FRCPath Questions

Hemato-oncology

September 2018

A 22 year old woman, presented with a 2 week history of bruising on her arms and legs and a 3 day history of intermittent epistaxis. Examination revealed large bruises of varying ages on her limbs, and a number of oral mucosal haemorrhages. There were no other abnormal findings. Full blood count shows:

Haemoglobin 96 g/L (NR: 120-160) White cell count 135 x 10^9/L (NR: 4-10) Platelets 20 x 10^9/L (NR 140-400)

Blood film showed a large number of abnormal, immature myeloid cells, many with folded nuclei. The cells contained multiple granules and infrequent Auer rods. Fluorescence in situ hybridisation demonstrated the presence of a PML-RARA rearrangement

1- What is the diagnosis? What immediate additional tests are required? Describe your initial management of this patient. What complications of treatment would you advise the patient about? (12 marks)
2- 5 days after the start of treatment, the patient complained of increasing breathlessness, and was noted to have gained 5 kg in weight since presentation. Chest XRay showed patchy bilateral opacification. What is the differential diagnosis? How would you manage each possible cause of these findings? (8 marks)
3- The patient achieved a complete remission after her initial therapy. 18 months after finishing her initial treatment, there was molecular evidence of relapse. Blood count showed
Hb 112 g/L, white cell count 1.3 x 10^9/L, platelets 60 x 10^9/L.
How would you manage her now?

March 2018

A 60 year old man presents with drowsiness, nosebleeds, headaches and blurred vision. On examination he has retinal haemorrhages, 4 fingerbreadths of splenomegaly and extensive 1-2 cm lymphadenopathy. Blood count shows Haemoglobin 78 g/L, platelets 76 x10^9/L, and white blood cell count 1.5 x 10^9/L. His serum total protein is elevated, and total IgM is raised at 28 g/L with a paraprotein demonstrated on serum electrophoresis. A bone marrow trephine biopsy reveals dense infiltration with lymphoplasmacytoid lymphocytes.

1. a) What is the diagnosis? What further investigations are required to identify the cause of his presenting symptoms and clarify the underlying problem? Indicate the appropriate initial management of the patient (7 marks)
2. b) With appropriate initial management, his symptoms improve significantly. What options for systemic anti-cancer treatment would you offer him to treat the underlying condition? Describe what aims of treatment and potential adverse effects you would discuss with the patient in order to gain written informed consent for the proposed treatment (9 marks)
3. c) He responds well to first line chemotherapy and achieves a remission. 12 months later he represents with renewed nosebleeds and a significant rise in the IgM paraprotein. What is the appropriate management at this stage? Are there any molecular genetic tests that might guide your choice of therapy? (9 marks)

September 2017

A 64 year old man describes 6 months of fatigue, loss of appetite, sweating and weight loss. On examination he has 3 finger breadths of splenomegaly and palpable liver edge.

His FBC is: Haemoglobin 110 g/L, white cell count 20 X 10^9/L (neutrophils 15.3 basophils 0.3), platelets 110 x 10^9/L. Blood film examination reveals a leucoerythroblastic picture with numerous tear drop poikilocytes. Blasts account for <1% of circulating white blood cells and there are giant platelets.

1. a) What is the most likely diagnosis and the differential diagnosis? Outline the investigations you would perform and the results you would expect to confirm the diagnosis.
2. b) Outline the natural history of this condition, and how you would predict the clinical course in this patient.
3. c) Discuss the management options for this patient.
4. d) Summarise in short note form the information you would wish to convey to this patient during your consultation.

March 2017

A 26 year old lady presents to her General Practitioner with a 4 month history of worsening wheeze, associated with lumbar back pain, drenching night sweats and 6 kg weight loss. Her full blood count is as follows: Haemoglobin 102 g/L (MCV 69) platelets 470, white cell count 16 (neutrophils 11.9, lymphocytes 0.3, eosinophils 2.0). She has a 3cm left axillary lymph node palpable and 2 fb splenomegaly palpable below the costal margin. A CXR reveals a wide mediastinum and pulmonary infiltrates. Biopsy of the axillary node reveals a nodular appearance with extensive bands of fibrosis. There are scattered large cells that are CD 15 and 30+ve and are –ve for CD 20 and 45. There is positive staining for LMP-1. There is a background scattered positivity for both B and T cell markers.

Discuss the diagnosis based on these results.

Outline your management plan, including further investigations and choice of treatment.

Describe what you would tell the patient and her family at the first consultation.

September 2016

A 70 year old presents to the new patient clinic with a 6 month history of lymphadenopathy in neck and groins. He complains of increasing tiredness and weight loss of 6 kg in the last three months. He had was admitted to hospital 2 weeks ago with pneumonia which is when a raised white cell count was first noticed. The investigations below have been performed. The patient has come to clinic today for the results of the investigations and a treatment plan.

Investigations:

1. Hb 98g/L, White cell count 94x109/l, platelets 85x109/L, neutrophils 1.4x109/L

2. Flow cytometry markers (Positive defined by > 30% of cells positive): CD5 pos, CD 19 pos, CD20 pos, CD22 pos, CD23 pos, CD43 pos, CD11c weak pos, CD 10 neg, FMC7 neg CD 79b neg

3. CT scan: widespread lymphadenopathy with nodes both above and below diaphragm, no compromise of other organs currently, largest nodal group 6 x 4.2cm in the para-aortic region

4. Cytogenetics are outstanding. Discuss the diagnosis based on the information given. Discuss how prognostic features including the cytogenetics and molecular analysis and patient specific factors such as co-morbidities would impact on therapeutic recommendations?

March 2016

A 29 year old man presents with general lethargy and petechial rash. He has no previous medical history.

His FBC shows Hb 61g/L, MCV 103 fL, WCC 0.9 x 109/L, Neutrophils 0.4 x 109/L, Platelets 11 x 109/L, Reticulocyte count 18 x 109/L.

The film shows round macrocytes, normal morphology otherwise and confirms genuine thrombocytopenia.

The bone marrow trephine reveals a profoundly hypocellular marrow with no significant dysplasia or blast cell infiltrate.

a) Discuss any further investigations that are indicated into the diagnosis.

b) Discuss the diagnosis and severity.

c) Discuss the provision of blood product support for this patient.

d) Discuss the treatment options for this patient.

