 3-month history of dry, intermittent cough. He reports no other associated symptoms and has had no unusual environmental exposures. He is a lifelong non smoker. Medical history is significant for hypertension, for which he was started on lisinopril and hydrochlorothiazide 4 months ago. He has no known allergies. On physical examination, vital signs are normal. There is no pharyngeal erythema or exudate. Lungs are clear to auscultation. A chest radiograph is normal.

Which of the following is the most appropriate management?

- A. Discontinue lisinopril
- B. Initiate intranasal glucocorticoid therapy
- C. Obtain spirometry
- D. Start proton pump inhibitor therapy

81. A 22-year-old woman is evaluated in the ED for a 2-day history of progressive fatigue and shortness of breath. Medical history is significant for sickle cell disease diagnosed at age 6 years. Her sickle cell disease is under good control with rare crisis. Medications are hydroxyurea and folic acid. O/E temperature and BP are normal, pulse rate is 125/min, and RR is 25/min. O₂ sat is 93% breathing ambient air. Lungs are clear without wheezing. Other examination findings are unremarkable.

Laboratory studies:

- Hemoglobin: 4g/dL (40 g/L)

93. Best management for patient with torsade point VT , due to QT prolongation is:
- A. IV B. blockers ,then digoxin
 - B. Magnesium sulphate and isoprenaline
 - C. Lidocaine
 - D. Amiodarone
 - E. Quinidine sulphate
94. In a witnessed cardiopulmonary arrest and asystole , all of the following can be used except :
- A. IV adrenaline
 - B. Chest compression
 - C. IV atropine
 - D. Ambu Bag breathing
 - E. Endotracheal intubation
95. All of the following can induce QT prolongation except :
- A. Hypomagnesaemia
 - B. Quinidine
 - C. Hydroxychlorquine
 - D. Digoxin
 - E. Amiodarone
96. A 54-year-old obese woman has chronic gastroesophageal reflux. Which of the following drugs known to exacerbate her reflux esophagitis ?
- A. Chlorpropamide
 - B. Metoclopramide
 - C. Theophylline
 - D. Acetaminophen
 - E. Omeprazole
97. Which of the following is most likely to lead to drug induced lupus ?
- a. Ramipril
 - b. Phenothiazines
 - c. Hydralazine
 - d. Phenytoin
 - e. Meloxicam

61. A 22-year-old man comes to the urgent care clinic complaining of dark urine he noticed earlier this morning. He is recovering from an upper respiratory tract infection that started 4 days ago. The patient's temperature is 37.1 C (98.9 F), blood pressure is 92/145 mm Hg, pulse is 80/min, and respirations are 14/min. Physical examination shows no skin rash and no joint abnormalities. Laboratory results are as follows :

Urinalysis

Glucose negative

Protein 1 +

Ketones negative

Leukocyt esterase Negative

Nitrites Negative

White blood cells 3-6/hpf

Red blood cells 30-50/hpf

Casts Red blood cells

Serum chemistry

Serum sodium 138 mEq/L

Serum potassium 4.5 mEq/L

Bicarbonate 22 mEq/L

Blood urea nitrogen 18 mg/dL

Serum creatinine 1.4 mg/dL

Serum complement levels (C3 and C4) are within normal limits, and other serological workup is pending. Which of the following is the most likely diagnosis?

- A. Acute postinfectious glomerulonephritis
- B. Alport syndrome
- C. Goodpasture's syndrome
- D. Henoch-Schonlein purpura
- E. IgA nephropathy

62. An 80-year-old woman is brought to the emergency department from a nursing home with 3 days of poor oral intake. At baseline, the patient would lie in bed most of the day and respond to questions. She is now unable to answer questions and has been more irritable. The patient has hypertension, diabetes mellitus, coronary artery disease, and Alzheimer disease. Medications include aspirin, amlodipine, metoprolol, metformin, and memantine. On examination, blood pressure is 95/60 mm Hg, pulse is 110/min, and respirations are 20/min. Mucus membranes are dry. Lung examination shows midinspiratory coarse

volume is <50 ml. He is given normal saline and albumin Intravenously with no change in his serum creatinine concentration. This patient's kidney dysfunction can be best corrected by which of the following ?

