Section 1:
Single Best Answers Questions 1–50

This section comprises 50 Single Best Answer (SBA) questions. They are divided into questions 1–31, which are more relevant to the part 1 MRCP examination and questions 32–50, which are more relevant to the part 2 MRCP examination. Although having a general medical slant, these questions are also appropriate for haematology specialist trainees. Normal ranges are given in parentheses. Answers and feedback will be found on pages 101–123.

Multiple Choice Questions for Haematology and Core Medical Trainees, First Edition.
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MRCP part 1 level

SBA 1

A 69-year-old Afro-Caribbean woman is referred to rheumatology outpatients because of painful joints and morning stiffness. She is found to have a minor degree of lymphadenopathy and her spleen is tipped on inspiration. An FBC shows WBC 98 × 10^9/l, Hb 83 g/l, platelet count 221 × 10^9/l, neutrophils 7.2 × 10^9/l and lymphocytes 91 × 10^9/l. Her blood film shows mature small lymphocytes with scanty cytoplasm, round nuclei and coarsely clumped chromatin. Smear cells are present. Rheumatoid factor is detected and her erythrocyte sedimentation rate (ESR) is 54 mm in 1 h (<20).

The most likely diagnosis is:

a Adult T-cell leukaemia/lymphoma
b Chronic lymphocytic leukaemia
c Follicular lymphoma in leukaemic phase
d Mantle cell lymphoma
e Reactive lymphocytosis

SBA 2

A 69-year-old man who has received repeated courses of chemotherapy and chemo-immunotherapy for refractory mantle cell lymphoma presents with the gradual onset of cognitive impairment, dysphasia and dyspraxia. On lumbar puncture, pressure is normal, there is a slight increase in protein concentration, cell count is not increased and glucose is normal. Magnetic resonance imaging (MRI) of the brain shows multiple high intensity signals on T2-weighted and FLAIR sequences affecting mainly the white matter.

The most likely organism implicated is:

a BK virus
b Herpes simplex
c JC virus
d *Treponema pallidum*
e Varicella-zoster virus

SBA 3

A 49-year-old woman is admitted to the intensive care ward with septic shock. Her FBC shows WBC 18×10^9/l, Hb 83 g/l, platelet count 150×10^9/l, neutrophils 17.2×10^9/l and lymphocytes 0.5×10^9/l. Her blood film shows toxic granulation and left shift.

The appropriate haemoglobin threshold for blood transfusion in this patient would be:

a 60 g/l
b 70 g/l
c 80 g/l
d 90 g/l
e 100 g/l

SBA 4

A 23-year-old woman is hospitalised with severe anorexia nervosa. Her FBC shows WBC 3.5×10^9/l, neutrophil count 1.1×10^9/l, Hb 100 g/l, MCV 104 fl and platelet count 70×10^9/l. Blood film shows occasional acanthocytes. Neutrophils show normal segmentation. Her prothrombin time (PT) is slightly increased.

The most likely diagnosis is:

a Aplastic anaemia
b Folic acid deficiency
c Haematological features of anorexia nervosa
d Hepatic steatosis
e Vitamin B_{12} deficiency

SBA 5

A 60-year-old Cypriot woman is referred back to rheumatology outpatients as she has suffered a flare of her rheumatoid arthritis. Her FBC shows WBC 12.0×10^9/l, RBC 3.62×10^{12}/l, Hb 83 g/l, Hct 0.27 l/l, MCV 74 fl, MCHC 310 g/l, platelet count 441×10^9/l and neutrophils 9.2×10^9/l. Her blood film shows increased rouleaux formation and the ESR is 65 mm in 1 h (<20). Serum ferritin is 47 µg/l (14–200), serum iron is 6 µmol/l (11–28) and total iron binding capacity 65 µmol/l (45–75).

