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The Authorisation of Blood Components (Questions & Answers)

Q1: People who have received a blood transfusion since 1980 are no longer permitted to be blood donors. Name the 3 main diseases that were retrospectively proven to be transfusion transmissible in this time frame.
1. HIV 2. Hep C 3. vCJD (3)

Q2: What is the normal life span of a red blood cell.
100 – 120 days (1)

Q3: When the oxygen dissociation curve moves to the right is the efficiency of oxygen release increased or decreased?
Increased (1)

Q4 Other than the patient's existing haematology condition what other conditions could cause a fall in Hb.
1. Acute blood loss (e.g. GI bleed, trauma) 2. Chronic blood loss (e.g. insidious GI bleeding, Menorrhagia, Epistaxis) 3. Iron, folate or B12 deficiencies 4. Anaemia of chronic disease (4)

Q5: Describe the symptoms of chronic anaemia
1. Fatigue 2. Irritability 3. Palpitations 4. Dizziness 5. Breathlessness 6. Headache 7. Reduced concentration

8. insomnia
9. Increased bleeding

(4)

Q6: When transfusing red cells there is a maximum time in which the blood has to be transfused once removed from storage, what is this time? Does your answer allow time for transportation from storage and bedside checking?

4 hours, it should include transportation time.

(1)

Q7: Give two examples of potential long-term complications of transfusion.

1. TTI
2. Antibodies (alloimmunisation)
3. Iron overload (transfusional haemosiderosis)

(2)

Q8: What might you see clinically in a case of TRALI?

1. Severe respiratory distress with hypoxia,
2. Pulmonary oedema
3. Infiltrates or 'white-out' on chest X-ray
4. Sometimes fever and hypotension
5. Usually develops within 6 h of transfusion
6. Cannot be distinguished clinically from ARDS or other forms of acute lung injury.
7. Symptoms usually improve after a few days, although morbid signs can persist for at least 7 days
8. JVP and echo normal
9. +ve response to fluid challenge, -ve response to diuretic challenge

(4)

Q9: List 2 conditions where platelets may be contraindicated.

1. Thrombotic microangiopathies e.g. Thrombotic Thrombocytopenic Purpura (TTP), haemolytic uraemic syndrome (HUS), DIC

2. Autoimmune thrombocytopenia

3. Heparin-Induced Thrombocytopenia (HIT)

(2)

Q10: How quickly can platelets be made available for transfusion in your Trust?

Answer will depend on whether platelets are kept in stock and how far the hospital is away from stock holding facility e.g. blood centre or supplying hospital.

(1)

Q12: Complete the following table:

(5)

Condition	Transfusion threshold or target platelet count
Acute leukaemia	Prophylactic platelet transfusion threshold 10×10^9/l.
Acute promyelocytic leukaemia	Platelet count should be kept above 20×10^9/l if patient haemorrhagic.
Haemopoietic stem cell transplantation in acute leukaemia	Prophylactic platelet threshold 10×10^9/l.
Chronic stable thrombocytopenia	In a patient who is otherwise stable, platelet transfusions should be restricted to treating haemorrhage. During unstable periods associated with infection or active treatment, prophylactic platelets may be needed to prevent recurrent bleeding

Q12: What other signs and symptoms of an Haemolytic Transfusion Reaction (HTR – Acute) might you see?

1. Fever
2. Raised heart and respiration rate
3. Flushing, itching / pruritis
4. Urticaria or hives
5. Hypotension – feel dizzy or light-headed
6. Hypertension – headaches
7. Pain in cannula site, abdomen, flank or chest
8. Oozing from wounds or puncture sites
9. Haemoglobinuria
10. Agitation, anxiety/ feeling of “impending doom”
11. Collapse / Shock
12. Inflammatory response – angioedema, peri-orbital and laryngeal oedema, (mainly in anaphylaxis/allergic response)
13. Nausea and vomiting.

(10)

Q13: How would you manage a patient with any type of Haemolytic reaction?

1. Stop the transfusion
2. Maintain venous access
3. Resuscitate with crystalloid. Consider inotropic support if hypotension is prolonged
4. Monitor urine output and maintain good urine output, may require diuretics
5. Obtain blood cultures on patient and samples for culture from component pack
6. Inform the blood bank
7. Seek urgent critical care and haematology advice, may require admission to ICU.