September 2015

.A 46 year old man presented with lymphadenopathy and sweats. A PET-CT scan showed increased uptake in lymph nodes on both sides of the diaphragm, liver and spleen. A lymph node biopsy showed abnormal lymphoid infiltration around germinal centre follicles. The cells expressed B cell markers, CD5 and cyclin D1. These cells were also identified on a bone marrow aspirate and trephine

March 2015

A 57 year old man has a diagnosis of multiple myeloma. He has received three lines of therapy over the last 6 years including a high dose melphalan conditioned autologous transplant. He is being followed up in out patients. Over a period of four weeks he develops a progressive pancytopenia. You are called by the haematology diagnostic lab to say that a senior laboratory technician has reviewed the film and this shows the presence of a small population of blast-like cells. The preliminary report from the immune-phenotype lab is that these cells are CD38 negative, B- and T- lineage marker negative but express CD 13, 33 and myeloperoxidase.

.a) What is your provisional diagnosis?

.b) Outline your approach to the further investigation and what results you might expect to find for each diagnostic test and subsequent management plan for this patient

September 2014

.A 49 year old man, presents with back pain to his GP. Investigations show IgG paraprotein of 68g/l immunoparesis of IgM and A and an excess of serum Lambda free light chains. In addition he had a creatinine of 220 mmol/L, adjusted Ca 2.8 mmol/L, urate 0.45 mmol/L, albumin 23 g/L, beta 2 microglobulin 1.8 mg/L, Hb 98g/L, plt 130 x109/L,

WCC 4.0 x 109/L N 1.2 x 109/L, liver function was normal. A bone marrow aspirate showed 80% plasma cells, reduced haemopoiesis but normal morphology. Additional investigations included a skeletal survey which shows occasional lytic lesions, but no fractures. His interphase FISH results show t(11;14) with del 13q14 He has no significant previous medical history. He has 3 younger siblings. He was admitted later that day, given a single dose of pamidronate and 3 l of fluid over 24 hours and his creatinine improved to 100mmol/l, Ca to 2.2mmol/l. His case was discussed at the local MDT 1 day ago. There are currently no trials open in your centre for this diagnosis. You have seen him today with his wife and discussed his prognostic stage, initial management and his prognosis. You are writing a letter to his GP summarising your discussion, rationale behind the chosen therapeutic pathway as against other options and what his long term prognosis is likely to be.

March 2014

.A 33 year old single female, who lives alone, but has a supportive family, with high risk AML (FLT-ITD positive at diagnosis) entered morphological CR following induction chemotherapy (DA 3+10). She received a second course of DA 3+8 and a repeat marrow showed continuing remission morphologically but the presence of low level MRD by immune-phenotype / FLT-3 analysis. She is blood group O+ , . CMV sero-negative. A fully matched (HLA 10/10) 23 year old male volunteer unrelated donor (blood group A+, CMV sero-positive) has been identified as her best potential donor. Stem cell transplantation in CR1 has been recommended at your MDT as her best treatment option. Outline your discussions with this patient at her next clinic visit focussing on a description of the planned treatment, expected outcome, benefits and risks. Write your answer in the form of a letter to her GP, Dr Fox, which is also copied to the patient.

September 2013

March 2013

September 2012

March 2012

A 24 year old female presents with chest pain and dyspnoea and is found to have a swollen neck with distended veins and a large mediastinal mass on chest x-ray. Her full blood count is normal. Which haematological malignancies are the most likely cause of this presentation? Outline your approach to investigation and management.

September 2011

Discuss the international prognostic scoring system (IPSS) for myelodysplasia. How would you manage a 56 year old man with confirmed myelodysplasia in each of the prognostic groups?

March 2011

Discuss the investigation and management of a 46-year-old man presenting with pancytopenia, splenomegaly, a dry tap and a heavily fibrotic trephine biopsy.

September 2010

A 17-year-old boy presents to his GP with a two-week history of fatigue, easy bruising and pyrexia. He lives with his parents and a 12-year-old sister with cerebral palsy. He is in his final year at school and has a provisional place at University for the following year. His white count is 98 x 109/l, Hb 54 g/l, platelets 8 x 109/l. Blood film shows small blasts with no neutrophils seen. On examination there is lymphadenopathy in the inguinal region. A bone marrow shows 90% blasts. The peripheral blood immunophenotyping shows TdT+,

CD19 +, cyto CD22+, cyto CD79a +, CD10+, CD13+, CD33+, CD20-, CD45-, CD34-. Cytogenetics were normal and FISH was negative for AML1 and MLL abnormalities. Please discuss the management options and issues that may occur for this patient.

March 2010

Define the optimal treatment strategy in CLL. What patient factors and laboratory–based analyses would make you modify your strategy?

September 2009

Discuss the different techniques for assessing minimal residual disease in haematological malignancy giving examples of how the results can affect management and outcome.

March 2009

You have been asked to set up a late effects clinic for adult patients who are more than 5 years from receiving curative treatment for haematological malignancy. What would you cover in the consultations and explain which tests you would do and why?

September 2008

Thalidomide has recently been licensed for use in myeloma as first line therapy in combination with melphalan and Prednisolone for patients over the age of 65. Discuss the benefits and problems with using thalidomide in this combination particularly focussing on the impact that this would have in terms of clinical effectiveness and service delivery compared with melphalan and Prednisolone alone.

March 2008

A central review of 745 lymph node biopsies in England and Wales in 1998 - 2000 revealed significant discordance for lymphoma diagnosis in 17% of cases, of which 36% would have led to a change in management (Lester JF et al, Br J Haematol 2003;123:463-8). How should lymphoma diagnosis be organised at both a local and regional level in order to improve diagnostic accuracy? Illustrate your answer by giving examples of the range of diagnostic tests available.

September 2007

"Treatment for haematological malignancies will move away from chemotherapy to more targeted biological therapy in the next 5 - 10 years". Critically discuss this statement, providing examples based on current clinical developments. What effects may this have on the providers of haematology treatment and services required to support their use?

March 2007

Critically evaluate the management options for a 22 year old woman who is 18 weeks pregnant and has just been diagnosed with AML M1? Her WCC is 110 x 109/l, Hb 6.5 g/dl, plt 20 x 109/l and cytogenetics are normal. State clearly the management plan you would recommend and the reasons for your choice.

September 2006 -1

= Discuss the investigation, diagnosis and management of a patient who presents with general malaise and is found to have an eosinophil count of 25 x 109/l.