The most likely explanation of the microcytic anaemia is:

a α thalassaemia trait
b Anaemia of chronic disease
c Anaemia of chronic disease plus iron deficiency
d β thalassaemia trait
e Iron deficiency

SBA 6

A 60-year-old Caucasian man presents with a history of fatigue, nausea, abdominal discomfort, altered bowel function, insomnia, anxiety and altered taste. He is a self-employed painter and decorator with a past history of a coronary artery bypass and is taking atorvastatin. His FBC shows WBC 7.8×10^9/l, Hb 105 g/l, Hct 0.30 l/l, MCV 79 fl, MCH 27.6 pg, MCHC 350 g/l, red cell distribution width (RDW) 15% (9.5–15.5), platelet count 403×10^9/l and reticulocyte count 120×10^9/l. His blood film shows anisocytosis, polychromasia, basophilic stippling and occasional nucleated red blood cells and myelocytes. A bone marrow aspirate shows dyserythropoiesis with abnormal sideroblasts including 3% ring sideroblasts.

The most likely diagnosis is:

a Lead poisoning
b Myelodysplastic syndrome (refractory anaemia)
c Myelodysplastic syndrome (refractory anaemia with ring sideroblasts)
d Pyrimidine 5′ nucleotidase deficiency
e Zinc deficiency

SBA 7

A 57-year-old man with a history of hypercholesterolaemia, heart failure and atrial fibrillation is on warfarin with a satisfactory international normalised ratio (INR). He presents with the sudden onset of marked swelling of the left leg and thigh with pain in his foot and calf. Within a short period of time, the distal foot become purplish blue and cold with no palpable pulses in the leg.

The most likely diagnosis is:

a Embolisation from the left atrium
b Femoral artery thrombosis
c Plegmasia alba dolens
d Plegmasia caerulea dolens
e Worsening heart failure

SBA 8

A 32-year-old woman with a history of irritable bowel syndrome is found to have iron deficiency anaemia and a serum folate of 1 µg/l (2–11). Her serum vitamin B_{12} is normal. Her diet is assessed as nutritionally adequate, although she says she has to 'watch what she eats'.

The test you would do next is:

a Antibodies to deamidated gliadin peptide
b Antiendomysial antibodies
c Antiendomysial antibodies, making sure that the patient is first on a gluten-free diet
d Duodenal biopsy
e Ig (immunoglobulin) A anti-tissue transglutaminase antibodies

SBA 9

A 23-year-old African man who presents with an epileptiform convulsion and fever is found to have a microangiopathic haemolytic anaemia, thrombocytopenia and acute kidney injury.

The micro-organism you would test for is:

a *Escherichia coli* O104:H4
b *Escherichia coli* O157:H7
c Hepatitis B
d Human herpesvirus 8
e Human immunodeficiency virus

SBA 10

An 18-year-old medical student is permitted to perform an unsupervised venepuncture on a febrile Indian patient and suffers a needle prick injury. He is anxious that he may have contracted human immunodeficiency virus (HIV) infection.

Assuming that the patient is infected, transmission is most likely for:

a Dengue fever
b Hepatitis B
c Hepatitis C
d Human immunodeficiency virus (HIV)
e Leishmaniasis

SBA 11

A 39-year-old woman presents with haemoptysis and is found to have a pulmonary arteriovenous malformation. She is also noted to be pale and to have telangiectasia of the lips and tongue. There are no other abnormal physical findings. A full blood count shows WBC 7.2×10^9/l, RBC 3.10×10^{12}/l, Hb 70 g/l, Hct 0.23 l/l, MCV 75.6 fl, MCH 23.8 pg, MCHC 315 g/l and platelet count 221×10^9/l.

The most likely underlying diagnosis is:

a Acquired von Willebrand disease
b Advanced liver disease
c CREST variant of scleroderma (calcinosis, Raynaud phenomenon, (o) esophageal dysmotility, sclerodactyly, telangiectasia)
d Hereditary haemorrhagic telangiectasia
e Heyde syndrome

SBA 12

A 29-year-old man suffered a road traffic accident in West Africa and required a splenectomy. A few weeks after his return to the UK he presents with chills, fever, myalgia and vomiting. He is found to be hypotensive with no localising signs. His FBC shows WBC 18×10^9/l, Hb 177 g/l, platelet count 98×10^9/l, neutrophils 17.2×10^9/l and lymphocytes 0.6×10^9/l. His blood film shows toxic granulation and left shift. No malaria parasites are seen on thick film examination. A coagulation screen shows a prolonged activated partial thromboplastin time (APTT) and increased D dimers.

