

Acute Transfusion Reactions

If you suspect a transfusion reaction:



1.
Stop transfusion and activate emergency procedures if required



2.
Check vital signs



3.
Maintain current IV access, but do not flush existing administration line



4.
Repeat all clerical and identity checks



5.
Notify medical staff and Transfusion Service Provider



6.
Collect blood and urine samples, save blood pack and IV line for culture if required

Signs and symptoms

Investigations

Causes and clinical management

 Fever	<p>≥ 38°C and rise ≥ 1°C from baseline within 4 hours of starting transfusion No other symptoms (but may have chills or rigors).</p> <p>≥ 38°C and rise ≥ 1°C from baseline within 15 minutes of starting transfusion With other symptoms such as chills, rigors, hypotension, shock, tachycardia, anxiety, dyspnoea, back/chest pain, haemoglobinuria/oliguria, bleeding from IV sites, disseminated intravascular coagulation, nausea, vomiting.</p> <p>or</p> <p>≥ 39°C</p> <p>▲ Potentially life-threatening</p>	<p>No investigation required.</p> <p>Sepsis work-up Gram stain on blood product bag; blood cultures on both patient and products.</p> <p>Incompatible blood work-up Group, screen and DAT on pre and post-transfusion samples.</p> <p>Haemolysis work-up FBC, LDH, bilirubin, haptoglobin, electrolytes, creatinine, urinalysis.</p> <p>DIC work-up Disseminated intravascular coagulation (DIC) may complicate a severe reaction – perform aPTT, PT, fibrinogen, D-Dimer (or FDP).</p>	<p>Mild febrile non-haemolytic transfusion reaction</p> <ul style="list-style-type: none"> Exclude other serious or severe reactions. Give antipyretic. If reaction subsides and product still viable, restart transfusion slowly. If no improvement or worsening of symptoms, stop transfusion and do not restart, and investigate for a severe febrile reaction. <p>Severe febrile non-haemolytic transfusion reaction</p> <ul style="list-style-type: none"> Do not restart transfusion. Investigate to exclude other serious or severe reactions with sepsis and incompatible blood work-ups. Consider haemolysis and DIC work-ups. <p>Transfusion-transmitted bacterial infection</p> <ul style="list-style-type: none"> Do not restart transfusion. Start broad-spectrum IV antibiotics, IV fluids and inotropes to provide cardiovascular support and maintain urine output. Ask your Transfusion Service Provider to notify Lifeblood to ensure quarantine and testing of components from same donation. <p>Acute haemolytic transfusion reaction</p> <ul style="list-style-type: none"> Do not restart transfusion. IV fluids and inotropes to maintain blood pressure and urine output. Induced diuresis may be needed. For further transfusions, consider consultation with a haematologist.
 Dyspnoea	<p>Within 15 minutes of starting transfusion but may be later Hypotension, fever, with/without tachycardia.</p> <p>▲ Potentially life-threatening</p>	<p>Sepsis work-up Gram stain on blood product bag; blood cultures on both patient and products.</p> <p>Incompatible blood work-up Group, screen and DAT on pre and post-transfusion samples.</p> <p>Haemolysis work-up FBC, LDH, bilirubin, haptoglobin, electrolytes, creatinine, urinalysis.</p> <p>DIC work-up Disseminated intravascular coagulation (DIC) may complicate a severe reaction – perform aPTT, PT, fibrinogen, D-Dimer (or FDP).</p> <p>Anaphylaxis work-up Check haptoglobin, tryptase and IgA levels. Test for anti-IgA if IgA deficient.</p>	<p>Transfusion-transmitted bacterial infection</p> <ul style="list-style-type: none"> Do not restart transfusion. Start broad-spectrum IV antibiotics, IV fluids and inotropes to provide cardiovascular support and maintain urine output. Ask your Transfusion Service Provider to notify Lifeblood to ensure quarantine and testing of components from same donation. <p>Acute haemolytic transfusion reaction</p> <ul style="list-style-type: none"> Do not restart transfusion. IV fluids and inotropes to maintain blood pressure and urine output. Induced diuresis may be needed. For further transfusions consider consultation with a haematologist. <p>Anaphylaxis</p> <ul style="list-style-type: none"> Do not restart transfusion. Implement basic life support. Maintain airway and blood pressure. Adrenaline, IV fluids, oxygen and other resuscitation as indicated. To prevent recurrence, consider corticosteroid and antihistamine premedication. If IgA-deficiency with anti-IgA present, consider IgA-deficient or washed red cells. For further transfusions, consider consultation with a haematologist.