= You have been asked to help draft an antifungal policy for your Trust. Critically appraise the role of each available drug based on available published evidence and cost in the following situations: (i) prophylaxis of fungal infection (ii) treatment of culture-proven invasive pulmonary aspergillus

= Critically evaluate the role of anti-CD20 monoclonal antibody therapy in haematological conditions associated with disordered auto-immunity. Write an outline business case for the use of this agent in those conditions in which you feel this is an appropriate therapy.

September 2006 -2

Critically evaluate the significance of all of the following associations:

. (i) FLT-3 abnormalities in AML

. (ii) JAK-2 abnormalities in myeloproliferative disorders

. (iii) Cyclin-D1 abnormalities in NHL.

March 2006 -1

= A 35 year old woman consults her GP for a general health check prior to trying to start a family. She is found to have a platelet count of 950 x 109/l. Describe the investigation and advice you would offer. Critically evaluate the management options before and during pregnancy.

= A GP refers a 22 year old woman who has recently moved to his practice from overseas. She was diagnosed with Hodgkins lymphoma stage IVA at age 17 and was treated with ABVD and mantle radiotherapy. Detail the discussion you would have with her. Describe any investigations you would perform. Critically evaluate her future management.

March 2006 -2

Write short notes on each of the following:

. a) 5q- syndrome

. b) MALTomas

. c) prognostic factors in chronic lymphocytic leukaemia

September 2005 -1

= A 54 year old woman presents with a Hb 7.8 g/dl, platelets 210 x 109/l, WBC 9.0 x109/l, LDH 2500 (NR<280). The film shows spherocytes. The DAGT (Direct Coombs' test) is positive. Clinically there is no palpable lymphadenopathy, liver or spleen. How would you investigate this patient? What treatment options are available and when would you use them?

= Write short notes on each of the following:

. a) Hypereosinophilic syndrome

. b) Novel agents in AML

. c) Selection and care of matched sibling allogeneic donors

September 2005 -2

Write short notes on each of the following:

. a) POEMS syndrome

. b) Management of a 20 year old female with Stage IIA nodular sclerosing Hodgkin's lymphoma with cervical and mediastinal lymphadenopathy

. c) Post transplant lymphoproliferative disease.

March 2015 -1

= Discuss the mechanisms which may give rise to, and the possible consequences of, an isolated erythrocytosis. How does this understanding help with diagnosis and management?

= Discuss the nature of non-Hodgkin's lymphoma associated with HIV infection and evaluate approaches to management.

March 2005 -2

Which monoclonal antibodies are available for the treatment of haematological malignant disease? Critically evaluate the evidence for their effectiveness. Which patients should be selected for treatment by these agents?

September 2004 -1

= Discuss how you would confirm the diagnosis and establish prognosis in a 69-year-old male who presents with a provisional diagnosis of CLL and evaluate the management options.
= Critically evaluate the current status of reduced intensity or non- myeloblative allografts. How do you see the future development of this procedure?

September 2004 -2
= Write short notes on all of the following:
. (a) the clinical value of prognostic scoring in NHL
. (b) Castlemans disease
. (c) the principle and clinical value of PET scanning in patients with lymphoma.
= What does childhood ALL have in common with adult ALL? Discuss any differences in molecular and cytogenetic phenotypes, prognosis and approaches to treatment.

March 2004 -1
= Give an account of the pathophysiology of bone disease in multiple myeloma and how this influences management approaches.
= Write short notes on:
(a) Peripheral neuropathy in haematological practice (b) Granulocytic sarcoma (c) Cerebral lymphoma

March 2004 -2
Write short notes on:
a) Sclerosing B-cell lymphoma b) Arsenic trioxide therapy c) Tumour lysis syndrome

September 2003 -1
= Describe the treatment options you would discuss with a forty-year old man who has just been diagnosed as having chronic myeloid leukaemia.
= Describe the evidence on which you base your management of patients with neutropenic fever.
= Write short notes on: The management of secondary polycythaemia Amloidosis The use of thalidomide in haematological malignancies.

September 2003 -2
Write short notes on the following:
. (a) The 8:21 translocation [t(8,21) (q22;q22)] in acute myeloid lukaemia
. (b) Large granular lymphocytes
. (c) Mantle cell lymphoma
What do you understand by the term 'hyperviscosity syndrome'? Describe the haematological diseases which may be associated with the hyperviscosity syndrome and their clinical management.

March 2003 -1
= Describe the classification of myelodysplastic syndromes (MDS) and discuss how you would clinically treat patients suffering from different types of MDS.
= Prepare a written submission to health purchasers for the use of Rituximab in the treatment of Non-Hodgkin's Lymphoma.

March 2003 -2
= Discuss the pathogenesis, investigation and management of amyloidosis.
= How would you investigate and clinically manage a 40 year old man with Hairy Cell Leukaemia?

September 2002 -1

September 2002 -2 = Discuss the use of recombinant erythropoietin as a therapeutic agent in patients with haematological disorders. = Describe the pathogenesis, diagnosis and management of acute promyelocytic leukaemia (FAB M3).
March 2002 -1 = Discuss the investigation, differential diagnosis and management of a middle-aged man found to have an haematocrit of 0.54 l/l (54%). = Using evidence based information describe your approach to the diagnosis and management of multiple myeloma.
March 2002 -2 Discuss the treatment options for a 50 year old man with severe pancytopenia caused by myelodysplasia. Justify your preferred approach to management.
September 2001 -1
September 2001 -2
March 2001 -1 = Discuss the laboratory approach to diagnosis and clinical approaches to management in patients with myelodysplastic syndromes. = Describe the approaches to mobilisation and collection of peripheral blood stem cells. What laboratory tests are used to identify the haemopoietic progenitors and to assess the quality of the "harvest"? = Discuss the aetiology, diagnosis and management of primary (idiopathic) myelofibrosis.
March 2001 -2 = Discuss the disorders of haemopoiesis associated with Down's syndrome and the management of these disorders. = Discuss the pathogensis and clinical features of mantle cell lymphoma. What are the treatment choices for a 50 year old man with this disorder?
September 2000 -1 = Discuss the aetiology, diagnosis and management of essential thrombocythaemia. = Write short notes on: . (i) Hypereosinophilia . (ii) Apoptosis . (iii) The chromosomal abnormality t(15;17)(q22;q12)
September 2000 -2 Discuss how you would treat a patient with acute myeloblastic leukaemia who has been diagnosed as having a first relapse.

