



Adverse Transfusion Reactions

Acute (<24 hrs) Blood Transfusion Reaction

TYPE	ETIOLOGY	PRESENTATION	LABORATORY TESTING Preliminary testing: clerical check, DAT, Visual	POSSIBLE ADDITIONAL TESTING (to be ordered by pathologist or clinician after case review)	POSSIBLE THERAPIES
Hemolytic	Red cell incompatibility	Chills, fever, hemoglobinuria, hypotension, renal failure with oliguria, DIC (oozing from IV sites), back pain, pain along infusion vein, anxiety	Repeat antibody screen, pre- and post-transfusion sample. Perform elution and AB ID if posttransfusion DAT is (+) and pre- is (-).	Repeat crossmatches. Further tests to detect hemolysis (LDH, bilirubin, urine Hb, plasma Hb, etc).	Keep urine output >100 mL/hr with fluids and diuretics Analgesics Pressors for hypotension Blood components PRN bleeding
Febrile reaction	Antibody to donor WBCs Accumulation of cytokines in product	Fever, chills/rigors, headache, vomiting		Culture product if bacterial contamination is a possibility	Antipyretics Leukodepleted blood Antibiotics if suspect/confirm sepsis
Urticarial	Antibody to donor plasma proteins	Urticaria, pruritis, flushing	Preliminary lab investigation not required, if urticaria is the only symptom.		Antihistamines
Anaphylactic	Antibody to donor plasma protein(s) e.g., IgA deficiency	Hypotension, urticaria, respiratory distress, wheezing, local edema, anxiety		Anti-IgA IgA, quantitative	Epinephrine, antihistamines, corticosteroids, beta-2 agonists as indicated Supportive care IgA deficient blood products
Transfusion-related acute lung injury	WBC antibodies in donor (or recipient), other WBC – activating agents in components	Hypoxemia, respiratory failure (usually w/in 6 hours of transfusion), hypotension, fever, noncardiogenic pulmonary edema		WBC antibody screen in donor and recipient* HLA antigen typing* WBC crossmatch* *See blood services manuals for specimen requirements Chest X-ray	Supportive respiratory and general care until recovery Blood Bank will notify blood center for donor followup
Transfusion-associated sepsis	Bacterial contamination	Fever, chills, hypotension, abnormal bleeding		Gram stain Culture unit Blood bank will notify blood center Blood cultures X 2 from patient	Antibiotic therapy Treat complications (e.g., shock, etc.)
Circulatory Overload	Volume overload	Dyspnea, orthopnea, cough, tachycardia, hypertension, headache	Preliminary lab investigation not required	Chest X-Ray	Upright position Oxygen Diuretics Phlebotomy
Non-immune hemolysis	Physical or chemical	Hemoglobinuria, hemoglobinemia	As above	Test unit for hemolysis	Identify and eliminate cause
Air embolism	Air infusion via line	Shortness of breath, acute cyanosis, pain, cough, hypotension, cardiac arrhythmia		X-ray for intravascular air	Place patient on left side with legs elevated above head

Delayed (>24 hrs) Blood Transfusion Reaction

TYPE	ETIOLOGY	PRESENTATION	LABORATORY TESTING Preliminary testing: clerical check, DAT, Visual inspection for hemolysis, ABORH	POSSIBLE ADDITIONAL TESTING (to be ordered by pathologist or clinician after case review)	POSSIBLE THERAPIES
Hemolytic	Amnestic response to RBC Ags	Fever Decreasing Hb New positive AB screen Jaundice	Ab screen/ID DAT	Repeat previous Ab screen Ag type units given if indicated Lab tests for hemolysis if indicated (LDH, bilirubin)	Transfuse compatible RBCs
Posttransfusion purpura	Recipient platelet antibodies (usually anti-HPA-1) destroy platelets	Thrombocytopenic purpura, bleeding, usually 8-10 days after transfusion		Send specimen out for platelet antibody screen	HPA-1 negative units Plasmapheresis IVIG