Transfusion During Transfer.

NECTAR Blood Transfusion - Clinical SOP.

Assigned NECTAR contact	T.Payne-Doris.
Initiated	
Next review due	
Related information and papers	Transfusion During Transfer. NECTAR Blood Transfusion- Operational SOP. NHSBT- Guidance for the Emergency Transfer of Blood and Components with Patients between Hospitals. Northern Regional Procedure- Procedure for the Transfer of Blood Components Between Hospitals, North East Regional Transfusion Committee. GNAAS Blood on Board Clinical SOP GNAAS Blood on Board Operational SOP ***MEQU M3 warmer guide and skill sheet documents***
Acknowledgments	Special thanks to Dr.R.Hawes OBE.

SOP Aims:

- This guideline is for use in ADULT patients.
- Introduction to coagulation physiology and haemorrhage resuscitation.
- How to deliver safe emergency transfusion of blood during transfer.
- Concurrent drug administration of tranexamic acid and 10% calcium chloride.
- Also see NECTAR Blood Transfusion - Operational SOP.

Coagulopathy

In order to produce a normal blood clot, after tissue injury, the clotting cascade is initiated and a fibrin mesh forms, platelets and RBCs stick to this to form a clot. If the clot is lost, the circulating levels of clotting factors and platelets are lower and the subsequent clot is smaller, weaker and slower to form. This process spirals further out of control, with further blood loss and the patient ultimately becomes unable to form a normal clot.

This process is exaggerated by metabolic acidosis (due to hypoperfusion caused by hypovolaemia) and hypothermia (the clotting cascade is enzyme driven and slows with temperature).

Haemorrhage Resuscitation

Therefore, the current aims of resuscitation include,

1. Prevention of coagulopathy
2. Prevention of acidosis
3. Prevention of hypothermia

This is a three-pronged approach-
1- Aggressive control of bleeding

2- Appropriate physiological resuscitation
    a- clinical endpoints- HR, BP, temp, GCS, cap refill, RR etc
    b- metabolic endpoints- ABG
    c- haematological endpoints- ROTEM/TEG/lab tests

3- Aggressive warming- patient warming and blood warming.

Holistic Integrated Care

Blood alone is not the answer. A holistic approach is vital, including:

- Control haemorrhage
- Resuscitate to a radial pulse & appropriate clinical parameters
- Aggressive patient warming
- Minimal handling to improve clot stability

Consider- 5mls of 10% calcium chloride.
Consider- 1 gram of tranexamic acid.

In the scope of NECTAR transfers it will be rare that patients will require/or have required calcium chloride, tranexamic acid, or multiple acute blood transfusions or recent/ongoing major haemorrhage protocol. In such cases, consider whether transfer is the best option. This must be discussed with the NECTAR consultant on call.

Calcium Chloride

An audit of GNAAS Blood on Board patients by Dr.Hawes and the GNAAS team has shown that hypocalcaemia is common in patients who have only received one unit and that hypercalcaemia occurs with administration of 10mls of 10% calcium chloride.

Calcium is required as a co-factor for normal clotting. It is also an inotrope, so needs to be given with caution.

Calcium **cannot** be given in the same IV line as blood products as it causes clotting instantly, resulting in loss of the line and potential VTE.

1- Insert/confirm separate IV access for administration of calcium
2- *SLOW* IV injection over 5- 10 minutes
3- If additional IV access is not possible give calcium prior to transfusion. 10mls 0.9% **saline flush must precede and follow** calcium administration.

Transfusion During Transfer- Clinical Checklist

Discussion of transfusion during transfer should occur during the call conference for the patient to enable appropriate triage and planning for transfer.

It is anticipated that transfusion during NECTAR transfer would only occur if a decision to transfuse has already been made by the referring hospital or after discussion at the conference call.

The Transfusion During Transfer checklist **MUST** be completed prior to administration of blood products for all patients.

See appendix for checklist.

Discard all empty units in clinical waste bin. Retain for testing if complications have occurred.

Serious Hazards of Transfusion

Suspect if the patient develops new signs-

1- Sudden deterioration on starting blood
2- Increased heart rate, low BP, wheeze, desaturation, rash, increased temperature
3- If in doubt STOP the transfusion, report the effects at the receiving hospital and return unit of blood for testing at donating hospital with explanatory note and inform transfusion lab by phone.

Allergy is the most common side effect of transfusion and frequently results in a widespread urticarial rash.

1- Stop the transfusion, discard giving set, retain unit for testing.
2- Treat- chlorphenamine 10mg IV.

Paperwork

For all patients:

1- Transfusion During Transfer Prescription (stick pink stickers in boxes), photocopy and leave original for hospital notes.
2- Photocopy/document blood gas results.
3- Pink tags completed (stick patient ID sticker on reverse) and send to transfusion lab that issued the blood
4- Complete audit form and email to : thomas.payne-doris@nhs.net

Patient Advice Leaflet and Informed Consent

National recommendations state that informed consent should be given prior to administering any blood transfusion, however, we may be transfusing blood to a patient who is unable to give consent.

However, in the event that a patient or their relative would like further information the Transfusion During Transfer folder will contain 2 information leaflets-

1- NHSBT- Will I need a blood transfusion?
2- NHSBT- Information for patients who have received an unexpected blood transfusion.

Transfusion During Transfer- Checklist

Pre-Requisites

Control haemorrhage
Patient warming

Must be a decision made by medical staff- preferably pre-transfer either from donor hospital or during conference call.