FRCPath Questions General hematology
September 2018

A 35yr old woman is referred by her GP with a month history of tiredness and easy bruising. Full blood count is as follows

Hb 60 g/L (NR: White Cell Count Neutrophil Count Platelets Reticulocytes

120-160)
2.0 X10^9/L (NR: 4-10) 0.03 x 10^9/L (NR: 1.5-7) 12 X 10^9/L (NR: 140-400) 9 x 10^9/L (NR: 25-85)

The blood film confirms that the counts are genuine. There is no cellular atypia or blast cells in the film. The count is repeated 2 days later and the findings are almost exactly the same. The bone marrow sample shows gross hypocellularity and mild dyserythropoeisis only

Outline your further investigation.
Based on the current criteria state the diagnosis precisely.
Describe the approach to transfusion in this case.
Discuss the management plan for the disorder with justification for choices

March 2018

You are asked by a surgical colleague for your opinion on a 23yr old lady who has been admitted with abdominal pain, but was noted to have Haemoglobin 90g/L, elevated LDH of 600U/L and low haptoglobin.

1. a) Write a differential diagnosis as a list. Outline your investigation plan with justification for each test that you suggest. (12.5 marks)
2. b) A diagnosis of Paroxysmal Nocturnal Haemoglobinuria (PNH) is established - outline your management plan of this lady.

September 2017

A GP seeks advice on a 23 year old patient with (haemoglobin) Hb SS, estimated 10 weeks pregnant. She is para 0 + 0.

She wants to know if she is going to have an affected child & what antenatal care she should have.

Outline the detail of the investigations that you would recommend the GP to send to the laboratory prior to the patient being seen in 1 weeks time in clinic

List the relevant tests for her partner and the rationale for these

Draw up an outline of how you would approach care in pregnancy with reference to potential complications

March 2017

a) A 50 year old man is referred with a ferritin of 800mcg/L. Outline your evaluation of this patient to include a clear relevant clinical history and description of investigations to clarify your diagnosis.

b) Write an outline for a nurse led haemochromatosis clinic of patients with an established diagnosis including procedure, monitoring parameters, referral criteria for medical review & key performance indicators.

September 2016

Outline the principles of the common laboratory tests used to investigate suspected B12 and folate deficiency. Prepare a guideline for GPs to make best use of these tests to include:

. Definite indications for testing

. Target groups for screening

. Issues for interpretation of the test results

. Treatment of B12 deficiency

March 2016

A 16 year old non-European is referred for review in the haematology clinic with a history of 'thalassaemia' treated abroad with blood transfusions. Her Hb is 65g/L and her spleen is measured at 5cm below the costal margin

a) Describe how you would assess her and the appropriate investigations that you would initiate in your first clinic.

b) Outline what relevant review and tests would be needed to achieve a full annual review of her thalassaemia

September 2015

.You are contacted by your obstetric colleagues to consult on recently arrived 13 week pregnant lady with sickle cell anaemia. She has Hb of 80g/L and is confirmed Hb SS. Discuss all relevant aspects of the management of the case from this point forward to include antenatal supervision and a delivery plan.

March 2015

You are asked to review a 32 year old female patient with mucosal bleeding and a platelet count of 4 x 109/l whose platelet count has failed to respond to a 20 day course of high dose steroids. The diagnosis is of ITP. Over the next 14 days her count remains in single figures with mild mucosal bleeding.

a) Discuss the benefits versus risks of the current options for her on-going management and describe what you would explain to the patient.

b) What counselling would you give at this stage with respect to any implications for her intention to become pregnant in the near future? Discuss issues for both the patient and baby

September 2014

1-Describe the key clinical features that you would seek on clincial history taking and the appropriate investigation of a 35yr old female patient who has been found to have a serum ferritin of 500 ng/ml at a health screening assessment.

2- A 75 yr old man with myelodysplastic syndrome who has failed a trial of erythropoietin is started on a transfusion programme. Discuss the management of iron overload in this case.

March 2014

Describe and justify your recommendations for the investigation of a 50- year-old man who presents to his GP with malaise and itch. Include a differential diagnosis at this stage: HB 140 g/l, WBC 11.93 X 109/l, Neut 2.34x109/l, Eosinophil count 3.55x109/l Platelets 396 x 109/l

b) On review 2 months later after initial investigation his blood count shows
HB 147 g/l, WBC 36.44 X 109/l, Neut 4.53x109/l, Lymphocytes 2.75 x109/l, Eosinophil count 28.2x109/l, Basophils 0.04 x109/l, Monocyte 0.89 x109/l Platelets 299 x 109/l
Describe how you would proceed and outline the potential causes for this picture.

September 2013

March 2013

September 2012

March 2012

A 79 year old man is referred by his GP to Haematology out-patients for investigation of anaemia. He has type 2 diabetes mellitus and hypertension. The blood count is as follows:
Hb 114 g/L MCV 98 fl white cell count 5.2 (normal differential count) platelets 174
Outline your approach to further investigation.

September 2011

A 26 year old man is referred from the genitourinary clinic. He has just been diagnosed with HIV infection, has extensive purpura and has a platelet count of 5 x 109 /l. Discuss your assessment of this patient and critically evaluate the management options.

March 2011

A 23-year-old female is referred to you by her GP for a second opinion. She had been diagnosed with ITP six months earlier, and the Consultant looking after her has recommended that she undergo splenectomy as further management of her condition. Describe your approach to this case. What other options would you discuss with her?

September 2010

Critically evaluate the investigation and management of a 35-year-old woman who is referred to you with a history of recurrent urticaria and a single episode of an anaphylactic reaction to eating some cherries. She has been found to have an elevated tryptase level of 180 ng/ml and on examination has a palpable spleen at 2 cms below the costal margin.

March 2010

Discuss the investigation and management of a 16-year- old girl with a platelet count of 46 x 109/l. She has a history of easy bruising but no other bleeding. Blood film demonstrates large platelets. There is a family history of thrombocytopenia.

September 2009

Discuss the assessment and management of a 35 year old man who presents with distressing pruritus. His blood count is abnormal; WBC 19.3x109/l, Hb 196g/l, Hct 39%, platelets 726x109/l.

March 2009

Critically evaluate the approach to investigation and management of a 57 year old man found to have a serum ferritin of 1250ug/L when presenting to his GP with non-specific symptoms of fatigue.

September 2008

Your Director of Pathology wishes to establish a „core" laboratory combining haematology and chemical pathology in one facility, and has asked for your views as head of the haematology laboratory service. Compose a written reply, examining the pros and cons of this proposal, with a final opinion based on these arguments.

