

Blood Transfusion

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Blood Product

- Allogeneic
- Autologous/ Autotransfusion
 - 4-6 weeks prior, weekly phlebotomy
 - Last donation 72 hours prior
- Stored
 - Anticoagulants and preservatives
 - 35 to 42 days
 - CPD (citrate, phosphate, and dextrose)- 21 day
 - CPDA-1 (CPD + adenine)- 35 days
 - CPDA-1 additive- 35 to 42 days

Blood Typing Systems

- ABO system
- Rh system
 - Type D antigen
 - Rh positive
 - Rh negative
- Human Leukocyte Antigen (HLA) system
 - Immunogenic antigens
 - HLA antibodies

		Donor's blood type							
		O-	O+	B-	B+	A-	A+	AB-	AB+
Recipient's blood type	AB+	✓	✓	✓	✓	✓	✓	✓	✓
	AB-	✓		✓		✓		✓	
	A+	✓	✓			✓	✓		
	A-	✓				✓			
	B+	✓	✓	✓	✓				
	B-	✓		✓					
	O+	✓	✓						
	O-	✓							

blood-donor-compatibilityv3.jpg (4000×3978) (science.org.au)

Blood and Blood Components

Blood Product	Infusion Time	Use
Whole Blood	Within 4 hours	Volume replacement
Packed RBCs	Within 4 hours	Raise H&H anemia
Fresh frozen plasma (FFP)	Within 4 hours	Plasma and coagulation factors DIC, TIP
Cryoprecipitate (multiple donor)	~15 minutes (1-2 mL/min)	Replaces factors VII,XIII, von Willebrand's factor, fibrinogen hemophilia
Platelets (multiple or single)		Thrombocytopenia bleeding
Irradiated – any blood component		Immunodeficient patients; prevent transfusion rxn- graft vs host disease
Apheresis		

1. Reason for transfusion
2. Lab values
3. Consent
4. IV access- 20 gauge or larger
5. Pre-transfusion vital signs
6. Administer 15-30 minutes of release from blood bank
7. Check integrity/ signs of contamination (color clots, bubbles, etc)
8. 2 RNs, can be physicians
Verify patient- 2 identifiers
Check blood with blood bank form
Check order
Check patient's blood type and Rh and compare with donor product
Check expiration date and time

1. Explain to patient
2. Hand hygiene
3. Y-tubing set, 0.9% NaCl, IV pump
4. 0.9% priming first, clamp, then blood. Turn blood bag back and forth
5. 2mL/minutes for first 15 minutes
6. RN at bedside for first 15 minutes
7. Vital signs- 5 minute, 15 minute, 30 minutes for 1 hr.
8. Infuse 0.9% NaCl after blood infusion
9. Post transfusion vital signs
10. Blood bag and slip sent to blood bank

Transfusion Reaction	Intervention
Febrile non-hemolytic reaction	HLA testing Fever, chills, muscle aches Stop transfusion Antipyretic, check temperature every 4 hours Use filter
Acute hemolytic transfusion	Fever, chills, low back pain, chest tightness, dyspnea Stop transfusion- ABO or Rh incompatibility New IV 0.9% NaCl VS, ABG, foley, I&O, shock, dialysis, blood and urine samples, including coagulation labs Can be delayed- 14 days after
Allergic reaction	Stop transfusion Antihistamine, corticosteroids, epinephrine, antipyretic Possible CPR
Graft versus Host Disease	Donor lymphocytes are destroyed, days to weeks Methotrexate and corticosteroids
Transfusion Associated Circulatory Overload (TACO)	Slow or stop transfusion Vital signs Elevate HOB Possible diuretic
Transfusion Related Lung Injury (TRALI)	Can be fatal Lung injury within 6 hours Respiratory symptoms