THE ROYAL COLLEGE OF PATHOLOGISTS

Part 1 Examination

Tuesday 20 September 2005

HAEMATOLOGY and TRANSFUSION MEDICINE

First Paper

Candidates must answer FOUR questions ONLY

Time allowed - THREE HOURS

1. Discuss the available methods for measuring D-dimer. Critically review the indications and merits of measuring D-dimer levels.

2. A 54 year old woman presents with a Hb 7.8 g/dl, platelets 210 x 10^9/l, WBC 9.0 x10^9/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?

3. Briefly outline and critically evaluate point of care testing in haematology. How would you ensure the safety and quality of such a service?

Please turn over for Questions 4 and 5

4. 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.

5. 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

THE ROYAL COLLEGE OF PATHOLOGISTS

Part 1 Examination

Tuesday 20 September 2005

TRANSFUSION MEDICINE

Second Paper

Candidates MUST answer the first question
And any THREE of the remaining FOUR questions

Time allowed - THREE HOURS

1. 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?

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2. Write short notes on **each** of the following:

   a) The appropriate uses of human albumin

   b) Haemochromatosis and its relevance to blood donation

   c) Pre-deposit autologous transfusion

Please turn over for Questions 3, 4 and 5

3. Outline the pathogenesis, diagnosis, treatment and prognosis of thrombotic thrombocytopenic purpura (TTP).

4. Describe the principles of minimising the risk of bacterial contamination of red cells and platelets.

5. How would you proceed to obtain compatible blood for a patient in whom the initial compatibility test suggests the presence of multiple red cell antibodies?

THE ROYAL COLLEGE OF PATHOLOGISTS

Part 1 Examination

Tuesday 21 September 2004

TRANSFUSION MEDICINE

First Paper

Candidates must answer FOUR questions ONLY

Time allowed - THREE HOURS

1. Discuss the European Union Directive on Blood Components [Directive 2002/EC/98 of the European Parliament and of the Council of 27 January 2003 setting standards of quality and safety for the collection, testing, processing, storage and distribution of human blood and blood components and amending directive 2001/83/EC] and its likely impact on blood centres & hospitals.

2. What are the indications for irradiated blood components? How would you ensure that the appropriate patient groups receive irradiated blood components?

3. Write short notes on each of the following:

   a) West Nile Virus

   b) Nucleic acid testing for HIV (Human Immunodeficiency Virus)

   c) Preventing malaria transmission by blood transfusion.

Please turn over for Questions 4 and 5

4. Describe the range of tests and investigations required as part of the pre-transfusion testing of blood samples sent for 'cross-matching.' Explain how the pre-transfusion tests differ between cross-matched blood and units released by electronic issue.

5. Describe the process by which unrelated donors are identified for allogeneic stem cell transplantation. Once a potential donor has been selected, how would you ensure that they were fit to donate?

Part 1 Examination

Tuesday 21 September 2004

TRANSFUSION MEDICINE

Second Paper

Candidates MUST answer the first question
And any THREE of the remaining FOUR questions

Time allowed - THREE HOURS

1. 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.

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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 $70 \times 10^9/1$.

3. Write short notes on **all** of the following:

   (a) The appropriate uses of recombinant human Factor VIIa

   (b) Erythropoietin as a means to avoid or reduce blood transfusion

   (c) Intra-operative cell salvage.

Please turn over for Questions 4 and 5

4. 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.

5. Give a critical account of the uses of Human Albumin. Review the evidence with regard to the safety and efficacy of albumin in critical care / intensive care.

THE ROYAL COLLEGE OF PATHOLOGISTS

Part 1 Examination

Tuesday 18 March 2003

TRANSFUSION MEDICINE

First Paper

Candidates must answer FOUR questions ONLY

Time allowed - THREE HOURS

1. You are informed by the ward nurse that a patient receiving a red cell transfusion has become acutely hypotensive and distressed. Describe how you would assess the patient. Discuss the management including the further investigations that you would initiate and why they are required.

2. How can a well organised pre-admission clinic help to minimise the need for transfusion during major elective surgery?

3. What is meant by the terms "electronic cross match" [sometimes referred to as "electronic issue"] of red cells? What are the advantages of this system? What requirements must be met if it is to be implemented safely in place of a conventional serological testing procedure?