Indications

1- Ongoing bleeding requiring resuscitation.
2- Transfusion already started at donor hospital and to continue en route for *time critical* clinical benefit.

Preparation

Run through blood giving set and blood warmer.

Open cool box and remove only the blood product for transfusion, close box immediately.

2 Person Check- trained NECTAR staff only.

Prime

1- Spike 0.9% saline bag with BLOOD GIVING SET
2- Attach blood warmer and turn on
3- Run though with saline then attach to cannula
4- Spike blood product, hang, and set desired rate.

Serious Hazards of Transfusion

Suspect this if the patient develops new signs-

1- Sudden deterioration on starting blood
2- Increased heart rate, low BP, wheeze, desaturation, rash, increased temperature
3- If in doubt STOP the transfusion
4- Treat chlorphenamine 10mg IV.
5- Disconnect unit and giving set from patient and place intact in yellow clinical waste bag and send to donating hospital for testing with a note including the patient details and call the blood bank at that hospital to make them aware.

6- Email Tranfusion During Transfer audit form with a full description to Tom Payne-Doris.

Hospital Handover

Handover to medical and nursing staff patient received transfusion during transfer.

Leave Transfusion During Transfer Information sheet with medical team leader.

Explain haematology lab will need to be notified patient has received a transfusion during transfer.

If new blood requirement during transfer e.g. new haemorrhage/ severe deterioration discuss with consultant on call, prepare to divert to A&E and pre-alert.

DOCUMENTATION

Remain WITH patient-

1- Transfusion During Transfer prescription sheet with PINK stickers attached (**sign x 2, date, time)**
2- Give Transfusion During Transfer Information sheet to medical team leader.

Check—do not leave without-

1 **Stick Hospital ID sticker on back of completed red tags**- to be sent to transfusion lab that issued the blood to maintain traceability.

Photocopy of completed Tranfusion During Transfer Prescription for NECTAR records.

Transfusion During Transfer Audit form- complete during same shift and email to Tom Doris-Payne.

UNUSED BLOOD PRODUCTS TO REMAIN IN COOL BOX AND BE HANDED OVER DIRECTLY TO RECEIVING HOSPITAL HAEMATOLOGY LAB WITH DETAILS ON TIME ISSUED AND TIME IN COOL BOX

TRANSFUSION DURING TRANFER

INFORMATION SHEET

FILE IN PATIENT NOTES

This patient has received an emergency transfusion during transfer of:

……
……

Please inform your haematology lab that this patient has received a transfusion during transfer (for accurate Grouping & Cross Match)

The Transfusion During Transfer prescription sheet left with the patient gives the details of the units transfused and donation numbers.

Traceability

The traceability tags have been sent to the Transfusion Lab from which the blood was issued so that each unit can be traced from donor to recipient.

For further information please contact-

Dr. Thomas Payne-Doris.

Consultant in Critical Care, Royal Victoria Infirmary and NECTAR.
Email : Thomas.payne-doris@nhs.net

TRANSFUSION DURING TRANSFER

PRESCRIPTION SHEET

FILE IN PATIENT NOTES

NECTAR job number:_____

NHS number:_____

Surname:_____

Forename:_____

D.O.B.:_____

PLASMA **Transfused**	Plasma 1 Affix Sticker	Plasma 2 Affix Sticker
RED BLOOD CELLS **Transfused**	Red Blood Cell 1 Affix Sticker	Red Blood Cell 2 Affix Sticker

Tranexamic Acid Given?	At donor hospital	During transfer	No
5mls of 10% calcium chloride given?	At donor hospital	During transfer	No

Transfusion During Transfer Audit Form

Complete for ALL transfusions during transfer.
Email during shift to Thomas.payne-doris@nhs.net

DATE: ___/____/_20____

Transfusion decision: donor hospital / conference call / medic during transfer

Indication: _____

Blood products transfused:

Type	Number
Red Blood Cells	
Plasma	
Platelets	
Cryoprecipitate	
Other:	

Tranexamic acid: YES / NO

Calcium chloride: YES / NO

Complications

Transfusion reaction : YES/ NO

Details:_____
_____
_____

Equipment problems: YES/ NO
Details:_____
_____
_____

Any other issues: YES/ NO
Details:_____
_____
_____

Two Person Check

- Blood components must be administered by registered practitioners who are trained and competent according to local policies.
- The final check must take place next to the patient, not at the nursing station or another remote area.
- If the checking process is interrupted, it must start again.
- Transfusion must only go ahead if the details on the patient identity band (positively confirmed by the patient if possible), the laboratory-generated label attached to the component pack and the transfusion prescription are an exact match. Any discrepancy must immediately be reported to the transfusion laboratory.
- Check the expiry date of the component and ensure the donation number and blood group on the pack matches that on the laboratory-generated label attached to the pack.
- Any special requirements on the transfusion prescription, such as irradiated component, must be checked against the label on the pack.
- Inspect the component pack for signs of leakage, discoloration or clumps.
- The prescription and other associated paperwork should be signed by the person administering the component and the component donation number, date, time of starting and stopping the transfusion, dose/volume of component transfused and name of the administering practitioner should be recorded in the clinical record.

1- Inspect the bag and check the bag and its label.
2- Check label with patient wrist band- MINIMUM 4 POINTS- First name; Surname; Date of Birth; Unique patient ID number (NHS or MRN). Ask patient to also confirm their details (or carer/parent on their behalf).