(5)

Q14: Why are you more likely to get a bacterial contamination reaction with platelets rather than red cells?

Platelets (stored at 22°C) red cells (stored at 4−6°C).

(1)

Q15: Prior to transfusion patients should be assessed for their risk of TACO. List 4 clinical signs and symptoms of fluid overload.

1. Dyspnoea particularly when lying flat
2. Tachypnoea
3. Tachycardia
4. Hypertension
5. Raised Jugular venous pressure (JVP)
6. Non productive cough progressing to pink frothy sputum
7. Basal lung crackles

(4)

Q16: What are the risk factors for Transfusion Associated Circulatory Overload (TACO) and how would you reduce the risk?

Patients with chronic anaemia are usually normovolaemic or hypervolaemic, and may have signs of cardiac failure before any fluid is infused.
Each unit should be given slowly with diuretic (e.g. Furosemide 20−40 mg), and the patient closely observed. Restricting transfusion to one unit of RCC in each 12-hour period should reduce the risk of LVF

(5)

Q17: How would you manage a patient having a mild allergic reaction?

1. Stop the transfusion; give antihistamine (e.g. Chlorphenamine 10 mg) by slow intravenous injection.
2. The transfusion may be continued at a slower rate if there is no progression of symptoms after 30 minutes.

(4)

Q18: How would you manage a patient having a Febrile Non Haemolytic Transfusion Reaction (FNHTR)?

1. Stop the transfusion
2. Give an antipyretic, e.g. Paracetamol (not Aspirin)
3. If other causes are excluded, resume transfusion.

(2)

Q19: List 6 situations where adult patients require irradiated blood components.

1) Patients with Hodgkin's disease.

2) Patients receiving Fludarabine, Cladribine, or Deoxycoformycin, Clofarabine, Tioguanine, Bendamustine, nelarabine, pentastatin or have received them in the last 3 months.

3) Aplastic anaemia patients having ATG and/or Alemtuzumab (Anti CD 52)

4) Recipients of allogeneic stem cell/bone marrow transplantation.

5) Recipients of autologous bone marrow/stem cell transplants.

6) Patients undergoing bone marrow or peripheral blood stem cell harvest for 7 days before and then during the bone marrow/stem cell harvest.

7) Those patients who need HLA matched components

(6)

Q.20. **Why is FFP not the optimal treatment for reversing the effects of warfarin?**

FFP contains insufficient concentration of the vitamin K factors (especially Factor IX) to reverse warfarin

(1)

Q.21. **What other methods should be used to reverse the effects of warfarin?**
withdrawing warfarin, giving vitamin K, transfusing PCC (FII, FVII, FIX and FX) (3)

Q.22. List 3 situations where FFP may be indicated
Factor V deficiency, DIC with bleeding, TTP used in plasma exchange, Massive transfusion and cardiac bypass when guided by coagulation or TEG tests. *Liver biopsy with prolonged PT (PT ratio >1.5):* there is limited evidence base for the administration of FFP for patients who have abnormal clotting tests and other factors (i.e. personal/family bleeding history, drug history, bleeding risk associated with planned procedure or thrombocytopenia) that indicate a significant bleeding risk during a procedure. If needed a starting dose of 15 ml/kg of FFP can be considered. *(4)*

Q.22. List the essential factors required for a written order for transfusion
• *Patient minimum dataset (which has been verified)* • *Clear legible handwriting* • *Type of component required* • *Quantity of components required* • *Duration of transfusion* • *Specific Requirements* • *Additional medications e.g. diuretics / antihistamines* • *Sign and PRINT name to provide a clear audit trail* *(8)*

Q.22. List the 3 pillars of patient blood management.
1) Optimising red cells before treatment • *Active management of anaemia* • *Be aware of drug interactions that can increase risk of anaemia* ***2) Minimising blood loss throughout treatment and control bleeding*** • *Reduce iatrogenic blood loss (i.e. take smaller volumes and less samples from patients)* • *Active management of abnormal haemostasis* • *Surgical techniques* ***3) Avoid unnecessary transfusion*** • *Use restrictive threshold values*

- *In non-bleeding patients transfuse one dose of blood component, then reassess*
- *Use alternatives to transfusion where appropriate* *(3)*

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