	<p>1–2 hours following transfusion Typically with hypertension, also cyanosis, orthopnea, increased venous pressure/jugular venous distension, tachycardia, pulmonary oedema, elevated BNP, cardiomegaly.</p> <p>▲ Potentially life-threatening</p>	<p>Assess chest X-ray for pulmonary oedema. Elevated BNP/N-terminal pro-BNP levels are more common in this reaction.</p>	<p>Transfusion associated circulatory overload</p> <ul style="list-style-type: none"> Do not restart transfusion. Give oxygen, diuretics and sit patient upright. For future transfusions in susceptible patients (i.e. paediatric or elderly patients, severely anaemic or CHD): infuse slowly and consider diuretic.
	<p>Within 6 hours following transfusion (usually within 1–2 hours) Typically with hypotension, also bilateral pulmonary oedema, severe hypoxemia, cyanosis, fever, bilateral interstitial and alveolar infiltrates (pulmonary oedema), without elevated pulmonary pressures. No evidence of circulatory overload or pre-existing lung injury.</p> <p>▲ Potentially life-threatening</p>	<p>Assess chest X-ray for pulmonary infiltrates. Normal BNP/N-terminal pro-BNP levels are more common in this reaction. HLA/HNA typing and antibodies. Transfusion-related acute lung injury is a clinical diagnosis – investigations to exclude other reactions.</p>	<p>Transfusion-related acute lung injury</p> <ul style="list-style-type: none"> Do not restart transfusion. Provide cardiovascular and airway support; give oxygen and ventilation as necessary; diuretics are not beneficial and may worsen this reaction. Notify Lifeblood to ensure quarantine and testing of components from the same donation.
 Urticaria or rash	<p>Over less than 2/3 of the body 2–3 hours into transfusion Localised urticaria (hives), pruritus with no other symptoms/signs.</p>	<p>No investigation required.</p>	<p>Minor allergic reaction</p> <ul style="list-style-type: none"> Give antihistamine. If reaction subsides and product still viable, restart transfusion slowly. If no improvement or worsening of symptoms, stop transfusion and do not restart, and manage as a severe allergic reaction (see below). Consider premedication with antihistamine for future transfusions if recurrent minor allergic reactions occur.
	<p>Over more than 2/3 of the body early in transfusion Localised urticaria (hives), pruritus with no other symptoms/signs.</p>	<p>No investigation required.</p>	<p>Severe allergic reaction</p> <ul style="list-style-type: none"> Do not restart transfusion. Give antihistamine and corticosteroid as required. If recurrent severe allergic reactions occur, consider premedication with antihistamine or transfusing with plasma-depleted or washed red cells.
	<p>Over more than 2/3 of the body, within 45 minutes of starting transfusion (majority within 5 minutes) With other symptoms such as:</p> <ul style="list-style-type: none"> dyspnoea, upper or lower airway obstruction (hoarseness, stridor, wheezing, chest pain, anxiety) severe hypotension, bronchospasm, cyanosis GI symptoms (nausea, vomiting). <p>▲ Potentially life-threatening</p>	<p>Anaphylaxis work-up Check haptoglobin, tryptase and IgA levels. Test for anti-IgA if IgA deficient.</p>	<p>Anaphylaxis</p> <ul style="list-style-type: none"> Do not restart transfusion. Implement basic life support. Maintain airway and blood pressure. Adrenaline, IV fluids, oxygen and other resuscitation as indicated. To prevent recurrence, consider corticosteroid and antihistamine premedication. If IgA-deficiency with anti-IgA present, consider IgA-deficient or washed red cells. For further transfusions, consider consultation with a haematologist.