March 2008

Critically evaluate the management options for a 16 year old schoolgirl who presented 6 months earlier with immune thrombocytopenic purpura. Her platelet count at presentation was 5 x 109/l and rose to 170 x 109/l on 40mg prednisolone per day. She is now taking 10mg prednisolone per day and her platelet count is 20 x 109/l. Indicate the short-term and long-term management plan that you recommend.
September 2007 A 21 year old lady with sickle cell anaemia (HbSS) presents at 8 weeks gestation in her first pregnancy. She has suffered several severe sickle crises in the past and has been on hydroxycarbamide at a dose of 1g daily for the past two years. Critically discuss the management options.
March 2007 A 47 year old publican presents with symptoms of breathlessness and a FBC reveals a Hb level of 6.5g/dl, WBC of 3.5 x 109/l (Neuts 2.3 x 109/l) and Platelets of 75 x 109/l. The MCV is 105 fl. Describe your approach to investigation and management of this patient.
September 2006 -1 Write short notes on all of the following: . (i) cold haemagglutinin disease . (ii) factor XI deficiency . (iii) mean platelet volume (MPV).
September 2006 -2 = Discuss the pathophysiology of paroxysmal nocturnal haemoglobinuria. Critically evaluate the guidelines for laboratory evaluation and management of this condition and their relationship to its pathophysiology. = Describe and justify your recommendations for the investigation and management of a 42 year old man who complains of fatigue and is found to have the following blood profile: WBC 12 X 109/l HB 145 g/l Platelets 1100 x 109/l
March 2006 -1 = Critically evaluate currently available methods for assessing iron overload. Discuss the causes and clinical features of iron overload and its management. = Write short notes on each of the following: a) Severe congenital neutropenia b) Felty's syndrome c) Cyclical neutropenia
March 2006 -2 = Describe the pathogenesis of disorders that arise from defects of the red cell cytoskeleton. Critically evaluate the available diagnostic tests and the management of these disorders. = A 56 year old woman presents with marked fatigue and widespread bruising. She has a haemoglobin of 56 g/l, a platelet count of 16 x 109/l and a positive direct antiglobulin test. Discuss her investigation and management.
September 2005 -1 Briefly outline and critically evaluate point of care testing in haematology. How would you ensure the safety and quality of such a service?
September 2005 -2 The paediatricians ask you to see an infant suspected on the basis of neonatal screening to have beta thalassaemia major. Discuss how you would assess the child and detail the management plan you would put in place.
March 2015 -1

= Write short notes on: (a) Proteasomes and their relation to haematological practice (b) Assessment of iron status in the "anaemia of inflammation" (c) Red cell folate and its laboratory assessment
= Write a business case for the use of erythropoietin in your department, describing the selection of patients and evaluation of response.

March 2005 -2
= Discuss the pathogenesis, clinical presentation and management of pulmonary complications in sickle cell disease.
= Outline the process of investigation of a neonate born with a platelet count of 5 x 109 /l and evaluate the management options for this patient.
= Write short notes on:- (a) Anagrelide
(b) Lepirudin (c)Recombinant FVIIa

September 2004 -1
= Write short notes on the following:
. a) Stroke in sickle cell disease
. b) Laboratory diagnosis of cobalamin deficiency
. c) Measurement and clinical use of plasma viscosity
= Discuss the pathophysiology of paroxysmal nocturnal haemoglobinuria and its relationship to the diagnostic laboratory methods, clinical manifestations and therapy.

September 2004 -2
= Critically evaluate the investigation and management of a 27 year old woman at 34 weeks gestation who is asymptomatic but is found to have a platelet count of 70 x 109/1.

= Critically evaluate the assessment, investigation and management of a neonate born at 36 weeks with jaundice and severe anaemia who has been referred to you by the paediatricians following a laboratory report of numerous nucleated red blood cells on the blood film.

March 2004 -1
= Discuss the ways in which available treatments may modify the pathophysiology of thalassaemia major.
= Evaluate the evidence base for your approach to the diagnosis and management of patients with acquired aplastic anaemia.

March 2004 -2
= Describe iron absorption, transport and utilisation and the laboratory assessment of iron stores.
= Evaluate the treatment options for a 50 year old woman with severe chronic immune thrombocytopenic purpura.
= You are asked to review a patient on the surgical high dependency unit. The patient is a 56 year old woman who had an emergency laparotomy and colectomy 9 days previously. Pre-op full blood count was normal apart from mild neutrophilia. She now has the following full blood count:
WBC 15 x 109/l; Hb 10.3 g/dl; platelets 30 x 109/l Discuss the differential diagnosis, investigation and management.

September 2003 -1
Discuss the relationship between genotype(s) and phenotype(s) in:
. (a) Haemoglobin H disease

. (b) Primary iron-loading disorders
September 2003 -2 Discuss the haematological abnormalities found in association with HIV (human immunodeficiency virus) infection and its treatment.
March 2003 -1 = Describe the patho physiology of vaso-occlusive crises in Sickle Cell disease and relate this to the clinical management of vaso-occlusive crises. = Write short notes on both the methods used for the measurement of the following and also the interpretation of the results: . (a) Reticulocyte Count, . (b) Iron Status, . (c) Hb A2 level.
March 2003 -2 Describe how you would investigate and clinically manage a 70 year old man with severe autoimmune haemolytic anaemia.
September 2002 -1 = Discuss the evidence base for your decisions on the diagnosis and management of autoimmune thrombocytopenic purpura. = Discuss the relationship between the genetic defect(s) and the clinical features of: . (i) B-thalassaemia intermedia, . (ii) hereditary haemochromatosis. Discuss the role of hydroxyurea in the treatment of haematological disorders. Write short notes on: . (i) the method and clinical relevancy of total red cell mass, . (ii) neonatal allo-immune thrombocytopenia.
September 2002 -2 = Write short notes on: . (i) chronic neutrophilic leukaemia, . (ii) cyclical neutropenia. . (iii) neutrophil surface antibodies. = Discuss the pathogenesis, diagnosis and management of sideroblastic anaemias.
March 2002 -1 Discuss your approach to: . (i) diagnosis of hereditary haemochromatosis, . (ii) antenatal diagnosis in thalassaemia disorders. Write short notes on: . (i) laboratory diagnosis of malaria, . (ii) laboratory assessment of the acute phase response, . (iii) amyloidosis.
March 2002 -2 Write short notes on: . (i) platelet antibodies, . (ii) the haematological consequences which may follow acute Epstein-Barr virus (EBV) infection, . (iii) monoclonal gammopathy of undetermined significance (MGUS).

