Information for clinicians

Administration of blood components in adults

Important: administration is only to be undertaken by trained and competent, regulated, and registered healthcare professionals.
Selection and use of administration sets

- CE-marked blood transfusion set (170-200µm integral mesh filter)
- The administration set should be changed at least every 12 hours (or in accordance with the manufacturer’s instructions)
- A new administration set must be used for platelets
- Peripheral IV, central IV or intraosseous access is suitable
- All devices/equipment must be certified for use with blood components and used in accordance with manufacturer’s instructions
- Routine administration rate for each unit is:
  - Red cells: routine administration 90-120 mins per unit. Patients less tolerant of increased blood volume, i.e. at risk of transfusion-associated circulatory overload (TACO), should be transfused more slowly
  - Platelets: routine administration of one adult therapeutic dose (ATD) over 30-60 mins
  - Plasma and cryoprecipitate: routine administration 10–20 mL/kg/h (approximately 30 mins).

Each unit must be completed before the stipulated expiry date/time and within 4 hrs of removal from temp-controlled storage. Rapid administration may be appropriate in major haemorrhage.

Documentation and monitoring

- All bedside transfusion checks must be completed in accordance with local policy, including:
  - Consent and prescription completed
  - Check component integrity and expiry date/time
  - Cross-check tag, unit label, prescription and positively identify the patient (ID band and verbal response)
  - Ensure compatibility of unit with patient group, and that specific requirements are met.
- The patient must be kept under close observation throughout the transfusion
- Patients must be risk-assessed for TACO, using a checklist wherever possible (see overleaf)
- The following must be recorded for each unit transfused:
  - Date and time commenced and completed
  - Donation number
  - Volume administered
  - Observations (check local policy); minimum requirements P, T, BP and RR:
    - Up to 1 hour before the transfusion
    - 15 mins after commencing transfusion
    - Within 1 hour after completion of transfusion.
  - Additional (SaO2, urine output and fluid balance) and increased frequency of observations may be required according to the patient’s condition, e.g. risk of TACO identified
  - Any symptoms or complications
  - Final fate (traceability) of component (a requirement by law).
Management of transfusion reactions

Immediate actions

- Inform medical staff immediately
- Pause the transfusion (discontinue if severe)
- Assess and maintain airway, breathing and circulation (ABC)
- Maintain venous access
- Confirm positive patient ID & check compatibility of the component.

Due to the differences in adult and neonatal physiology, babies may have a different risk for TACO. Calculate the dose by weight and observe the notes above.

Additional actions

- Perform and monitor patient observations:
  - Temperature
  - Pulse and respiration rate
  - Blood pressure
  - Urine output
  - O₂ saturations.
- Review and monitor fluid balance
- Retain component bag and administration set
- Inform your transfusion practitioner and/or transfusion laboratory
- Document in patient notes
- Further management in accordance with local policy.

Dependent on the type and severity of the reaction, it may be appropriate to continue the transfusion (slow rate if required). Guidance is available from your local transfusion team. The patient will require close monitoring for any further deterioration.

Suggested investigations

- Full blood count (FBC), blood film
- Coagulation screen (including fibrinogen)
- Urea and electrolytes
- Liver function tests (including bilirubin)
- Lactate dehydrogenase (LDH) and haptoglobin
- Repeat group, screen and crossmatch
- Direct antiglobulin test (DAT) on patient and component
- Patient blood cultures (peripheral and via central line if applicable)
- Urine test for presence of haemoglobin.

Other investigations (depending on symptoms and reaction type)

- Glucose
- Blood gases
- Chest X-ray
- IgA level
- IgE level / mast cell tryptase
- Component blood cultures (in discussion with NHSBT – usually done at central reference laboratory).
Patient exhibiting possible features of an acute transfusion reaction, which may include:
Fever, chills, rigors, tachycardia, hyper- or hypotension, collapse, flushing, urticaria, pain (bone, muscle, chest, abdominal), respiratory distress, nausea, general malaise

STOP THE TRANSFUSION—undertake rapid clinical assessment, check patient ID/blood compatibility label, visually assess unit
Evidence of:
Life-threatening Airway and/or Breathing and/or Circulatory problems and/or wrong blood given and/or evidence of contaminated unit

Yes

SEVERE/LIFE-THREATENING
• Call for urgent medical help
• Initiate resuscitation-ABCDE
• Is haemorrhage likely to be causing hypotension? If not—discontinue transfusion (do not discard implicated unit(s))
• Maintain venous access
• Monitor patient: e.g. TPR, BP, urinary output, oxygen saturations

If likely anaphylaxis/severe allergy—follow anaphylaxis pathway
If bacterial contamination likely start antibiotic treatment
Use BP, pulse, urine output (catheterise if necessary) to guide intravenous physiological saline administration
Inform hospital transfusion department
Return unit (with administration set) to transfusion laboratory
If bacterial contamination suspected contact blood service to discuss recall associated components
Perform appropriate investigations (see Table I)

Review at HTC
• Report to SHOT/MHRA as appropriate

No

Inform medical staff

MODERATE
• Temperature ≥ 39°C or rise ≥ 2°C and/or
• Other symptoms/signs apart from pruritus/rash only

Consider bacterial contamination if the temperature rises as above and review patient's underlying condition and transfusion history
• Monitor patient more frequently e.g. TPR, BP, oxygen saturations, urinary output

If consistent with underlying condition or history consider continuation of transfusion at slower rate and appropriate symptomatic treatment

MILD
• Isolated temperature ≥ 38°C and rise of 1-2°C and/or
• Pruritus/rash only

• Continue transfusion
• Consider symptomatic treatment (see text)
• Monitor patient more frequently as for moderate reactions
• If symptoms/signs worsen, manage as moderate/severe reaction (see left)

• Transfusion-related event
• Transfusion unrelated

Document in notes that no HTT/HTC review/SHOT report necessary


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