4. Write short notes explaining the relevance of the following infective agents to blood transfusion:
   (a) Bacteria of the Serratia group,
   (b) GB virus-C also known as "Hepatitis G" virus,
   (c) West Nile virus,
   (d) Human Parvovirus type B19.

5. Write the outline for a guideline on the use of platelet transfusions that would be suitable for use by junior clinical staff in the hospital where you work.

THE ROYAL COLLEGE OF PATHOLOGISTS

Part 1 Examination

Tuesday 18 March 2003

TRANSFUSION MEDICINE

Second Paper

Candidates must answer FOUR questions ONLY

Time allowed - THREE HOURS

1. In many countries, blood donors are informed if the microbiological screening tests confirm that they have markers of transfusion transmissible infection. Describe very briefly how these test results are communicated in your own system.

   What would be the main objectives of conducting this post-test discussion with blood donors who are confirmed positive for one (or more) of the infectious agents for which mandatory screening tests are undertaken? Indicate the difficulties which commonly arise and questions that donors may ask. Briefly refer to the main differences in emphasis in the discussions for each microbiological agent.

2. What are the potential repercussions for a national or regional blood service as a result of a major incident such as a rail crash? Describe the role of the medical doctor responsible for the Blood Centre in this situation.

3. Give an account of the important aspects of the collection of whole blood donations by mobile blood collection teams, in order to ensure a high quality product and to maximise the chances that donors will return to donate again.

4. What are the advantages and disadvantages of platelet, plasma and red cell components collected by apheresis as compared with those prepared from whole blood donations?

5. Discuss the advantages and disadvantages of pre-deposit autologous donation and transfusion, indicating the clinical situations in which this technique may be effectively applied.

THE ROYAL COLLEGE OF PATHOLOGISTS

Part 1 Examination

March 2002

TRANSFUSION MEDICINE

First Paper

Candidates must answer FOUR questions ONLY

Time allowed – THREE HOURS

1. What measures can be taken to minimise the use of allogeneic blood transfusion for planned orthopaedic surgery?

2. A premature infant born at 25 weeks gestation requires top up transfusion(s). The parents wish to donate their blood; what would your advice be?

3. Discuss the indications for fresh frozen plasma. What strategies are currently available to minimise the risk of transmission of infectious agents from this component?

4. What are the reasons for the incorrect blood component being transfused? What measures can be taken to minimise such events?

5. What factors would you take into account when establishing a panel of apheresis donors to provide HLA matched platelets?

THE ROYAL COLLEGE OF PATHOLOGISTS

Part 1 Examination

March 2002

TRANSFUSION MEDICINE

Second Paper

Candidates must answer FOUR questions ONLY

Time allowed – THREE HOURS

1. Discuss how the risk of transfusion transmitted bacterial infection can be minimised.

2. A D negative pregnant woman is seen in the antenatal clinic at 12 weeks gestation in her third pregnancy. She is found to have a high level of anti-D. Discuss the diagnostic tests that may be used to predict the severity of haemolytic disease of the fetus. Which of these tests would not be of value if the woman had anti-K instead of anti-D?

3. What are the advantages and disadvantages, for both donor and patient, of using allogeneic progenitor cells derived from peripheral blood versus bone marrow?

4. Write short notes on three of the following:
   (i) recognition and management of neurological complications following blood donation
   (ii) treatment of post-transfusion purpura
   (iii) 'process control' with reference to leucodepletion of cellular blood components
   (iv) transfusion support of an IgA deficient patient

5. A 13 year old Rh D negative girl is admitted to hospital after a serious road traffic accident. She is inadvertently given 2 units of RhD positive blood in the Accident and Emergency department. What advice would you give?

THE ROYAL COLLEGE OF PATHOLOGISTS

Part 1 Examination

September 2001

TRANSFUSION MEDICINE

First Paper

Candidates must answer FOUR questions ONLY

Time allowed – THREE HOURS

1. What are the current clinical indications for plasma exchange? Discuss what alternatives to treatment may be available.

2. Write short notes on:
   (i) tranexamic acid,
   (ii) aspirin effect on platelets,
   (iii) recombinant erythropoietin,
   (iv) warfarin anticoagulation and its effect on blood and product use.

3. What are the important aspects to consider when selecting reagents for pre-transfusion testing?

4. You have been asked by your Hospital Transfusion Committee (HTC) to set up a programme for effective use of blood. How would you do this?

