Transfusion reactions – General Guidelines

The commonest reaction you may encounter to a transfusion of red cells or platelets is a rise in the patient’s temperature. The following causes should be considered:

- Febrile, non-haemolytic transfusion reaction
- Haemolytic transfusion reaction
- Transfusion-transmitted infection
- Infection unrelated to transfusion

Febrile, non-haemolytic transfusion reaction
Defined as a rise in temperature of ≥ 1°C during or soon after a transfusion. These reactions are due to either to transfusion of donor white cells (in red cell transfusions) or to pyrogenic cytokines released from white cells during storage (in platelet transfusions). The frequency of these reactions has, therefore, been much reduced by the introduction of universal leuco-depletion of blood products.

Clinical manifestations include flushing, fever, tachycardia and rigors. They are uncomfortable and distressing for the patient, but do not lead to more serious clinical effects.

However, they must be distinguished from haemolytic reactions and transfusion-transmitted infection, both of which may be RAPIDLY FATAL.

The following procedure should be followed:

- Check the patient for evidence of a more serious reaction – hypotension, confusion, severe rigors or back or loin pain raise the possibility of this.
- The transfusion should be stopped.

For red cell transfusions:

If the rise in temperature is 1-1.5°C:
- A clerical check of the patient’s details and the red cell unit should be performed to ensure that it is the correct unit for that patient.
- A sample should be sent to the haematology lab to check the patient’s blood group and perform a direct antiglobin (Coombs) test, which will often become positive in a haemolytic reaction.
- The patient may be given paracetamol for symptom relief.
- If the above investigations are negative and the temperature settles, the transfusion may be recommenced.

If the rise in temperature is >1.5°C or there are other severe symptoms (eg rigors), the transfusion of that unit should not be restarted. The unit should be sent back to the lab, along with investigations for a haemolytic reaction and bacterial contamination (see below)

For platelet transfusions

If the rise in temperature is 1-1.5°C and there are no severe associated symptoms:
- The transfusion should be slowed down
- Paracetamol should be considered
- The transfusion may be competed if there is no progression of symptoms.

If the rise in temperature is >1.5°C or there are other severe symptoms, the transfusion should be permanently discontinued and the unit returned to the lab, with investigations for bacterial contamination (see below).
Transfusion reactions – General Guidelines (continued)

**Haemolytic transfusion reactions**

These nearly all result from the transfusion of ABO-incompatible red cells (or occasionally, plasma).

They may occur after transfusion of only 20 mls of incompatible blood. Clinical manifestations include:

- Fever, rigors,
- Hypotension or shock,
- Pain at the infusion, headache, abdominal pain or backache,
- Confusion or agitation,
- Nausea, vomiting
- Dyspnoea,
- Flushing,
- Haemoglobinuria.

If such a reaction is suspected, the transfusion should be stopped immediately. The venflon should be LEFT IN SITU, and an infusion of normal saline begun. Clerical checks of the unit and patient should be performed and blood taken for FBC, coagulation screen, blood cultures, direct antiglobin test and urea, electrolytes and creatinine. The implicated unit should be returned to the lab.

**A haematology consultant should be contacted immediately for further advice – this is a life-threatening situation.**

**Bacterial contamination of transfused unit**

Symptoms usually appear immediately during transfusion of the implicated unit and are most commonly:

- Fever and rigors
- Hypotension or shock
- Nausea and vomiting
- Disseminated intravascular coagulation, renal failure

It may be difficult or impossible to distinguish this from an acute haemolytic reaction. Initial management should be the same and directed at appropriate investigations and support of the patient. Broad-spectrum antibiotics should be started, pending the results of cultures on the implicated unit.

**A haematology consultant should be contacted immediately.**

**Note:** the development of pyrexia in a neutropenic patient during transfusion should not generally be ascribed simply to a febrile transfusion reaction. If the criteria for treatment according to the protocol for neutropenic sepsis are met, broad-spectrum antibiotics, according to the protocol, should normally be started.
### Allergic reactions

Allergic reactions to blood transfusions most often take the form of urticarial skin reactions. These should be managed by discontinuing the transfusion and treating the patient with an antihistamine (e.g., chlorpheniramine 10 mg iv or 4 mg orally).

Occasionally, bronchospasm and/or laryngeal oedema or anaphylaxis may occur. Under these circumstances, treatment should be as for anaphylaxis of any cause, with general supportive measures, steroids and adrenaline where indicated.