Blood product administration

Safety

Transfusion safety

- Starts with a properly labeled pre-transfusion specimen
- Make sure the right patient gets the right blood (always adhere to the bedside pretransfusion check on the back of the Blood Transfusion record)
- Start blood products within 30 minutes of issue and complete within 4 hours
- The blood transfusion record is a legal document and must be filed in the medical record on completion of the transfusion
- Blood products should only be stored in approved refrigerators NOT ON THE WARD
- Calculate the transfusion volume as stipulated in the formulas in Common Blood Products table

Immediate management of suspected transfusion reaction

Recognise
- Fever
- Chills
- Urticaria (hives)
- Hypotension/hypertension
- Pain (alone IV site, chest or back)
- Acute respiratory distress/stridor/whisper
- Dark urine
- Bleeding scoring (DIC)

React
- Stop transfusion (leav IV line in place) then:
  - Provide emergency patient care
  - Arrange immediate medical review
  - Keep IV line open with NSaline (flush IV cannula or attach side arm)
  - Repeat pre-transfusion check

Report
- Telephone RCH blood bank ext 5829
- Complete transfusion reaction form, document reaction in patient notes

Care of transfused patients

- Monitor your patient for adverse effects of transfusion, observe closely during the first 15 minutes
- Record vital signs (T, P, RR, BP and O2 saturations also document condition of the site of the tube being used to transfuse):
  - before starting
  - 15 minutes after commencement
  - hourly
  - at completion
  - 4/24 hours for 24 hours if inpatient

Blood filters & giving sets

Filter type & giving set

- Standard McGinn in-line blood filter (170–260µm)
- Smart site (bias) giving set
- Baxter venflow giving set (contains filter 170–260µm per filter)
- Tuta blood salvage administration pump set (contains filter 170–260µm per filter)

Purpose
- To filter out large size and aggregates from fresh products including cell salvage
- Must have the McGinn in-line filter salve
- To administer fresh blood products rapidly in an emergency situation

Clinical indication
- To be used for all transfusions of FFP (plasma), ABO incompatible red cell, and platelets
- For use in transfusion of any blood products
- To administer blood in small volumes via a syringe

Filters how many packs?
- Change when flow rate compromised or at least 12 hourly

Can be flushed with NSaline?
- Yes

 PIT(***)
- 10–30 mL/kg
- 100–500 mL, pedipack
- No
- Start at no more than 5mL/kg/min for first 15 minutes until observation
- 4 hours

Common blood products

<table>
<thead>
<tr>
<th>Blood product</th>
<th>Formula for calculating volume to transfuse</th>
<th>Pack sizes</th>
<th>Irradiation required</th>
<th>Rate</th>
<th>Maximum infusion/hang time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red cell products</td>
<td>Packed cells (mL)× wt(kg)× 0.4</td>
<td>250–500 mL, pedipack</td>
<td>No</td>
<td>4 hours</td>
<td></td>
</tr>
<tr>
<td>Pump blood* cell salvage</td>
<td></td>
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<tr>
<td>Platelets</td>
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<tr>
<td>Cryo***</td>
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<tr>
<td>Group 0 B</td>
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</tbody>
</table>

Compatible ABO groups

- Group identical blood products should be given. However in circumstances where this is not possible, a non-identical but compatible group may be issued
- Rh Negative patients should always receive Rh Negative blood products
- Rh Positive patients can receive either Rh Negative or Rh Positive blood products

Compatible fluids and medications

No medications or solutions should be added to or intused through the same bags as blood products except for 0.9% Sodium Chloride, ABO compatible plasma or 4% Albumin.
- It has been shown to be safe to co-administer morphine (1mg/mL), pethidine (10mg/mL) and ketamine (1mg/mL) if diluted in 0.9% Sodium Chloride with red cells. In these situations, the blood product should be administered via the closest to the patient (distal lumen).
- If other medications are required during a blood transfusion the transfusion must be stopped and the line flushed with 0.9% Sodium Chloride before and after administration of the medication. The blood transfusion can then recommence.
- Fluids containing glucose are not compatible with red blood cells, they cause clumping of the red blood cells.
- Crystalloid or colloid solutions that contain calcium should never be administered concurrently with any blood product.
- Calcium reverses the anticoagulant citrate causing red blood cells to clot.

Irradiation

What does it do?
- Impairs donor lymphocyte’s ability to divide (does not remove/destroy them)

Which products?
- Cellular products (platelets, red cells, granulocytes)

Why do it?
- Prevents Transfusion-Associated Graft Versus Host Disease (TA-GVHD)

When?
- Ring blood bank to request irradiation of unit prior to collection (allow at least 5 minutes)

Which patients?
- All PICU & NNU patients
- All immunocompromised patients
- All Children’s Cancer Centre patients

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