5. Discuss the management of massive obstetric haemorrhage.

THE ROYAL COLLEGE OF PATHOLOGISTS

Part 1 Examination

September 2001

TRANSFUSION MEDICINE

Second Paper

Candidates must answer FOUR questions ONLY

Time allowed – THREE HOURS

1. Discuss the diagnosis, investigation and management of neonatal alloimmune thrombocytopenia.

2. Should patients with haemachromatosis be recruited to the blood donor panel?

3. Discuss the systems available for bacterial and viral decontamination of blood components and the potential cost benefit of implementation.

4. Discuss the level of risk of transmission of variant CJD by blood products and strategies which could be used to contain this risk.

5. Discuss the current guidelines for irradiation of blood components and whether these should be extended.

THE ROYAL COLLEGE OF PATHOLOGISTS

Part 1 Examination

March 2001

TRANSFUSION MEDICINE

First Paper

Candidates must answer FOUR questions ONLY

Time allowed - THREE HOURS

1. What are the challenges of world-wide travel to a safe blood supply? Discuss the strategies to minimise these risks without unnecessary loss of blood components.

2. Discuss the options for provision of therapeutic granulocytes and their possible clinical uses.

3. What is meant by the terms “window period” and “residual risk” in relation to microbiological screening of the blood supply? Critically evaluate the measures which may be taken to reduce the residual risk of transfusion transmissible viral infections in the developed world.

4. Discuss strategies to minimise the usage of fresh frozen plasma.

5. Discuss the transfusion support of patients with sickle cell disease.

THE ROYAL COLLEGE OF PATHOLOGISTS

Part 1 Examination

March 2001

TRANSFUSION MEDICINE

Second Paper

Candidates must answer FOUR questions ONLY

Time allowed - THREE HOURS

1. Discuss the differential diagnosis, investigation and management of a patient who develops fever, rigors and hypotension 15 minutes after commencement of a red cell transfusion for post-operative anaemia.

2. What is meant by the term haemovigilance? Describe the different elements and the main findings which have emerged from different national systems.

3. Write short notes on THREE of the following:-
   (i) HPA antibodies
   (ii) Recombinant thrombopoietin
   (iii) T activation
   (iv) ISBT code 128.

4. Discuss the administration of anti-D in the antenatal period.

5. What is meant by the "electronic issue" of blood? Discuss its advantages and pitfalls. What are the requirements for setting up such a system?

THE ROYAL COLLEGE OF PATHOLOGISTS

Part I Examination

September 2000

TRANSFUSION MEDICINE

First Paper

Candidates must answer FOUR questions ONLY

Time allowed - THREE HOURS

1. Discuss the role of a hospital transfusion committee in promoting good transfusion medicine practice.

2. What strategies may be employed to reduce the risk of viral transmission by plasma products? Discuss their relative efficacy and their limitations.

3. Write short notes on THREE of the following:
   (i) transfusion support for a patient with post-transfusion purpura
   (ii) management of platelet refractoriness
   (ii) the provision of red cells for transfusion in warm antibody autoimmune haemolytic anaemia
   (iv) indications for the use of whole blood.

4. What do you understand by 'process control' and how is this applied to the leuco reduction of cellular blood components?

5. An arbitrary 'transfusion trigger' of 100g/L has been applied widely in clinical practice. What are the arguments for and against lowering this transfusion threshold?

THE ROYAL COLLEGE OF PATHOLOGISTS

Part I Examination

September 2000

TRANSFUSION MEDICINE

Second Paper

Candidates must answer FOUR questions ONLY

Time allowed - THREE HOURS

1. Describe the factors you would take into consideration and the processes you would follow to compare the cost-effectiveness of apheresis platelets versus pooled, whole blood-derived platelets.

2. Write short notes on THREE of the following:
   (i) ISBT Code 128
   (ii) risks of using parental blood for neonatal transfusion
   (iii) anti-G (red cell antibody)
   (iv) thrombopoietin and its application in platelet donation.

3. What are the characteristics of an infectious agent which make it appropriate for inclusion in mandatory microbiological testing of blood donations? Illustrate your points with reference to the infectious agents for which microbiological screening is current performed.

4. Outline the pathogenesis and treatment options for thrombotic thrombocytopenic purpura.

5. In what circumstances would a patient or sample be considered ‘unsuitable’ for a computer cross-match (electronic cross-match) in a laboratory which is operating an appropriately validated computer cross-match system?