Discuss how you would manage clinically a patient with sickle cell disease.
September 2001 -1
September 2001 -2
March 2001 -1 Write short notes on the relationship between the genetic defect(s) and clinical features in: . (ii) hereditary spherocytosis . (iii) genetic haemochromatosis . (iv) haemoglobin H disease.
March 2001 -2 Write short notes on: . (ii) sickle cell disease in pregnancy . (iii) congenital dyserythropoietic anaemias . (iv) iron chelation therapy.
September 2000 -1 Describe the functions of the spleen, the indications for splenectomy and your approach to preventing the consequences of hyposplenism.
September 2000 -2 Write short notes on: . (i) Haemochromatosis . (ii) Paroxysmal nocturnal haemoglobinuria . (iii) Cold agglutinins Discuss how you would manage a 30 year old female with refractory chronic immune thrombocytopenic purpura (I.T.P).

FRCPath Questions Transfusion Medicine
September 2018 What measures are taken by UK blood services to reduce the risk of an adverse transfusion - related event? Explain the rationale for these measures considering all the steps from recruitment of donors through to the dispatch of blood from the transfusion laboratory
March 2018 A 33 year old woman is admitted with symptoms of abdominal pain and confusion. Full blood count shows Haemoglobin 90g/L, white blood cell count 11 x 10^9/L and platelet count 6 x 10^9/L. Red cell fragments are noted on blood film. Lactate Dehydrogenase (LDH) is > 1200U/L. Blood group is A RhD negative. A provisional diagnosis of Thrombotic Thrombocytopenic Purpura (TTP) is made and the patient is referred for plasma exchange following placement of central line. 1. a) Discuss the management of blood product support for this patient. (12.5 marks)

2. b) Prepare an information leaflet for patients requiring plasma exchange

September 2017

A blood sample sent to the hospital blood bank for crossmatching is found to have a positive direct antiglobulin test (DAT).

What are the possible causes of the positive DAT, what further features in the history and laboratory investigations would be appropriate and how would you manage the provision of red cell support?

March 2017

Describe the strategies used to keep the blood supply free from potential viral infections, using 2 example viruses (include one virus recognised as an issue in the past 3 years) to illustrate your answer. What practices, other than strategies to minimise the risk of viral contamination of a product, maximise clinical safe and effective blood transfusion for patients?

September 2016

A 32 year old woman with sickle cell disease is found at antenatal screening to be Group O R0 r with anti-U present. What are the possible transfusion-related complications which might arise during this pregnancy and post delivery, and how should they be managed?

March 2016

What are the indications for transfusion of fresh frozen plasma and what evidence is there to support the use of this component? What are the potential adverse effects associated with FFP and how can they be prevented?

September 2015

.The transfusion practitioner informs you that a 32 year old woman blood group O negative has been given blood intended for another patient. How would you manage this incident and what steps would you take to prevent future errors?

March 2015

An 'unknown' adult male is involved in a road accident and is brought into your hospital with massive blood loss. Explain in detail what blood and blood components should be provided in the first hour following hospital admission. If you are asked to coordinate a revision of your hospital's major haemorrhage protocol, what key elements should be included and what is the evidence for your suggestion?

September 2014

. A 50 year old man had a previous allogeneic peripheral blood stem cell transplant for poor risk CLL. He develops abnormal liver function tests and in the course of investigation of these is found to be hepatitis C antibody positive. Because of the blood components he has received in the past, transfusion transmitted infection is considered as a possible source and the Blood Service is contacted. What steps should be taken to investigate this case? What measures are in place to minimise the risk of transfusion–transmitted viral infection?

March 2014

.Your hospital is a very high user of platelets and has recently undertaken a clinical audit of platelet usage and wastage. Your audit results show that 25% of platelet usage was not compliant with national guidelines and 5% of platelets were ordered and not used so subsequently wasted. Explain the current recommendations for platelet transfusion and discuss how you would use these audit findings to improve practice in your hospital.

September 2013

March 2013

September 2012

March 2012

A day-case patient with severe aplastic anaemia experiences a high fever and collapses within 20 minutes of the start of a platelet transfusion. The patient is successfully resuscitated and treated with broad-spectrum antibiotics. In detail, explain the necessary actions of the clinical team, the transfusion team and the blood service in response to this case of suspected bacterial contamination of the apheresis platelet unit. Explain what measures are taken to prevent bacterial contamination of platelets and give the rationale for these.

September 2011

The following 3 scenarios are problems that can occur in hospital transfusion settings. For each, explain the reasons why it still happens, the action you would take as the Consultant Haematologist and the rationale for your actions.

a) The National External Quality Assessment Scheme (NEQAS) result for the Transfusion laboratory showed an error in antibody identification on the current exercise and the previous one.

b) CMV negative irradiated blood was indicated but the patient received blood without these special requirements.

c) Group A blood was given to a group O patient.

March 2011

This question is in three parts:

a) Discuss the pathophysiology of haemolytic disease of the newborn caused by anti-D.

b) Critically evaluate the tests available for investigation of a woman who is 29 weeks pregnant and who has had abdominal trauma following a fall. Her "group & screen" test states A negative with anti-D detected.

c) Discuss the laboratory investgation and clinical management of a woman in her 2nd pregnancy who is found to have anti-D of 20.9 IU/ml in her plasma for the first time at 36 weeks gestation.

September 2010

.You are a newly appointed Consultant Haematologist at a hospital and you are informed of a recent incident in which a group O patient received 50 ml of group A blood in error, before it was stopped due to a reaction in the patient. Explain what you would do to investigate this incident and prevent a recurrence?