- A. Angiotensin-converting enzyme Inhibitors
- B. Broad-spectrum antibiotics
- C. Corticosteroids
- D. High-dose spironolactone
- E. Liver transplantation

70. A 38-year-old man who recently emigrated from Eastern Europe comes to the physician with a 2-month history of exertional shortness of breath and easy fatigability. He has been taking isoniazid for latent tuberculosis for the last 5 months. He also became a vegan 5 months ago. Physical examination shows severe conjunctival pallor and areas of depigmentation on his arms suggestive of vitiligo. His tongue appears shiny. The spleen is not palpable. Laboratory results are as follows :

Hemoglobin 6.5 g/dl

Mean corpuscular volume 110 fL

White blood cells 4,100/mm³

Platelets 135,000/mm³

Which of the following is the most likely diagnosis ?

- A. Chronic myeloid leukemia
- B. Dietary vitamin B12 deficiency
- C. Isoniazid toxicity
- D. Myelodysplastic syndrome
- E. Pernicious anaemia

71. A 25-year-old female presents to your office complaining of exertional dyspnea and fatigue. Her past medical history is insignificant. She does not smoke or consume alcohol. Her blood pressure is 110/70 mmHg and heart rate is 90/min. Physical examination reveals pale conjunctiva. The laboratory values are :

ESR 15 mm/hr

Hemoglobin 7.5 g/dL

MCV 70 fL

MCHC 29%

Leukocyte count 7,000/cmm

Segmented Neutrophils 55%

Bands 3%

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Which of the following is the most likely diagnosis?

- A. Familial hypocalciuric hypercalcemia
- B. Multiple endocrine neoplasia type 1 (MEN1)

50. A fifty year old smoker presents with history of cough productive of mucoid sputum in every winter for last three years. The most likely diagnosis is:

- A. Bronchial asthma
- B. Bronchiectasis
- C. Bronchogenic carcinoma
- D. Chronic bronchitis
- E. Pulmonary tuberculosis

51. A 59-year-old man with a long history of diabetes with chronic renal insufficiency due to diabetic nephropathy is seen in clinic for routine laboratory work. He is asymptomatic, but his glucose is elevated at 258 mg/ dL, and his other chemistries are as follows: sodium 135 mEq/ L, potassium 5.4 mEq/ L, chloride 108 mEq/ L, and bicarbonate 18 mEq/ L. His creatinine is stable at 2.1 mg/ dL.

What is the most likely cause of his acidosis?

- A. Diabetic ketoacidosis
- B. Lactic acidosis
- C. Type 4 renal tubular acidosis
- D. Accidental salicylate overdose
- E. Hypernatremia

52. Which one of the following is best (most sensitive) initial screening test for hereditary hemochromatosis?

- A. Serum iron concentration and liver biopsy
- B. Serum transferrin saturation
- C. HFE gene analysis
- D. Hemoglobin electrophoresis
- E. Computed tomography scan

53. Which steroid should be given to patients with bacterial meningitis

Adjunctive therapy

- A. Intravenous methylprednisolone
- B. Oral prednisone
- C. Intravenous dexamethasone
- D. None of the above
- E. Pyridoxine

due to a lesion involving which of the following ?

- A. Muscle fibers
- B. Peripheral nerves
- C. Postsynaptic membrane
- D. Presynaptic membrane
- E. Spinal cord

65. A 52-year-old woman complains of difficulty gripping her cup of coffee in the morning. She likes to solve crossword puzzles but is unable to hold a pen properly due to stiffness in her right hand. Her symptoms gradually improve during the day and she is "fully functional" by late afternoon. Examination shows nontender nodules near the elbows over the back of her forearm. The erythrocyte sedimentation rate is 45 mm/hr. Which of the following would most likely be involved during the course of this patient's disease ?

- A. Cervical spine
- B. Lumbar spine
- C. Sacral spine
- D. Sacroiliac joints
- E. Thoracic spine

66. A 34-year-old woman comes to the clinic with a facial rash, joint pains, and oral ulcer. She has no associated fever or other systemic symptoms and otherwise feels well. Medical history is unremarkable, and the patient's only concurrent medication is an oral contraceptive. She does not smoke and consumes alcohol only on social occasions. Antinuclear and anti-double-stranded DNA antibody titers are elevated. Creatinine and complement levels are normal. The patient is diagnosed with systemic lupus erythematosus, and therapy with hydroxychloroquine is initiated.

Which of the following evaluations should be done periodically while the patient is taking this medication ?

