

ACUTE FEBRILE REACTIONS (during or <24 hrs from transfusion; presenting with fever)				
Reaction/Incidence	Presentation; <i>Diagnosis</i>	Common Mechanism	Treatment	Prevention
Acute Hemolytic (AHTR); <i>1:76,000, 1 in 1.8 million are fatal</i>	Fever/chills, back/flank pain, HGBemia/uria, bleeding, DIC; <i>clerical errors, free HGB, repeat x-match</i>	ABO-incompatible red cells given to patient (rarely from incompatible plasma hemolyzing patient RBCs)	Pressure and volume support, fluids, diuretics if necessary (urine output > 1 mL/Kg/hr); may need PLT/FFP/Cryo if DIC	Careful attention to detail and processes
Febrile Nonhemolytic (FNHTR); < 1%	Fever/chills only (>1 C/2°F); <i>negative workup</i>	Accumulated cytokines (IL-6, TNF); HLA antibodies	Antipyretics; meperidine if chills are violent	Leukoreduction. Pretransfusion antipyretics used but may not work.
Bacterial Contamination (Septic reaction); <i>1:3000 PLTS (much lower reactions)</i>	Rapid high fever, rigors, shock, GI symptoms; <i>gram stain (50%), culture is conclusive</i>	Bacteria in donor's blood or through collection site	As for sepsis; antibiotics and pressure support as necessary	Donor Center precautions, possible leukoreduction contribution
Transfusion-related Acute Lung Injury (TRALI); <i>1:1300-1:5000</i>	Acute lung injury ≤6 hours after transfusion. Bilateral CXR infiltrates, hypoxemia. No cardiac dysfunction. <i>Difficult; donor HLA/HNA abs, consensus criteria</i>	1. Transfused anti-HLA and/or anti-HNA Abs activate PMNs or 2. Endothelial activation and PMN lung sequestration, then activation by blood substances	Aggressive supportive care (may include intubation); most resolve but close to 20% fatal	Preferential male plasma use for decreased HLA/HNA antibodies. HLA antibody screening of female PLT donors. If + antibodies in implicated donor, donor should be deferred

ACUTE AFEBRILE REACTIONS (during or <24 hrs from transfusion; presenting WITHOUT fever)				
Reaction	Presentation/<i>Diagnosis</i>	Common Mechanism	Treatment	Prevention
Urticarial (mild allergic reaction); <i>1-3%</i>	Localized or diffuse hives/redness	IgE-mediated hypersensitivity to transfused protein	Antihistamines	Pretransfusion antihistamine; may wash product if necessary
Anaphylactic (severe allergic reaction); <i>1:20,000-50,000</i>	Severe hypotension very early in transfusion, GI symptoms, rare fever; <i>anti-IgA, check IgA levels</i>	Recipient IgA deficiency with anti-IgA antibodies, haptoglobin deficiency	Epinephrine (0.2-0.5 mL of 1:1000 given IM or SC; use IV if necessary), pressure support	IgA deficient products (washed or from deficient donor)
Anaphylactoid; <i>rare</i>	Similar to anaphylactic, often milder	Milder IgA deficiency, also those on ACE inhibitors with LR filters or plasma exchange	As for anaphylactic	If associated with mild IgA deficiency, IgA deficient products
Transfusion associated circulatory overload (TACO); <i>1:350-5000 reported</i>	Dyspnea, hypoxia during or after transfusion; <i>+/- inc BNP, JVD, hypertension</i>	Cardiopulmonary disease with too rapid blood infusion; very old and very young most at risk	Diuretics, slow infusion	Divide products into aliquots, slow infusion, monitor I/O's
Premedicated Febrile	Chills	As for febrile nonhemolytic; fever blocked by antipyretic	Meperidine if chills are violent	As for febrile nonhemolytic

DELAYED FEBRILE REACTIONS (>24 hrs from transfusion; presenting with fever)				
Reaction	Presentation/<i>Diagnosis</i>	Common Mechanism	Treatment	Prevention
Delayed Hemolytic (DHTR); <i>1:2500-11,000</i>	Fever, anemia ≥ 1 week after transfusion; <i>+DAT, hyperbili, new antibody (Jk, Fy, K especially)</i>	Anamnestic response to re-exposure to red cell antigen; rarely 1° response	Supportive; as for acute hemolytic if severe	Previous records (honor previous antibodies), patient history, some use ID tags/cards
TA-GVHD; <i>Risk varies widely by locale</i>	Fever, diarrhea, skin rash	Cellular immune response by transfused T-lymphocytes vs host	Supportive, immunosuppress; usually in vain	Irradiation of cellular products transfused to at-risk recipients

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Post-transfusion Purpura (PTP); <i>1:24,000</i>	Dec PLTS +/- bleeding 1 week after transfusion (RBCs +/- PLTs); <i>clinical dx, platelet antibodies</i>	Recipient antibody vs. absent antigen (HPA-1a 70%)	IVIg 1 st choice; avoid platelet transfusion	Antigen-negative platelet transfusions
Iron Overload	Liver, pancreas, cardiac dysfx	Iron deposition from multiple Tx	Deferoxamine	Judicious transfusion