

Blood components

Blood components include:

Whole blood

RBC components

RBC concentrate (called plasma reduce RBC)

Platelets concentrate

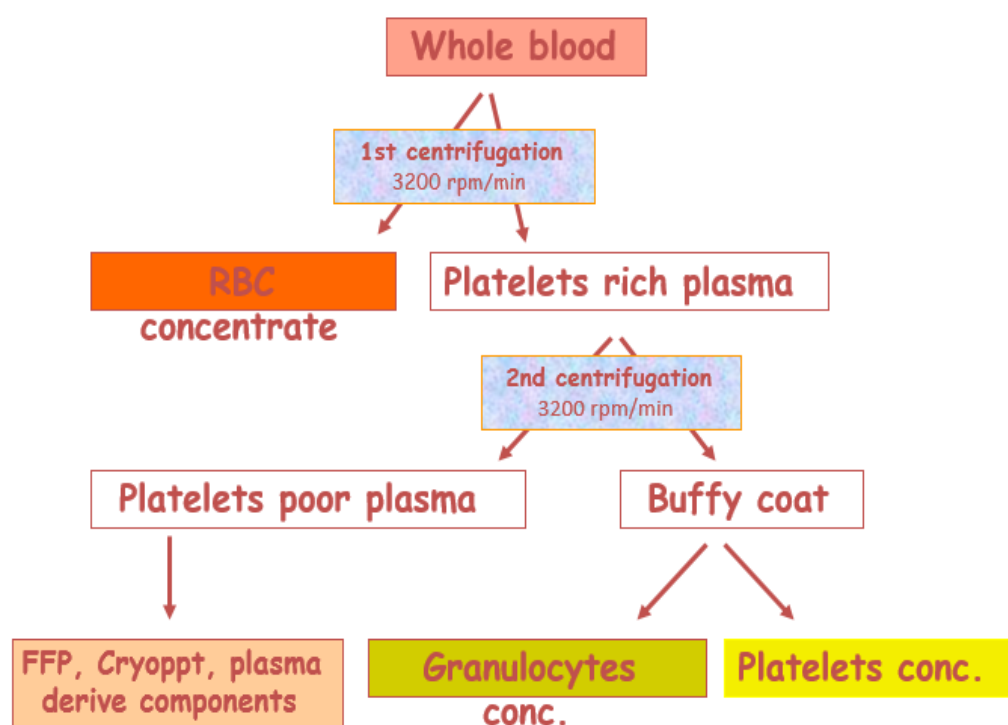
Granulocyte concentrate

Plasma components:

FFP

Cryoppt

- plasma derive components
(coagulation factors, human albumin, Igs,)



Whole blood

Whole blood unit (450 ml \pm 45 ml) contain:

250-300 ml RBC

180 ml plasma

Most available component but now restricted to use occasionally in acute blood loss, acute anemia, cardiac-arterial surgery or for exchange transfusion.

One unit increase Hb 1gm/dl, PCV 3 L/L.

Store at 2-6 C

RBC concentrate

Whole blood - 180 ml plasma.

One unit increase Hb 1gm/dl, PCV 3 L/L.

Store at 1-6 C

Volume 250-300 ml

ABO, Rh and Cross match are required

Use mainly to increase RBC mass without risk of volume overload of plasma as in chronic anemia specially in patient with heart failure .

Classically unit transfuse over 2 hrs

Platelets concentrate

Collection from individual donor units of blood

(unit contain 5.5×10^{10} cell separators (unit contain 30×10^{10})

Storage:

at 20-22C for 5-7 days

at 4C for 24 hrs

special plastic container

continuous horizontal agitation

ABO, Rh are required, while CM not necessary. Risk of viral present

Dose: each unit increase platelets count 5-10 000

stander dose 1 unit/10 kg

Indication to control or prevent bleeding associated with TCP or dysfunction

FFP (fresh frozen plasma)

Plasma separated from whole blood or apheresis and frozen immediately within 6-8 hrs of collection at -20 C.

Volume: 200-250 ml.

Store at – 20 C up to 12 months and should be use immediately within 2 hrs after thawing.

Dose of 5-15 ml/kg.

Not need for CM but required ABO and Rh.

Contains: all coagulation factors, Igs, coagulation inhibitors.

Indications:

- specific factor deficiency (inherited form).
- acquired factors def.(DIC, liver dis).

- warfarin overdose.
- massive transfusion.
- Side Effect: volume overload, allergy, disease

Transmission

Cryoprecipitate

FFP allow to thaw at 4 C for 14 hrs and separate the white glutinous precipitate to make the Cryoppt.

Volume: 10-25 ml.

Store at – 20 C up to 12 months and should be use immediately within 2 hrs after thawing.

Dose according to use.

Not need for CrossMatch but required ABO and Rh.

Contains: F8, VWF, FNG, F13.

Indications: according to factor required

SE: allergy, disease transmission.

Granulocyte concentrate

Collection by:

Routine donation (buffy coat) less effective

Leucopheresis more better.

Use in patient with persistent neutropenia <0.5 documented to have infection and failure to respond with Ab at 48hrs until infection resolved or neutrophils >0.5 .