- A. Echocardiogram
- B. Eye examination
- C. Liver function panel
- D. Pulmonary function tests
- E. Thyroid-stimulating hormone

crackles at the left lower lung field. Laboratory findings are significant for white blood cell count of 15,000/mm³, creatinine of 2.1 mg/dL, and blood urea nitrogen is 61 mg/dl. Her creatinine was 0.9 mg/dL last month. Chest x-ray reveals a dense, left lower lobe infiltrate. Which of the following underlying pathophysiologic mechanisms is most likely associated with the laboratory findings in this patient?

- A. Hypertensive arteriolosclerosis
- B. Increased central venous pressure
- C. Nodular glomerulosclerosis
- D. Obstructive uropathy
- E. Renal arteriolar vasoconstriction

63. A 23-year-old woman comes to the office due to progressive low back pain and stiffness. The pain has been present for the last few years and has worsened somewhat in recent weeks. The patient has relief of the pain with physical activity and over-the-counter ibuprofen. Associated symptoms include morning stiffness that usually lasts an hour, but she has had no rash, ocular symptoms, urinary symptoms, or diarrhoea. Medical history is notable only for an appendectomy at age 11. The patient has taken birth control pills for the past 2 years and is sexually active with one partner. On examination, she is afebrile with normal height and weight. There is reduced forward flexion of the lumbar spine and tenderness over the lumbosacral area. The remainder of the physical examination is normal.

Which of the following would be most likely to establish a diagnosis in this patient?

- A. Antinuclear antibodies
- B. Erythrocyte sedimentation rate
- C. Prednisone therapeutic trial
- D. Rheumatoid factor
- E. X-ray of the sacroiliac joints

64. A 60-year-old man comes to the physician complaining of fatigue and muscle weakness in his extremities. He has also lost 7 kg (15 lb) during the last 3 months. He has no other medical conditions. The patient smokes 2 packs of cigarettes daily and consumes alcohol occasionally. His muscle strength is 3/5 in the proximal muscle groups symmetrically. His reflexes are 2+ bilaterally. No sensory abnormality is present. There are erythematous to violaceous papules involving the dorsum of his fingers. Chest x-ray reveals an ill-defined mass in the right lower lobe. His muscle weakness is most likely

due to a lesion involving which of the following ?

- A. Muscle fibers
- B. Peripheral nerves
- C. Postsynaptic membrane
- D. Presynaptic membrane
- E. Spinal cord

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Which of the following evaluations should be done periodically while the patient is taking this medication ?

- A. Echocardiogram
- B. Eye examination
- C. Liver function panel
- D. Pulmonary function tests
- E. Thyroid-stimulating hormone

58. A patient presents with history of intermittent fever, abdominal pain and headache. Abdominal examination shows tenderness and hepatosplenomegaly. His blood culture is positive for salmonella typhi. The antibiotic of choice for this patient is:

- A. Ciprofloxacin
- B. Gentamycin
- C. Metronidazole
- D. Tetracycline
- E. Vancomycin

59. A patient of embolic stroke is taking warfarin. He comes to dental outdoor for tooth extraction. The most useful investigation to see the effect of warfarin is:

- A. Bleeding time
- B. Haematocrit
- C. Platelet count
- D. Prothrombin time
- E. Thromboplastin time

60. A 42-year-old woman comes to the physician with bilateral knee pain that severely limits her mobility. She also complains of diffuse morning joint stiffness that takes several hours to improve. She has been taking over-the-counter ibuprofen and aspirin but has experienced little relief of symptoms. She has no other medical problems and does not use tobacco, alcohol, or illicit drugs. Her vital signs are within normal limits. Physical examination shows tenderness and swelling of multiple metacarpophalangeal joints, as well as both wrists and knees. Laboratory results are as follows :

Hemoglobin 8.4 g/dl Serum iron 30 ug/dL (normal 50-150 ug/dL) Total iron-binding capacity 320 ug/dL (normal 250-460 ug/dL) Ferritin 300 ng/ml (normal 15-200 ng/ml) Which of the following is the most appropriate next step in management of this patient's anaemia ?

- A. Cyanocobalamin supplementation
- B. Erythropoietin
- C. Folic acid supplementation
- D. Iron supplementation
- E. Methotrexate

11. A 65-year-old cigarette smoker with a history of hypertension and mild congestive heart failure presents to the emergency room with worsening cough, fever, and dyspnea at rest. The illness began 1 week ago with fever, muscle aches, abdominal pain, and diarrhea, with nonproductive cough developing later that week and rapidly becoming worse. Therapy for which of the following atypical organisms must be considered in this case?

