

Delayed Transfusion Reactions: Signs, Symptoms and Nursing Actions

A transfusion reaction is defined as any adverse event or complication that occurs in relation to the transfusion of a blood component. Reactions can be classified as either Acute or Delayed. Delayed reactions have a more gradual onset – occurring several days to months or even years after the implicated transfusion.

Nursing Interventions for delayed reactions:

These reactions are most often discovered by the transfusion service when performing new testing on the patient or when investigating past transfusions as part of look-back notifications from the blood supplier. Care is based on the type and/or cause of the delayed reaction.

Reaction	Signs/Symptoms	Cause/Descriptions
Delayed Hemolytic Transfusion Reaction (DHTR) Incidence: 5 in 100,000 transfusion events	Often asymptomatic or mild symptoms seen: <ul style="list-style-type: none"> • Unexpected drop in hemoglobin • Mild jaundice • Fever • Hemoglobinuria (tea-colored/dark urine) 	Due to antigen-antibody reaction other than ABO that is often detected 7-14 days after the transfusion. New antibodies are found during subsequent pretransfusion testing.
Transfusion Associated Graft vs. Host Disease (TA-GVHD) Incidence: <0.1 in 100,000 transfusion events	<ul style="list-style-type: none"> • Fever • Maculopapular rash – typically starts on trunk • Hepatomegaly • Diarrhea • Liver dysfunction (e.g. elevated AST, ALT, bilirubin) • Unexplained pancytopenia (decreased white blood cells, red blood cells, platelets) 	Extremely rare reaction. Transfused donor lymphocytes become engrafted in tissues and bone marrow of recipient; donor lymphocytes proliferate and attack the recipient's tissues. Can occur from 2 days to 6 weeks following transfusion. Irradiation of the blood product prevents TA-GVHD in susceptible patients.
Posttransfusion Purpura (PTP) Incidence: 4 in 100,000 transfusion events	<ul style="list-style-type: none"> • Abrupt onset of thrombocytopenia (i.e., <10,000/uL; often seen 5-10 after transfusion) • Unexpected bleeding or bruising 	Uncommon reaction in which the recipient produces alloantibodies to the antigens on transfused platelet. These antibodies destroy both transfused and patient's own platelets
Iron Overload	<ul style="list-style-type: none"> • Dependent on end organ damage (elevated liver enzymes, arrhythmias, diabetes) • Elevated ferritin 	Seen most frequently in patients who have received multiple transfusions (≥20 simple RBC transfusions)

Resources

1. CDC National Healthcare Safety Network. Biovigilance Component Manual Protocol March 2021 <https://cdc.gov/nhsn>.
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4. Gorski L et al. Infusion Therapy Standards of Practice 2021. Infusion Nurses Society. Section 9 Standard 191
5. Frazie SK et al. Adverse Reactions to Transfusion of Blood Products and Best Practices for Prevention. Crit Care Nurs Clin N Am 2017;29:271-290.
6. Politis C et al. The International Haemovigilance network database for the Surveillance of Adverse Reactions and Events in Donors and Recipients of Blood Components: technical issues and results. Vox Sang 2016;111(4):409-417.
7. Kracalik I et al. Transfusion-related adverse reactions: Data from the National Healthcare Safety Network Hemovigilance Module-United States, 2013-2018. Transfusion. 2021;61:1424-1434. <https://doi.org/10.1111/trf.16362>
8. Hawkins J, Aster RH, Curtis BR. Post-Transfusion Purpura: Current Perspectives. J Blood Med. 2019;10:405-415. Published 2019 Dec 9. doi:10.2147/JBM.S189176.

If you have questions please contact TXMDsupport@versiti.org