The lost likely cause of the fever is infection by:

a *Capnocytophaga canimorsus*
b *Haemophilus influenza* type b
c *Neisseria meningitidis*
d *Plasmodium falciparum*
e *Streptococcus pneumonia*

SBA 13

A 52-year-old man with poor prognosis acute myeloid leukaemia achieves a complete remission with daunorubicin and cytarabine. He then receives an allogeneic haemopoietic stem cell transplant from a matched unrelated donor after conditioning with busulphan and cyclophosphamide. He receives methotrexate and tacrolimus for graft-versus-host disease prophylaxis. A week after transplantation he complains of abdominal pain and is found to have a tender liver, weight gain, oedema and ascites. His bilirubin has risen to 35 μmol/l (<17) and alanine aminotransferase is twice the upper limit of normal. Creatinine has risen to 132 μmol/l (60–125).

The most likely diagnosis is:

a Graft-versus-host disease
b Hepatorenal syndrome
c Inferior vena cava thrombosis
d Methotrexate toxicity
e Sinusoidal obstruction syndrome

SBA 14

A 30-year-old woman is referred to medical outpatients with suspected hypothyroidism. On reviewing her clinical history it is found that she was treated abroad for Hodgkin lymphoma at the age of 16 years with mantle radiotherapy and combination chemotherapy (doxorubicin, bleomycin, vinblastine and dacarbazine).

The long term morbidity of the treatment administered to this patient includes a significantly increased rate of:

a Acute lymphoblastic and acute myeloid leukaemia
b Acute myeloid leukaemia, breast cancer, hypothyroidism and coronary artery disease
c Bladder cancer
d Breast and ovarian cancer
e Hypothyroidism

SBA 15

A 29-year-old Caucasian woman who is seen in outpatients for review of the management of her coeliac disease mentions that she has been trying to get pregnant for some time. She has previously been deficient in both folic acid and iron but her blood count is now normal

You advise her that when trying to get pregnant:

a She does not need any dietary supplements
b She should take supplementary ferrous sulphate
c She should take supplementary folic acid
d She should take supplementary pyridoxine
e She should take supplementary vitamin B_{12}

SBA 16

A 43-year-old woman presents with sudden onset of blurred vision in both eyes. She is tired and has suffered from recurrent aphthous ulcers. Ophthalmological examination shows multiple bilateral retinal haemorrhages without exudates; optic discs appeared normal. Visual acuity is reduced. FBC shows Hb 48 g/l, MCV 119 fl, WBC 6.1 × 10^9/l and platelet count 86 × 10^9/l. The blood film showed macrocytes, oval macrocytes and hypersegmented neutrophils.

The most likely cause of the retinal haemorrhages is:

a Anaemia
b Impaired platelet function
c Raised intracranial pressure
d Malignant hypertension
e Thrombocytopenia

SBA 17

A 31-year-old Caucasian woman had been known to have elevated transaminases for several years but this had not been followed up. She is teetotal. She presents in liver failure and is found to have an Hb of 74 g/l and a reticulocyte count of 270×10^9/l (50–100). A blood film shows irregularly contracted cells, polychromasia and nucleated red blood cells. A Heinz body preparation is positive.

The most likely diagnosis is:

a Autoimmune haemolytic anaemia
b Exposure to an exogenous oxidant
c Glucose-6-phosphate dehydrogenase (G6PD) deficiency
d Wilson's disease
e Zieve's syndrome

SBA 18

A 23-year-old Afro-Caribbean woman presents with symptoms of anaemia. She has also suffered from swollen painful joints. Her FBC shows WBC 4.5×10^9/l, Hb 53 g/l, MCV 93 fl, reticulocyte count 5×10^9/l (50–100) and platelet count 151×10^9/l. Her blood film shows normocytic normochromic red cells. On further testing she is found to have antinuclear activity and anti-double stranded deoxyribonucleic acid (DNA) antibodies. Creatinine is 135 µmol/l (60–125).

The likely cause of the anaemia is:

a Anaemia of chronic disease (anaemia of inflammation)
b Autoimmune haemolytic anaemia
c Chronic kidney injury
d Megaloblastic anaemia
e Pure red cell aplasia

SBA 19

An 8-year-old boy suffers an upper respiratory tract infection following which he develops abdominal pain and palpable purpura of his buttocks and shins. There are also small numbers of petechiae. His mother reports that he has passed red urine.