- A. *C pneumoniae*
- B. *M pneumoniae*
- C. *Legionella pneumophila*
- D. *Coccidioidomycosis*
- E. *Aspergillus fumigatus*

12. A 56-year-old man presents to the doctor for the first time complaining of fatigue and weight loss. He has never had any health problems, but he has smoked a pack of cigarettes per day for about 35 years. He is a day laborer and is currently homeless and living in a shelter. His physical examination is notable for a low to normal blood pressure, skin hyperpigmentation, and digital clubbing. He appears euvolemic. You tell him you are not sure of the problem as yet, but you will draw some blood tests and schedule him for follow-up in a week. The laboratory calls that night and informs you that the patient's sodium level is 126 mEq/L, potassium level is 6.7 mEq/L, creatinine level is normal, and bicarbonate and chloride levels are low.

Which of the following is the likely cause of his hyponatremia given his presentation?

- A. SIADH
- B. Hypothyroidism
- C. Gastrointestinal losses
- D. Adrenal insufficiency
- E. Renal insufficiency

13. A 71 year old woman with ischaemic heart disease recently started taking amiodarone 200 mg orally daily for control of her atrial fibrillation. She has now been admitted to hospital 3 months later with episodes of dizziness and bradycardia (heart rate 48beats/min). The electrocardiogram shows a prolonged QT interval (530 ms).

Which of her current regular medicines below is most likely to interact with amiodarone to cause the QT prolongation?

- A. Clopidogrel
- B. Moxifloxacin
- C. Nicorandil
- D. Simvastatin
- E. Thyroxine

14. A 33 year old man develops chicken pox with pulmonary involvement. He is previously fit and well and has had no prior therapy for viral infections. He is hypoxic and has tachypnoea. His chest X-ray reveals widespread nodules. In addition to oxygen, which antiviral agent should he receive?

- A. Aciclovir
- B. Amantadine
- C. Cidofovir
- D. Foscarnet
- E. Valaciclovir

15. An important physical sign of portal hypertension in a patient of cirrhosis of liver is:

- A. Gynecomastia
- B. Hepatomegaly
- C. Palmer erythema
- D. Spider angioma
- E. Splenomegaly

16. A 49 year old woman is admitted to the acute medical ward with a severe leg cellulitis. She has type2 diabetes with a BMI of 41 kg/ m². Observations show: heart rate of 119beats/ min, respiratory rate of 20breaths/min, BP 70/35 mmHg, SpO₂ 97% on air, temperature 38°C, GCS score 15. Which one of the following treatments would you initiate first?

- A. Crystalloid IV bolus of up to 30 ml/kg
- B. Hydrocortisone 100 mg IV
- C. Peripheral IV adrenaline (epinephrine) 80-240 mcg/hr
- D. Peripheral IV noradrenaline (norepinephrine) 480 mcg/hr
- E. Vasopressin (antidiuretic hormone, ADH) 0.04 IU/min

17. A 12 year old boy is being investigated for fatigue. A physical examination, including blood pressure, is normal. Blood results show: sodium 135 mmol/L, potassium 3.1 mmol/L, bicarbonate 35 mmol/L; 24-hour urine results: potassium 245 mmol/24 hrs, calcium 12 mmol/24hrs (N < 7.5).

What is the most likely diagnosis?

- A. Bartter's syndrome
- B. Gitelman's syndrome
- C. Laxative abuse
- D. Primary hyperaldosteronism
- E. Type 1 renal tubular acidosis (RTA)

1. A 22-year-old Caucasian woman presents with a 1-day history of a painful right leg which is erythematous on appearance and tender on palpation. She states that she has had this problem many times in the last few years and her family has also suffered from similar problems. Her grandmother died of a pulmonary embolism. The most likely diagnosis is:
 - A. Antithrombin deficiency
 - B. Factor V Leiden mutation
 - C. Protein S deficiency
 - D. Lupus anticoagulant
 - E. Protein C deficiency

