

- Massive transfusion is defined as the transfusion of 5000ml or more within a 24 hour period OR 2500 ml of blood at one time
- This will inevitably lead to :
  1. **Dilution of platelets.**  
Blood effectively has no functional platelets after 48 hours storage

## 2. Dilution of coagulation factors.

Stored Whole blood < 14 days has adequate levels of most coagulation factors for haemostasis.

If stored blood of more than 14 days, or plasma reduced blood or red cells in optimal additive solution is used, replacement of coagulation factors with FFP is necessary.

3. **Hypothermia** ( defined as core body temperature less than 35 c ) is associated with large volumes of cold fluid transfusion. This may results in cardiac irregularities in particular VF. Therefore the use of blood warmer is important.

4. **Excess citrate** can act on the patient's plasma free ]ionized calsium and results in **hypocalcaemia** ( transient Citrate toxicity occur with extremely rapid transfusion

#### 5. **Hyperkalemia**

Can be caused by **intracellular loss** of potassium from RBC during storage

**6. Decrease O2 carrying capacity of stored blood .**

**7. ACIDOSIS**

# Non immune complication



1

Bacterial contamination reactions.

2

Circulatory overload.

3

Transfusion haemosiderosis

4

Complications of massive transfusion

5

Non immune hemolytic reaction

6

Disease transmission



## Non immune hemolytic reaction

- Mechanical
  - heat damage from blood warmer
  - cold, small gauge needle.
- Environment
  - hypotonic or hypertonic solution.