The most likely explanation of the purpura is:

a Autoimmune thrombocytopenic purpura
b Cryoglobulinaemia
c Disseminated intravascular coagulation
d Henoch–Schönlein purpura
e Post-infection thrombocytopenic purpura

SBA 20

A 63-year-old woman presents with morning stiffness and bilateral neck and shoulder pain and bilateral thigh pain. She has a low grade fever and has lost weight. Her muscles are tender. Polymyalgia rheumatica is suspected and her ESR is therefore measured.

The diagnostic criterion supporting this diagnosis is:

a ESR greater than 30 mm in 1 h
b ESR greater than 40 mm in 1 h
c ESR greater than 50 mm in 1 h
d ESR greater than 60 mm in 1 h
e ESR greater than 70 mm in 1 h

SBA 21

A 33-year-old woman with systemic lupus erythematosus who has developed livedo reticularis suffers an unprovoked deep vein thrombosis in her left leg. Her coagulation screen shows a PT of 16 s (12–14) and an APTT of 40 s (26–33.5).

The test most strongly indicative of your suspected diagnosis would be:

a Anti-β2 glycoprotein 1 antibodies
b Antibodies to the phosphatidylserine–prothrombin complex
c Anti-cardiolipin antibodies
d Anti-prothrombin antibodies
e Lupus anticoagulant

SBA 22

A 70-year-old man presents with symptoms of fatigue and dyspnoea. His diet is normal and his alcohol intake is low. He is on no medications. His FBC shows WBC 4.5×10^9/l, Hb 53 g/l, MCV 116 fl, reticulocyte count 20×10^9/l (50–100) and platelet count 51×10^9/l. His blood film shows marked anisocytosis and poikilocytosis with macrocytes, oval macrocytes, teardrop poikilocytes, red cell fragments, occasional keratocytes and a few hypersegmented neutrophils. Creatinine is 105 µmol/l (60–125).

The likely cause of the abnormalities found is:

a Atypical haemolytic uraemic syndrome (aHUS)
b Folic acid deficiency
c Myelodysplastic syndrome
d Thrombotic thrombocytopenic purpura (TTP)
e Vitamin B_{12} deficiency

SBA 23

A 6-month-old baby boy born to Pakistani parents presents with failure to thrive. He had been weaned on to cow's milk at an early age. He is found to have pallor and hepatosplenomegaly. His FBC shows Hb 78 g/l (99–141), MCV 65 fl (71–84) and MCH 18 pg (24–34). His blood film shows anisocytosis, poikilocytosis, hypochromia, microcytosis and some nucleated red blood cells. Serum ferritin is 25 µg/l (14–200).

The most likely diagnosis is:

a α thalassaemia
b β thalassaemia
c Congenital dyserythropoietic anaemia
d Congenital sideroblastic anaemia
e Iron deficiency anaemia

SBA 24

A 35-year-old woman has a history of hereditary spherocytosis and has an Hb of 88 g/l and a reticulocyte count of 350×10^9/l (50–100). She has a family history of diabetes mellitus and haemoglobin A_{1c} is therefore measured and is found to be 5%/31 mmol/mol (<6%/<42 mmol/mol).

Your interpretation of this result is:

a A valid interpretation of the haemoglobin A_{1c} is possible
b Diabetes mellitus is very unlikely
c Hereditary spherocytosis will interfere with the accuracy of the assay
d The haemoglobin A_{1c} is likely to be misleadingly elevated
e The haemoglobin A_{1c} is likely to be misleadingly reduced

SBA 25

A 70-year-old man trips on his doorstep. He develops massive bruising of his thigh and leg and heavy bleeding from a wound to the shin. He has a past medical history of myocardial infarction 20 years previously and idiopathic bile salt malabsorption, for which he is taking colestyramine. His FBC shows WBC 6.8×10^9/l, Hb 119 g/l, MCV 95 fl and platelet count 420×10^9/l. His blood film shows polychromasia. A coagulation screen shows PT >120 s (12–14), APTT 102 s (23–35), thrombin time 12 s (control 13 s) and fibrinogen concentration 3.5 g/l.