2. A 47-year-old woman presents to clinic concerned about her recent ill health. She has noticed over the last three months that she has been suffering from headaches, fatigue and recurrent infections. She notes she has rarely been to the doctor before and otherwise leads a healthy lifestyle. She decided to see a doctor when she noticed petechial rashes appearing on her arms. On examination there is no organomegaly and blood tests reveal an MCV of 105, a pancytopenia with the bone marrow appearing hypocellular on biopsy.
 - A. Chronic myeloid leukaemia
 - B. Myeloproliferative disorder
 - C. Aplastic anaemia
 - D. Iron deficiency anaemia
 - E. Acute lymphoblastic anaemia

3. A 58-year-old man is admitted with a mild exacerbation of asthma. He suffers with hypertension which is controlled with medication. He was given 5 mg salbutamol and 500 µg ipratropium nebulizers, on route to hospital, by paramedics and has received 'back to back' salbutamol 5 mg nebulizers since admission to accident and emergency. The patient was then sent to the acute medical unit where he was given regular nebulizers along with his regular antihypertension medication. Before he was discharged, his serum potassium reading was 2.9. Select, from the list below, the drug which is most likely to have caused the hypokalaemia.
 - A. Ipratropium
 - B. Ramipril
 - C. Salbutamol
 - D. Amlodipine
 - E. Paracetamol

21. A 72 year old man is admitted to hospital by his family physician for urgent investigation of weight loss. He has a progressive 3-month history of back pain, jaundice, dark urine and anorexia. He has lost approximately 15 kg in weight. In the last 4 weeks he has developed increased thirst and is drinking excessively. A random venous glucose is 16.0 mmol/L (288 mg/dl). Which investigation is most likely to reveal the cause of his diabetes?

- A. Anti-GAD and anti-IA-2 antibodies
- B. CT scan of the pancreas
- C. Dexamethasone suppression test
- D. Faecal elastase
- E. Serum C-peptide

22. A 60 year old with a background of non-alcoholic steatohepatitis with cirrhosis presents with fresh hematemesis, melena and collapse. Endoscopy reveals oesophageal varices as the origin of bleeding.

Which of the following is an appropriate treatment?

- A. Band ligation
- B. Clip placement
- C. Heater probe coagulation
- D. Injection of adrenaline (epinephrine)
- E. Laparotomy

23. A 40 year old man presents with diarrhoea, weight loss, night sweats and multiple enlarged lymph nodes. He has recently had a vesicular rash on his right torso.

Which one investigation would give a unifying diagnosis?

- A. Coeliac serology
- B. Colonoscopy
- C. Faecal calprotectin
- D. HIV test
- E. Thyroid function tests

24. A 42 year old patient has the following bloods. Arterial blood gases: H^+ 57.5 nmol/L (pH 7.24); PaO_2 11.1 kPa (83 mmHg); $PaCO_2$ 4.3 kPa (32 mmHg); bicarbonate 15 mmol/L. Serum biochemistry : sodium 134 mmol/L; potassium 2.4 mmol/L; chloride 109 mmol/L. Urine pH 5.2; following administration of intravenous sodium bicarbonate, urine pH is 5.8.

What is the likely underlying cause of these abnormalities?

- A. Loop diuretic abuse
- B. Thiazide diuretic abuse
- C. Type 1 (distal) renal tubular acidosis
- D. Type 2 (proximal) renal tubular acidosis
- E. Type 4 renal tubular acidosis

18. A 58 year old man with type 2 diabetes of 10 years' duration and a BMI of 33 kg/m² attends clinic for review of his diabetes management. He has a suboptimal HbA_{1c} of 69 mmol/mol (8.5%) on metformin monotherapy 1 g twice daily and would like to discuss the addition of a second-line agent. Which of the following options are the most appropriate if he wishes a strategy that promotes weight loss?

- A. DPP-4 inhibitor (e.g. sitagliptin)
- B. GLP-1 agonist (e.g. liraglutide)
- C. Insulin
- D. PPAR γ agonist/thiazolidinedione (e.g. pioglitazone)
- E. Sulphonylurea (e.g. glipizide)

19. A 48 year old man with type 1 diabetes of 30 years' duration attends clinic for routine review. He is on a basal-bolus insulin regimen and has an HbA_{1c} of 70 mmol/mol (8.6%). He is on no other medication. Blood pressure is 155/92 mmHg (repeated 3• times with similar results) and he has microalbuminuria with an ACR of 7.3 mg/mmol. Estimated glomerular filtration (eGFR) rate is 54 mL/min/1.73 m². Which of the following drugs would be most beneficial?