March 2010

A 60-year-old female patient was prescribed 1 unit of apheresis platelets and 4 units of fresh frozen plasma (FFP). The platelets and first 3 units of FFP were transfused without incident over a period of an hour and a half. Ten minutes after starting the 4th unit of FFP she became acutely short of breath and hypotensive with a temperature of 38°C. Discuss

the differential diagnosis, laboratory investigation and management of this adverse reaction .
September 2009 Discuss the measures that can be used to reduce the risk of transmitting viruses to patients via red cells, platelets and fresh frozen plasma.
March 2009 Discuss the management of massive blood loss in a hospital setting.
September 2008 Explain the pathogenesis of neonatal alloimmune thrombocytopenia (NATP), and critically evaluate treatment options for a woman with anti-HPA1a, who is now in the early stages of her second pregnancy. Her first child suffered an in- utero intracranial haemorrhage.
March 2008 A pandemic flu outbreak has led to a reduction of 50% in available blood stocks. Design an emergency blood management plan for your hospital to be activated in this situation
September 2007 Prepare a guideline for your hospital on the indications for the use of FFP and cryoprecipitate.
March 2007 Prepare a patient information leaflet about blood transfusion, intended for adult patients scheduled for elective surgery attending a pre-admission clinic approximately 1 month prior to the date of admission.
September 2006 -1
September 2006 -2 Discuss current antenatal prophylaxis for haemolytic disease of the newborn. Critically evaluate methods for the quantitation of feto-maternal haemorrhage. Discuss the management of HDN due to Rh-incompatibility.
March 2006 -1
March 2006 -2 Discuss the reasons for the need to reduce the use of blood. Critically evaluate the strategies that may be used to achieve this and identify those strategies that you believe will be effective.
September 2005 -1
September 2005 -2 The Blood Safety and Quality Regulation (No 50) 2005 transposes two EU Directives (2002/98/EC and 2004/33/EC) into UK law, and comes into force from 8 November 2005. Describe the requirements on hospital blood banks contained in the Regulation(s) and / or the EU Directives. What are the necessary components of a quality system in a hospital blood bank?
March 2015 -1
March 2005 -2 Discuss the key elements involved in pretransfusion testing in the hospital blood bank. What are the requirements to implement electronic cross-matching and what are the potential benefits and risks of this approach?
September 2004 -1
September 2004 -2

Evaluate the risk of transmission of variant Creutzfeldt Jakob disease by blood components and plasma products and discuss strategies which have or could be used to manage that risk.
March 2004 -1
March 2004 -2 What steps could a hospital take to minimise patients' exposure blood components?
September 2003 -1
September 2003 -2 Describe the principles by which the safety of blood components (red cells, platelets and fresh frozen plasma) is achieved by a blood transfusion service. Illustrate your answer with a list of the specific measures which are currently employed. What other measures are available that might affect blood component safety and what impact might these have if introduced within a national transfusion service?
March 2003 -1
March 2003 -2 Discuss the patho physiology of transfusion related lung injury (TRALI). Describe how you would diagnose and manage this condition and discuss the strategies for preventing TRALI.
September 2002 -1
September 2002 -2 In the UK nearly 30% of serious hazards of transfusion are due to hospital laboratory errors. Discuss how these may be prevented.
March 2002 -1
March 2002 -2 Discuss the factors which should be taken into account when infants in a neonatal unit are transfused with blood components.
September 2001 -1
September 2001 -2
March 2001 -1
March 2001 -2 Describe the clinical features and underlying immunological basis of: . (ii) immediate haemolytic transfusion reactions . (iii) delayed haemolytic transfusion reactions
September 2000 -1 Describe the indications for the use of red cell transfusion in sickle cell disease and discuss specifically the hazards associated with these transfusions.
September 2000 -2 Discuss the potential benefits and disadvantages of pre-storage leucodepletion of all blood products. How would you manage a patient whose temperature rises to 39C following the administration of 50ml of leucodepleted red cells?

FRCPath Questions Hemostasis and thrombosis
September 2018

You are asked to see in clinic a 29 year old woman at the request of the obstetric department. She has a history of 3 consecutive first trimester miscarriages and an anatomical cause has been excluded. Investigations have shown a normal haemoglobin, white count and platelet count and PT and fibrinogen, but the APTT is prolonged 15 seconds beyond the upper limit of normal.

1. Discuss in general the differential diagnosis of an isolated prolonged APTT and the history and laboratory investigations you would perform to clarify the cause.
2. Describe the clinical and laboratory features and the criteria for diagnosis of anti-phospholipid syndrome.

March 2018

You are asked for advice on a 70 year old woman with a platelet count of 45 x 10^9/L who had undergone coronary artery bypass graft surgery 6 days previously. Full blood count and coagulation screen (prothrombin time and activated partial thromboplastin time) are otherwise normal. The blood film confirms the thrombocytopenia is genuine with no other abnormalities seen and review indicates that the preoperative platelet count was normal.

1. a) Discuss the differential diagnosis and any further history you will obtain to help establish the diagnosis (7 marks)
2. b) Outline the pathophysiological basis of heparin induced thrombocytopenia (HIT). Discuss the laboratory tests used to investigate suspected cases of HIT and how the findings of these may be interpreted in its diagnosis (12 marks)
3. c) Outline the anticoagulation options available for the treatment of HIT including the duration of treatment and describe any factors that may influence your choice of treatment. (6 marks)

September 2017

A 28 year old woman presents for the first time to antenatal clinic at approximately 34 weeks gestation. Her haemoglobin, white cell count, and differential are normal but platelet count is 58 x 10^9/l. The blood film confirms genuine thrombocytopenia. You are asked to see her by the obstetrics team.

1. a) Detail the history, examination and investigation you would perform to establish the differential diagnosis.
2. b) Outline the differential diagnosis in an otherwise completely well patient
3. c) Outline the management of the mother and baby for a diagnosis in this case of ITP

March 2017

You are asked to see a 35 year old female in clinic who requires tonsillectomy. She has been referred from pre-op assessment clinic having reported “bleeding” following a previous dental extraction.

Discuss features of the clinical history and examination that would be relevant. Which investigations you would subsequently request – please explain why you would perform these investigations and any caveats in the interpretation of results.

September 2016

A 58 year old man was admitted to the medical assessment unit 8 hours previously with signs and symptoms of pulmonary embolism, confirmed on CT pulmonary angiogram (CTPA). He has been commenced on therapeutic dose low molecular weight heparin. This is his first episode of venous thromboembolism (VTE). You are asked to review him and advise on his subsequent management. Comment on options for anticoagulation Comment on appropriate further investigations Set out your advice and the reasons for your opinion.

March 2016

You are asked to review a 28 year old female patient who is scheduled to undergo nasal polypectomy. You are informed that there is a history of von Willebrand disease in her family and she shows you a registration card from when she was 6 years old on which a VWF antigen level of 0.42 iu/ml is documented.

a) Explain what you would do to review the diagnosis and the laboratory investigations you would perform.

b) Discuss how the findings from question a) may affect how you advise on this patient's management.