The most likely explanation of the abnormal coagulation is:

a Disseminated intravascular coagulation (DIC)
b Factor X deficiency
c Haemophilia A
d Hyperfibrinolysis
e Vitamin K malabsorption

SBA 26

You are consulted about the advisability of varicella-zoster vaccination.

You would advise vaccination in:

a An apparently healthy 70-year-old woman.
b A 70-year-old man on chemotherapy for chronic lymphocytic leukaemia
c A 40-year-old woman who has had a haemopoietic stem cell transplant for high risk acute myeloid leukaemia
d A 60-year-old man who has had a renal transplant
e A 35-year-old woman who is taking prednisolone 20 mg daily because of a flare up of systemic lupus erythematosus

SBA 27

A 25-year-old man becomes unwell 4 days after returning from a holiday in India. He is febrile with a headache, myalgia and an erythematous rash. It is noted that after his blood pressure has been taken his forearm shows petechiae. FBC shows WBC 3.3×10^9/l, Hb 170 g/l, neutrophil count 1.3×10^9/l, lymphocyte count 1.5×10^9/l and platelet count 24×10^9/l. His blood film shows atypical lymphocytes. The neutrophils do not show toxic changes. A coagulation screen shows a slight prolongation of the PT and APTT, somewhat reduced fibrinogen concentration and increased D dimer.

The most likely diagnosis is:

a Ebola virus disease
b Dengue fever
c Malaria
d Meningococcal septicaemia
e Typhoid fever

SBA 28

An 18-year-old previously healthy student who has just returned from a trip to East Africa presents with a cough and fever, particularly at night. He also has myalgia and headache. He had noticed an itchy rash in the preceding week. He admits that he has not taken his antimalarials conscientiously. His chest X-ray shows diffuse pulmonary infiltrates. FBC shows eosinophilia.

The most likely diagnosis is:

a Eosinophilic granulomatosis with polyangiitis
b Malaria
c Miliary tuberculosis
d Schistosomiasis
e Trypanosomiasis

SBA 29

A 27-year-old man who has just returned from a holiday in Thailand presents with fever, chills and headache. His temperature is 39.4°C and his pulse rate is 100 per minute. An automated full blood count shows Hb 112 g/l, WBC 3.8×10^9/l and platelet count 95×10^9/l. There is an instrument 'flag' for atypical lymphocytes. Biochemical tests show elevated bilirubin, alanine transaminase and lactate dehydrogenase (LDH).

The physician should initiate laboratory tests for:

a Dengue fever
b Hepatitis A
c HIV infection
d Malaria
e Typhoid fever

SBA 30

A 63-year-old Greek man with rheumatoid arthritis has been taking aspirin and non-steroidal anti-inflammatory drugs. Despite this treatment he has early morning stiffness and his joints are still swollen and painful. His blood tests show an Hb of 98 g/l and an MCV of 78 fl. His serum iron and transferrin saturation are low and his serum ferritin is 115 µg/l (15–200).

The most likely diagnosis is:

a A combination of iron deficiency and anaemia of chronic disease.
b Acquired sideroblastic anaemia
c Anaemia of chronic disease
d Iron deficiency anaemia due to drug-induced intestinal blood loss
e β thalassaemia trait

SBA 31

A 23-year-old man presents with fever and dyspnoea. On examination, he appears pale and unwell, he has a number of bruises and his spleen is felt 2 cm below the left costal margin. A chest X-ray shows patchy shadowing in his lungs. His FBC shows WBC 9.2×10^9/l, Hb 89 g/l, MCV 95 fl, platelet count 41×10^9/l, neutrophils 0.7×10^9/l, lymphocytes 3.2×10^9/l, blast cells 5.2×10^9/l. Rare blast cells contain Auer rods. His neutrophils appear almost agranular and are hypolobated.

The most likely diagnosis is:

a Acute lymphoblastic leukaemia
b Acute myeloid leukaemia
c Chronic myeloid leukaemia
d High grade lymphoma
e Myelodysplastic syndrome

MRCP part 2 level

SBA 32

A 59-year-old woman presents with fatigue. Her FBC shows WBC 4.8×10^9/l, Hb 93 g/l, MCV 115 fl and platelet count 120×10^9/l. Her blood film shows macrocytes, oval macrocytes and hypersegmented neutrophils. She has a past history of Hashimoto thyroiditis.