- A. ACE inhibitor (e.g. lisinopril)
- B. β -blocker (e.g. atenolol)
- C. Calcium channel blocker (e.g. amlodipine)
- D. Centrally acting antihypertensive (e.g. moxonidine)
- E. Thiazide diuretic (e.g. bendroflumethiazide)

20. A 45 year old man with diabetes presents with a 4-week history of weight loss, polyuria and polydipsia. His blood results include: random plasma glucose 20 mmol/L (360 mg/dl), ketones 2 mmol/L and HbA_{1c} 110 mmol/mol (12.2%). He was diagnosed with diabetes 6 months ago at which point his BMI was 23 kg/m² and HbA_{1c} 65 mmol/mol (8.1 %). There is no family history of diabetes. Since diagnosis he has been treated with metformin and a sulphonylurea. p-cell antibodies are checked and he is found to have a very high titre of anti-GAD antibodies. Which of the following diagnoses best fits with this scenario?

- A. LADA
- B. Mitochondrial diabetes
- G. MODY
- D. Pancreatic disease
- E. Type 2 diabetes

35. 40-year-old female presents for an annual check up. She has always had problems getting her blood pressure under control. She has had no other medical problems. She has been put on several regimens and is currently on hydrochlorothiazide, nifedipine, and clonidine. The patient's blood pressure is still elevated today at 165/110mmHg. You are now concerned about secondary causes of hypertension.

Her aldosterone:renin ratio is normal. 24-hour urine cortisol is normal. 24-hour urine metanephrine and catecholamine levels are high. You order a CT scan of the adrenals that confirms that the patient has a mass.

Which of the following is the most appropriate next step in management?

- A. Observe at this time
- B. Surgery
- C. Phenoxybenzamine, then beta blocker, and then surgery
- D. Beta blocker, then phenoxybenzamine, and then surgery
- E. Phenoxybenzamine and beta blocker concurrently, then surgery

36. 67-year-old female presents to your clinic because of weakness, cold intolerance, and lack of bowel movements. She says she has been feeling depressed lately. She denies weight gain. Physical exam is significant for blood pressure of 90/60mmHg. She is a thin individual and has hyperpigmentation of her skin. She denies suicide thoughts. You order lab work on the patient and it shows the following:

- Sodium 138mEq/L
- Potassium 5.2mEq/L
- Chloride 108mEq/L
- Bicarbonate 20mEq/L
- BUN 10mg/dL
- Creatinine 1.0mg/dL
- Glucose 58mg/dL
- TSH 20μU/mL
- Free T4: 0.1ng/dL

Which of the following is the best next step in management?

- A. Start her on thyroid replacement therapy
- B. Refer her to a psychiatrist for her depression
- C. Start dexamethasone, then oral levothyroxine, and perform a cosyntropin stimulation test
- D. Start hydrocortisone, then oral levothyroxine, and perform a cosyntropin stimulation test
- E. Check cosyntropin stimulation test and start levothyroxine

40. 46-year-old female presents with pain in her shoulder, neck and lower back which she has been experiencing for about four months. She mentions waking up occasionally at night due to the pain. She also mentions experiencing fatigue and headaches. Upon physical exam, she has tenderness at several points all over her body. She denies any joint swelling, redness, warmth, rash, chest pain, dyspnea, numbness/tingling, or muscle weakness. Thyroid function tests and erythrocyte sedimentation rate (ESR) blood tests are checked and are normal. Based on what this patient likely has, which of the following is the next best step in management at this time?

- A. Start the patient on low dose prednisone
- B. Start the patient on a low impact aerobic exercise program
- C. Start NSAIDs
- D. Obtain ANA blood levels
- E. Perform a diagnostic electromyogram (EMG) test

41. A 78 year old woman is reviewed in the emergency department of a hospital with bruising. She is taking warfarin 3 mg and 4 mg orally on alternate days as prophylaxis against recurrent pulmonary emboli. Her last 3-monthly INR measurement was 2.7. She has been otherwise well with no other new symptoms and she has not been put on any new medicines. Her investigations reveal a normal full blood count but an INR of 6.7.

What is the appropriate course of action?

