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POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

POSTGRADUATE DIPLOMA IN TRANSFUSION MEDICINE
EXAMINATION – FEBRUARY/MARCH 2018

Date :- 27th February 2018

Time :- 1.00 p.m. – 4.00 p.m.

PAPER I

Answer all eight (08) questions.

Answer each question in a separate book.

1. Blood stock is inadequate in your blood centre and a technical college nearby is a potential centre for a mobile blood donation campaign.
What information would you like to discuss during the awareness of the prospective donors and organizers? (100 marks)

2.
 - 2.1. Discuss the transfusion related problems in sickle cell disease patients. (40 marks)
 - 2.2. How do you minimize/overcome the problems which you have mentioned above? (30 marks)
 - 2.3. A sickle cell disease patient who is awaiting hip replacement is referred to you from orthopaedic ward.
Briefly outline the management plan. (30 marks)

3. A referral came from a medical ward requesting therapeutic plasma exchange (TPE) for a 32 year old lady clinically diagnosed with thrombotic thrombocytopenic purpura (TTP).
 - 3.1. How would you assess this patient in order to proceed with request? (40marks)
 - 3.2. Write your treatment protocol for this patient. (20marks)
 - 3.3. Outline complications you would expect during TPE and what precautions would you take? (30marks)
 - 3.4. List five (05) conditions for which TPE should be urgently arranged. (10 marks)

4. A 30 year old mother with a normal full blood count, delivered a healthy term baby of 3kg. The baby had ecchymotic patches at birth and the platelet count was 28,000/ μ L.

4.1. What is the most probable diagnosis? (05 marks)

4.2. What history/information would you want to know from the mother to support your diagnosis? (30 marks)

4.3. Enumerate the investigations that you would like to order to confirm the diagnosis. (25 marks)

4.4. How would you manage this patient? (40 marks)

5. A 36 year old mother of two children received a right liver lobe auxiliary transplant from a cadaveric donor. On 12th post operative day she was discharged from Intensive Care Unit (ICU). Her haemoglobin was 9.0 g/dL and bilirubin was 160 μ mol/L. On 15th post operative day her bilirubin was 300 μ mol/L and haemoglobin decreased to 7.2 g/dL. There were no signs of bleeding. The ward staff requested 02 units of red cells.

Patient's blood group B positive. Reverse grouping revealed weak anti B liver donor was O positive.

Antibody screening of the patient performed by indirect antiglobulin test was negative.

Two units of B positive blood were issued after immediate spin.

Over the next few days the bilirubin (most of which is conjugated) continued to rise. Biopsy of the auxiliary liver was suggestive of acute rejection, and the patient was given three doses of high dose methyl prednisolone. Blood film examination revealed spherocytes.

On day 20, patient developed acute renal failure and was transferred back to ICU. Hemoglobin was 5.7 g/dL, reticulocytes 250 $\times 10^9$ /L, Lactate Dehydrogenase (LDH) 3523 iu/L (normal 240 iu/L) Haptoglobin was undetectable. Direct antiglobulin test was found to be positive with anti IgG and anti C3d. Elution of the red cells revealed anti B specificity.

5.1. Interpret the lab results. (30 marks)

5.2. What errors were made by the blood bank? (20 marks)

5.3. How would you manage the patient? (50 marks)

6. A 25 year old woman was diagnosed with acute myeloid leukaemia. She achieved complete remission after two induction chemotherapy courses. Four years later she presented with central nervous system relapse and 20% blast in the bone marrow, with normal blood counts. She received salvage chemotherapy and cranial irradiation. Second complete remission was achieved.

Allogenic haemopoietic cell transplantation was considered as definitive treatment. The patient had only one sibling, a healthy brother aged 23 years. Their HLA genotypes are as below.

Patient: HLA-A*2403, *2902; B*5109, *5701; Cw*0102, *0602
DRB1*1101, *0806; DQB1*0602, *0301

Blood group	O Rh D positive
CMV serology	positive
Weight	50 kg

Brother: HLA-A*0303, *2902; B* 0703, *0803; Cw*0304, *1502
DRB1*0401, *0407; DQB1*0201

Blood group	O Rh D negative
CMV serology	negative
Weight	60 kg

- 6.1. Should the brother be used as donor? Give reasons. (30 marks)
- 6.2. What other options are available? (20 marks)
- 6.3. What is the impact of a Rh D mismatch in haemopoietic cell transplantation? (50 marks)
7. Describe the immunological nature and the clinical significance of following blood group antibodies
- 7.1. Antibodies of Lewis System. (30 marks)
- 7.2. I and i antibodies. (30 marks)
- 7.3. Antibodies of MNSs System. (40 marks)

8. A 48 year old male, known alcoholic is awaiting surgery for obstructed inguinal hernia.

His full blood count:

Haemoglobin	9.8 g/dL
Platelet	$80 \times 10^9/L$
WBC	$7 \times 10^9/L$

Coagulation screen

PT	22 seconds
INR	2.2
APTT	43 seconds

Ultrasound abdomen Mildly enlarged liver and spleen

All other investigations are normal. He has no history of any other medical or surgical problems.

- 8.1. Comment with reasons on the following transfusions for this patient.
- 8.1.1. Red Cell Concentrates. (25 marks)
 - 8.1.2. Platelet Concentrates. (25 marks)
 - 8.1.3. Plasma Components. (25marks)
- 8.2. What measures would you take to minimize the transfusion needs of this patient? (25 marks)