The most specific test to confirm the diagnosis you suspect is:

a Anti-glutaminase antibodies
b Intrinsic factor antibodies
c Parietal cell antibodies
d Plasma homocysteine
e Serum vitamin B_{12}

SBA 33

A 23-year-old woman with poorly managed thalassaemia major is being evaluated for suspected iron overload. Blood tests show serum ferritin 2300 µg/l (15–200), haemoglobin A_{1c} 9.5%/80 mmol/mol (<6%, <42 mmol/mol), corrected serum calcium 1.6 mmol/l (2.15–2.55) and serum phosphate 2.1 mmol/l (0.7–1.5). A computed tomography (CT) scan of her head is carried out and shows bilateral symmetrical calcification of basal ganglia and some calcification of the cerebellum and the grey matter–white matter junction of the cerebrum.

The most likely explanation of the CT finding is:

a Calcification of sites of extramedullary erythropoiesis
b Diabetes mellitus
c Hypoparathyroidism
d Iron deposition in the brain leading to ectopic calcification
e Previous brain infarction

SBA 34

A 58-year-old woman with a previous history of breast cancer presents with tiredness. She is found to have a low grade fever and enlargement of the spleen 10 cm below the left costal margin. Her FBC shows WBC 14.8×10^9/l, Hb 74 g/l, MCV 85 fl and platelet count 500×10^9/l. Her blood film is leucoerythroblastic and shows tear drop poikilocytes.

The most likely diagnosis is:

a Essential thrombocythaemia
b Bone marrow metastases
c Chronic myeloid leukaemia
d Liver metastases causing hypersplenism
e Primary myelofibrosis

SBA 35

A 25-year-old man with known sickle cell disease has had recurrent priapism and frequent painful crises. He has often required transfusion, particularly exchange transfusion. He has also had a cholecystectomy. He develops recurrent episodes of right upper quadrant pain, hepatomegaly, fever and impaired liver function. He has extreme hyperbilirubinaemia (68% conjugated) and abnormal liver enzymes but normal serum albumin.

The most likely diagnosis is:

a Gallstone in common bile duct
b Hepatic iron overload
c Hepatic sequestration
d Sickle cell-related intrahepatic cholestasis
e Viral hepatitis

SBA 36

A 25-year-old man presents with abdominal pain and diarrhoea but without any passage of blood. He is hypertensive. His FBC shows a normal Hb and platelet count but he has a neutrophil leucocytosis with a left shift. Three days later he becomes anuric, his creatinine rises, his platelet count falls to 35×10^9/l and schistocytes are found in his blood film. A test on stool for Shiga toxin is negative. ADAMTS13 is assayed at 75% (50–150%).

The most likely diagnosis is:

a Atypical haemolytic uraemic syndrome (aHUS)
b Disseminated intravascular coagulation (DIC)
c Haemolytic uraemic syndrome (HUS)
d Microangiopathic haemolytic anaemia due to renal cortical necrosis
e Thrombotic thrombocytopenic purpura (TTP)

SBA 37

A 56-year-old northern European man with bulky stage IV diffuse large B-cell lymphoma has recently received a first course of R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine and prednisolone) combination chemo-immunotherapy. He develops paraesthesia and tingling in his hands and is found to have hypocalcaemia, hyperkalaemia and hyperuricaemia. Creatinine is 125 µmol/l (53–115) and potassium is 5.1 mmol/l (3.5–5.0).

In addition to vigorous hydration and careful monitoring of fluid balance and biochemical measurements, treatment indicated is:

a Allopurinol
b Haemofiltration
c Peritoneal dialysis
d Rasburicase
e Urinary alkalinisation plus allopurinol

SBA 38

A 45-year-old woman presents with a pain in her left calf, which has a circumference 1 cm greater than the right calf when measured 10 cm below the tibial tuberosity. She has a previous history of deep vein thrombosis (DVT). Her Wells' score is 0.