September 2015

.Discuss the clinical presentation and laboratory findings in a patient with suspected acquired haemophilia A. Describe how you would further investigate and manage a newly diagnosed case in a 76 year old female

March 2015

An 84 year old patient with atrial fibrillation requires anticoagulation:

.a) Briefly outline the treatment options available and their mechanism of action

.b) Discuss the key benefits for the direct acting oral anticoagulants (DOACs) (also known as new oral anticoagulants [NOAC] or oral direct inhibitors [ODI])

.c) Discuss the potential disadvantages of the direct acting oral anticoagulants (DOAC, NOAC, ODI) in the future management of this patient

September 2014

A 29 year old woman developed a deep vein thrombosis at 28 weeks in her first pregnancy.

.a) Discuss the role of thrombophilia testing in her management

.b) Briefly outline the advice you would give for this and future pregnancy if antithrombin deficiency is diagnosed.

March 2014

Based on loss of clinical response to factor VIII you suspect that a 4 year old boy with severe haemophilia A has developed an inhibitor.

Discuss how you would assess this in the laboratory and give a detailed plan of your future management of the case.

September 2013

March 2013

September 2012

March 2012

A 65 year old woman is admitted with a fractured neck of femur. Before operative repair, a coagulation screen is performed which reveals the following results:

Prothrombin time 10.8 secs (9.6-11.6) Activated partial thromboplastin time 49 secs (26 – 32) Discuss your approach to this problem from a clinical and laboratory point of view.

September 2011 VIII assay. Discuss the problems that can arise with this assay in the diagnosis and management of haemophilia A. Describe the principles and the performance of the one stage Factor
March 2011 .Where a pregnant woman has type 1 von Willebrand disease, describe the risks to a) mother and foetus during the third trimester and b) mother and baby during delivery and the puerperium. Critically evaluate available measures to minimise these risks.
September 2010 Discuss the importance of laboratory and clinical factors in the diagnosis of disseminated intravascular coagulation. Critically assess the available treatments and when they should be employed.
March 2010 One of your patients with moderate haemophilia A (Factor VIII = 4iu/dl) is admitted with unstable acute angina. The lesion is not suitable for stenting and he will require urgent coronary artery bypass grafting. Describe in detail your pre-, peri- and post- operative management for this patient.
September 2009 Explain how currently available tests detect lupus anticoagulants. Critically assess their utility in identifying patients at increased risk of thrombosis.
March 2009 Critically evaluate the use of laboratory tests in assessing the risk of recurrence after a first idiopathic venous thrombosis.
September 2008 Which laboratory tests can be used to detect the anticoagulant effect of heparin? Critically evaluate their usefulness and limitations in monitoring heparin therapy.
March 2008 An 18-month-old boy with severe haemophilia A develops a FVIII inhibitor of 56Bu. Critically evaluate short-term and long-term management options for this child and indicate the management plan that you recommend.
September 2007 What do you understand by the term 'direct thrombin inhibitors'? Why is there increasing interest in them? Critically evaluate the currently available agents and their indications.
March 2007 A 34-year-old woman is referred to you for counselling. Her father has severe haemophilia A (VIII:C <1IU/dl) and she is contemplating becoming pregnant. Discuss the issues that you would cover during the consultation. Six months later she is 5 weeks pregnant. How would you manage this pregnancy?
September 2006 -1 Critically evaluate the role of haemostasis screening tests (PT; APTT) in the pre-operative assessment of bleeding risk.
September 2006 -2 The detection of an inhibitor to coagulation in a patient may indicate a risk of haemorrhage or a risk of thrombosis. How is this possible? Discuss how these risks can be distinguished?
March 2006 -1

Discuss the physiological role of ADAMTS13. How is ADAMTS13 measured? Critically evaluate the evidence for the role of ADAMTS13 in the aetiology of the microangiopathies.
March 2006 -2 Critically evaluate the relative contributions of clinical history and laboratory tests in the diagnosis of heparin-induced thrombocytopenia (HIT). What are the important principles of management of a patient with this diagnosis?
September 2005 -1 = Discuss the available methods for measuring D-dimer. Critically review the indications and merits of measuring D-dimer levels. = Discuss the molecular basis, clinical presentation, investigation and management of an 18 year old female who is found to have combined factor V and VIII deficiency.
September 2005 -2 = Critically evaluate the utility of factors that can be used to assess the likelihood of recurrence after a first venous thrombotic event. = A three year old child with severe haemophilia A under your care has developed an inhibitor shortly after starting prophylaxis. Critically evaluate therapeutic options and detail your recommended plan for future management.
March 2015 -1 Critically evaluate the value of thrombophilia testing in patients with venous thromboembolic disease.
March 2005 -2
September 2004 -1 Define the 'antiphospholipid syndrome'. Critically evaluate the options for investigation and management of a 45-year-old woman who presents with an extensive lower limb DVT and has suspected antiphospholipid syndrome.
September 2004 -2
March 2004 -1 Critically analyse the factors that may promote venous thrombosis in patients with carcinoma.
March 2004 -2
September 2003 -1 Discuss the diagnosis and management of heparin-induced thrombocytopenia.
September 2003 -2 You are asked to see a thirty-eight year old woman who is currently twenty- five weeks pregnant. She gives a history that her maternal grandfather was a haemophiliac and died many years before. She has no details of this history. Discuss how you would manage this.
March 2003 -1 Describe the laboratory tests which are used to monitor anticoagulation therapy and indicate how you would use them in the management of patients.
March 2003 -2 Discuss the pathogenesis, diagnosis and management of disseminated intravascular coagulation.
September 2002 -1

Describe the principles and practical measures which are important in the monitoring of warfarin treatment. Discuss the ways in which the haematology laboratory may be involved in a near patient testing service for control of oral anticoagulation therapy.
September 2002 -2
March 2002 -1 Discuss the pathophysiological basis and approach to management of thrombosis associated with: . (i) paroxysmal nocturnal haemoglobinuria, . (ii) thrombotic thrombocytopenic purpura, . (iii) "Lupus anticoagulant".
March 2002 -2 Discuss the diagnosis and management of patients with von Willebrand's disease.
September 2001 -1
September 2001 -2
March 2001 -1 Discuss the indications for laboratory investigations for inherited or acquired thrombophilia. How may the results of these tests influence the management of venous thromboembolic disease?
March 2001 -2 Discuss the pathogenesis, diagnosis and management of thrombotic thrombocytopenic purpura.
September 2000 -1 Give an account of the potential complications of heparin treatment. Describe the laboratory tests which are used to monitor heparin therapy and also the tests which are used to diagnose the complications of heparin treatment.
September 2000 -2 Describe the pathophysiology of the antiphospholipid syndrome and discuss the management of a patient with this syndrome.