Prevention

1 Correctly label blood samples and request forms.

2 Place the patient's blood sample in the correct sample tube.

3 Always check the blood against the identity of the patient at the bedside before transfusion.

Bacterial contamination and septic shock:

1 Bacterial contamination affects up to 0.4% of red cells and1–2% of platelet concentrates.

2 Blood may become contaminated by:

- Bacteria from the donor's skin during blood collection(usually skin staphylococci).
- A bacteraemia present in the blood of a donor at the time the blood is collected (e.g. Yersinia)
- Improper handling in blood processing.
- Defects or damage to the plastic blood bag _ Thawing fresh frozen plasma or cryoprecipitate in a water bath(often contaminated).

3- Some contaminants, particularly Pseudomonas species, grow at 2ºC to 6ºC and so can survive or multiply in refrigerated red cell units. The risk therefore increases with the time out of refrigeration.

4- Staphylococci grow in warmer conditions and proliferate in platelet concentrates at 20ºC to 24ºC, limiting their storage life.

Fluid overload

1- Fluid overload can result in heart failure and pulmonary odema.

2- May occur when:

- Too much fluid is transfused
- The transfusion is too rapid
- Renal function is impaired.

3- Fluid overload is particularly likely to happen in patients with:

- Chronic severe aneamia
- cardiovascular disease.

Anaphylactic reaction

2 -The risk is increased by rapid infusion, typically when fresh frozen.

3- Cytokines in the plasma may be one cause of broncho constriction and vaso constriction in occasional recipients.

4- IgA deficiency in the recipient is a rare cause of very severe anaphylaxis.

5- Occurs within minutes of starting the transfusion and is characterized by:

- Respiratory distress
- No fever.

Delayed complications of transfusion:

- **Delayed haemolytic transfusion reactions**

Signs and symptoms

1- Signs appear 5–10 days after transfusion:

-Fever- Aneamia-Jaundice- Occasionally haemoglobinuria.

2- Severe, life-threatening delayed haemolytic transfusion reactions with shock, renal failure and DIC are rare.

COMPLICATION PRESENTATION TREATMENT

Delayed haemolytic 5–10 days post- _ Usually no treatment

- Graft-vs-host disease
- Iron overload

Prevention

1- Screening for red cell antibodies in the patient's plasma and the selection of red cells compatible with these antibodies.

Post-transfusion purpura

1- **A rare** but potentially **fatal complication** of transfusion of red cells or platelet concentrates, caused by antibodies directed against platelet-specific antigens in the recipient.

2- Most commonly seen in female patients.

Signs and symptoms

Signs of bleeding

- Acute, severe thrombocytopenia 5–10 days after transfusion,

defined as a platelet count of less than 100 x 10^9/L.

Management

1- Give high dose corticosteroids.

2- Give high dose IV immunoglobulin, 2 g/kg or 0.4 g/kg for 5 days.

3- Plasma exchange.

4- Monitor the patient's platelet count.

5- It is preferable to give platelet concentrates of the same ABO type as the patient's.

Graft-versus-host disease

1- A rare and potentially fatal complication of transfusion.

2- Occurs in such patients as:

- _ Immuno competent patients transfused with blood from individuals with whom they have a compatible tissue type(HLA: human leucocyte antigen), usually blood relatives.

Signs and symptoms

1- Typically occurs 10–12 days after transfusion.

2- Characterized by:

- Skin rash and desquamation
- Diarrhoea
- Hepatitis

.

Delayed complications of transfusion:

transfusion-transmitted infections

The following infections may be transmitted by transfusion:

- HIV-1 and HIV-2
- HTLV-I and HTLV-II
- Hepatitis B and C
- Syphilis (Treponema pallidum)
- Chagas disease (Trypanosoma cruzi)
- Malaria
- Cytomegalovirus (CMV)
- Other rare transfusion-transmissible infections, includinghuman parvovirus B19, brucellosis, Epstein-Barr virus,toxoplasmosis, infectious mononucleosis and Lymes' disease.Since a delayed transfusion reaction may occur days, weeks or months after the transfusion.

Massive or large volume blood transfusions

'Massive transfusion' is the replacement of blood loss equivalent to or greater than the patient's total blood volume in less than 24 hours:

- 70 ml/kg in adults.
- 80–90 ml/kg in children or infants.

Morbidity and mortality tend to be high among such patients, not be cause of the large volumes infused, but because of the initial trauma and the tissue and organ damage secondary to haemorrhage and hypovolaemia