The most appropriate management is:

a Measure D dimer
b Perform venography
c Perform venous ultrasonography of the left leg
d Prescribe low molecular weight heparin
e Prescribe rivaroxaban

SBA 39

An 85-year-old woman with atrial fibrillation and a previous history of hypertension and hypercholesterolaemia presents with a stroke due to acute right middle cerebral artery occlusion. She is managed with thrombolysis using tissue plasminogen activator followed by warfarin with bridging enoxaparin. Three weeks later she develops fever, myalgia and painful purple feet followed by renal failure. Her INR is 4.2 and eosinophil count is 0.9×10^9/l.

The most likely diagnosis is:

a An allergic reaction to warfarin
b Antiphospholipid syndrome
c Cholesterol embolisation
d Multiple emboli resulting from atrial fibrillation
e Systemic vasculitis

SBA 40

A 45-year-old man presented with splenomegaly and generalised lymphadenopathy. Following a lymph node biopsy and a bone marrow trephine biopsy a diagnosis of stage IVA diffuse large B-cell lymphoma was made. The patient was treated with R-CHOP in standard doses. Seven days after commencing chemotherapy he complains of nausea. Biochemical investigations show a serum sodium of 123 mmol/l and potassium 3.7 mmol/l (3.5–5.0). Serum creatinine is normal. He appears euvolaemic. Serum osmolality is found to be 255 mOsm/kg (275–295) and urine osmolality 260 mOsm/kg.

The treatment indicated is:

a Administration of adrenocorticosteroids
b Fluid restriction
c Infusion of hypertonic saline
d Infusion of normal saline without supplementary potassium
e Oral tolvaptan

SBA 41

A 19-year-old West African man presents with generalised lymphadenopathy and splenomegaly. His FBC shows WBC 18×10^9/l, Hb 93 g/l and platelet count 101×10^9/l. His blood film shows circulating lymphoma cells and following further investigation a diagnosis of Burkitt lymphoma/leukaemia is made. His creatinine is 130 µmol/l (60–125) and his LDH is 1000 iu/l (200–450). Other screening tests show that he has sickle cell trait and G6PD deficiency. As he has stage IV Burkitt lymphoma with LDH more than twice normal he is assessed at being at high risk of tumour lysis syndrome. He is about to commence chemotherapy.

Supportive care should include:

a Intravenous fluids 3 l/m^2/d
b Intravenous fluids 3 l/m^2/d plus allopurinol
c Intravenous fluids 3 l/m^2/d plus rasburicase
d Intravenous fluids 3 l/m^2/d plus allopurinol plus urinary alkalinisation
e Intravenous fluids 3 l/m^2/d plus rasburicase plus urinary alkalinisation

SBA 42

A 67-year-old woman presents with recent onset of a unilateral temporal and occipital headache. She has had one episode of double vision and on brushing her hair she has noticed that her scalp is tender. Her temperature is 38°C and she has recently lost weight. Her FBC shows an Hb of 105 g/l with an MCV of 84 fl. Her ESR is 60 mm in 1 h (<20).

You would manage the patient by:

a Administration of ibuprofen or diclofenac
b Bilateral temporal artery biopsy followed by prednisolone in a dose of 60 mg daily
c Immediate methyl prednisolone 1 g intravenously
d Immediate prednisolone in a dose of 60 mg daily
e Temporal artery biopsy followed by prednisolone in a dose of 40–60 mg daily

SBA 43

A 53-year-old Northern European Caucasian woman presents with dysphasia and weakness of the right arm lasting for 4 hours. No carotid bruit, cardiac murmur or other abnormality is detected on physical examination. A routine FBC shows WBC 13.5×10^9/l, RBC 5.96×10^{12}/l, Hb 137 g/l, Hct 0.44 l/l, MCV 74.5 fl, MCH 23 pg, MCHC 308 g/l and platelet count 512×10^9/l. Serum ferritin is 12 µg/l (12–150).

The next step in your management would be:

a Bone marrow aspiration
b High performance liquid chromatography measurement of haemoglobin A_2 percentage, suspecting β thalassaemia heterozygosity
c Measurement of serum iron and iron binding capacity
d Molecular analysis for *JAK2* mutation
e Therapeutic trial of iron

SBA 44

A 35-year-old woman with a previous history of a cerebrovascular accident presents with breathlessness, cough and a left-sided pleuritic chest pain of 1 week's duration. She is afebrile and normotensive with a mild residual hemiparesis. A chest X-ray shows a pleural-based shadow. Her FBC shows WBC 13 × 10^9/l, neutrophil count 11.0 × 10^9/l, Hb 135 g/l and platelet count 512 × 10^9/l. Her PT is 15 s (12–14) and APTT 50 s (26–34).