- A. Stop warfarin and give phytomenadione (vitamin K1) 1-3 mg by slow intravenous injection
- B. Stop warfarin and give phytomenadione (vitamin K1) 1-5 mg by mouth
- C. Stop warfarin and start apixaban
- D. Stop warfarin and start low-molecular-weight heparin injections
- E. Stop warfarin for 2 days only

42. You review a 42 year old woman who developed breast cancer at the age of 27 that was successfully treated, and has now developed an osteosarcoma in her right femur. On discussion of her family history she tells you that her mother died when she was very young of brain cancer (glioblastoma) and that her brother is currently receiving treatment for a rhabdomyosarcoma. Apart from evidence of a previous mastectomy, there are no additional phenotypic features on physical examination. You suspect a familial cancer predisposition syndrome.

Which of the following cancer predisposition syndromes would be the best fit for this tumour spectrum?

- A. Birt-Hogg-Dube syndrome
- B. Cowden's syndrome
- C. Gorlin's syndrome
- D. Li-Fraumeni syndrome
- E. Lynch's syndrome

32. Which of the following conditions can be a type I or even a type IV hypersensitivity reaction?

- A. Condition where a patient with infectious mononucleosis has IgM cold agglutinin antibodies and a hemolytic reaction
- B. Poison ivy dermatitis
- C. Latex allergy
- D. Arthritis in which anti-CCP is the most specific antibody
- E. Allergic rhinitis

33. 45-year-old female presents to the ED with fever and headaches, a condition she has been experiencing for the past two days. Physical exam reveals neck stiffness concerning for meningitis. Lumbar puncture is performed and cerebrospinal fluid (CSF) studies are obtained. Opening pressure is noted at 300mmH₂O. CSF analysis reveals: 2,000 WBCs/ μ L, PMN predominance, no RBCs, glucose 24mg/dL and protein 106mg/dL. Serum glucose is 86mg/dL. Which of the following is the most likely diagnosis?

- A. Encephalitis
- B. HSV encephalitis
- C. Early bacterial meningitis
- D. West Nile virus
- E. Bacterial meningitis

34. Which of the following scenarios is it appropriate to allow outpatient treatment for community acquired pneumonia (CAP)?

- A. 67-year-old male with CAP and confusion
- B. 68-year old male with CAP and respiratory rate of 18/min
- C. 69-year old female with CAP and creatinine of 2.1mg/dL (Baseline is 0.8mg/dL)
- D. 58-year old female with CAP, low blood pressure, and some confusion
- E. 32-year-old female with CAP, altered mental status, respiratory rate 34/min, and blood pressure of 90/50mmHg

28. An 81 year old non-smoker presents with chest pain and an ECG with ST segment depression. His troponin concentration is 456 ng/L (reference range <34 ng/L). He is treated with an angioplasty and stent 2 days later. At the same time, a 60 year old smoker with diabetes has a large anterior ST segment elevation myocardial infarction, has ventricular fibrillation in the ambulance and has immediate defibrillation. He undergoes immediate percutaneous coronary intervention on arrival at hospital and has a troponin concentration of >50000 ng/L. A medical student asks who has the better prognosis. What is the biggest predictor of mortality following acute myocardial infarction?

- A. Age
- B. Cardiac arrest
- C. ECG changes
- D. Smoking
- E. Troponin concentration

29. Which of the following disease-modifying antirheumatic drugs (DMARDs) does NOT require any monitoring of full blood count or liver function tests?

- A. Azathioprine
- B. Hydroxychloroquine
- C. Leflunomide
- D. Methotrexate
- E. Mycristin

30. Which of the following is a common complication of seronegative (ACPA and rheumatoid factor negative) rheumatoid arthritis?

- A. Felty's syndrome
- B. Osteoporosis
- C. Rheumatoid nodules
- D. Uveitis
- E. Vasculitis

31. Which of the following statements is correct with regard to metabolism of vitamin D?

- A. The biologically active form 25(OH) vitamin D is hydroxylated in the kidney by the enzyme CYP27B1 to generate the inactive metabolite 1,25(OH)₂D
- B. The biologically active form 25(OH) vitamin D is inactivated by the enzyme CYP24A 1 in the kidney
- C. The biologically inactive form 25(OH) vitamin D is hydroxylated in the kidney by the enzyme CYP24A 1 to give the active metabolite 1,25(OH)₂D
- D. The biologically inactive form 25(OH) vitamin D is hydroxylated in the kidney by the enzyme CYP27B1 to give the active metabolite 1,25(OH)₂D
- E. The vitamin D metabolite 24,25(OH)₂D is biologically inactive and stimulates intestinal calcium absorption and bone resorption