The next step in your management would be:

a Bone marrow aspirate and trephine biopsy
b Computed tomography pulmonary angiogram
c Sputum culture followed by antibiotics
d Test for lupus anticoagulant and antiphospholipid antibodies
e Ventilation–perfusion (V/Q) scan

SBA 45

A 55-year-old man presents with a history of recurrent episodes of nausea, palpitations, dizziness and flushing. He has occasionally lost consciousness. One particularly severe attack followed a bee-sting. On some occasions when he has sought urgent medical attention he has been found to be hypotensive with tachycardia and on one occasion an electrocardiogram showed mild ST depression. The patient also gives a history of indigestion. His FBC shows Hb 132 g/l, WBC 9.8 × 10^9/l, eosinophils 0.8 × 10^9/l and monocytes 0.9 × 10^9/l with neutrophil, lymphocyte and platelet counts being normal.

The next step in your management would be:

a 24-hour cardiac monitoring
b Serum IgE
c Serum tryptase
d Skin testing
e Trial of antihistamines

SBA 46

A 76-year-old woman presents with an episode of dysphasia persisting for 2 hours. She is found to have a blood pressure of 150/95 mmHg.

A $CHAD_2DS_2$-VASc score to estimate her risk of stroke is 4. A HAS-BLED score to estimate her risk of bleeding is 2.

In addition to control of her hypertension, your advice to the patient is:

a Aspirin
b No further measures needed
c Non-vitamin K antagonist oral anticoagulant (apixaban, dabigatran or rivaroxaban)
d Warfarin
e Warfarin or non-vitamin K antagonist oral anticoagulant

SBA 47

A 70-year-old woman is admitted with a left hemiparesis and aphasia. On examination, she is found to be in atrial fibrillation. A CT scan show a right cerebral haemorrhage. She is unable to give a coherent history but her husband produces a list of her medications; she is taking felodipine, irbesartan, rivaroxaban and rosuvastatin and he reports that she took all her medications as normal on the morning of admission. Laboratory tests show a platelet count of 243 × 10^9/l, PT 14 s (10–12) and APTT 35 s (26–40).

The correct assessment of her coagulation status is:

a Irbesartan is relevant and she is likely to be fully anticoagulated
b Irbesartan is relevant but there is no evidence of an anticoagulant effect
c None of the medications she is taking is relevant
d Rivaroxaban is relevant and she is likely to be fully anticoagulated
e Rivaroxaban is relevant but there is no evidence of an anticoagulant effect

SBA 48

A 55-year-old man with a recent diagnosis of carcinoma of the lung and pulmonary embolism has been prescribed warfarin. He presents with major gastrointestinal bleeding and an INR of 4.5.

Optimal management, in addition to red cell transfusion as indicated, is:

a Four-factor prothrombin complex
b Four-factor prothrombin complex plus vitamin K
c Fresh frozen plasma with or without vitamin K
d Recombinant activated factor VII
e Three-factor prothrombin complex plus vitamin K

SBA 49

A 55-year-old man is reviewed in pre-admission clinic prior to a hernia repair. He reports that he bled badly after tonsillectomy as a child and required blood transfusion. A coagulation screen shows PT 10.7 s (9.6–11.6) and APTT 63 s (26–32). Thrombin time is normal.

The most likely explanation is:

a Combined factor V and VIII deficiency
b Factor V deficiency
c Factor VII deficiency
d Factor XI deficiency
e Factor XII deficiency

SBA 50

A 66-year-old man has alcoholic cirrhosis but is now abstinent. He develops a strangulated inguinal hernia and requires surgery. On preoperative assessment his FBC shows WBC 7.5×10^9/l, Hb 110 g/l, MCV 99 fl and platelet count 51×10^9/l. His INR is 1.8.

Prior to surgery he requires:

a Fresh frozen plasma
b No specific treatment
c Platelet transfusion
d Prothrombin complex concentrate
e Vitamin K