

# Paediatric Blood Transfusion

Haemovigilance Department, CHI at Crumlin

Safe Paediatric Transfusion is in our hands Positive Patient Identification at all stages of transfusion Weight really Matters

Monitoring of child/infant during transfusion **Think SAFE** 

Special Requirements, Accurate Weight, Formula/Volume, Ensure **correct Rate** 

#### **BACKGROUND**

Blood Transfusion is a complex process, particularly within paediatric practice. There are multiple elements within the blood transfusion chain that require clinical vigilance and care to ensure practice is safe for patients. Clinical staff need prompt access to practical, most relevant information in one place to facilitate their engaging in safe paediatric blood transfusion.

#### **AIM**

- To support clinical staff in the practical application of blood transfusion
- Important information presented in a poster style clinical instruction.

### METHODS

Through facilitating Blood Transfusion Education for nurses and medical staff, Haemovigilance nurses recognised a need to fill an education gap in clinical transfusion practice.

Table 1: Paediatric Blood Transfusion Poster located in all clinical areas

## Paediatric Blood Transfusion

Refer to Massive Transfusion Algorithm for emergencies/trauma



#### Safe transfusion

- Safe transfusion is the responsibility of all involved in the transfusion chain
- Positive Patient Identification at all stages of transfusion
- Benefits of the transfusion must outweigh risks
- Monitoring of patient during transfusion \* particularly important in paediatrics
- WEIGHT MATTERS
- Think SAFE
- Special Requirements Accurate Weight Formula/Volume Ensure Correct Rate

#### Bedside Checklist

- Confirm Positive Patient Identification (Check name-band & verbal check)
- Confirm prescription is valid & correct for this patient?
- If pre-medication is required, has it been administered?
- Baseline observations completed within 60 minutes of commencing transfusion
- Visual inspection of blood product for leaks/clumps/discoloration/expiry
- Patient ID on name-band must be identical to patient ID on blood product compatibility label
- Unit details on the IBTS label must be identical to unit details on compatibility label
- Is this a compatible blood transfusion? Check ABO & Rh D.
- Are special requirements met? Irradiated

#### Formulas and rates

| Blood<br>Product             | Volume/ Formula  | Rate of transfusion  | Max infusion<br>time                                      |  |
|------------------------------|--|--|---|--|
| Red Cells<br>&<br>Paedipacks | Neonates 10-20 mls/kg (taking into account pre Hb and threshold)  Infants & Children: Formula to calculate volume to transfuse  Pts weight(kgs) X desired Hb rise g/L X 3 =mls  10 | 2-4 mls/kg to a<br>maximum of<br>Smls/kg/hr                                | 4 hours from time of removal from cold storage            |  |
| Platelets                    | 10-20 mls/kg   | 10-20 mls/kg/hr  | 4 hours from removal<br>from agitator                     |  |
| Octaplas                     | 15-20 mls/kg for non bleeding patient  | 10-20 mls/kg/hr  To a max of 1mls/kg/min (due to risk of citrate toxicity) | 4 hours from time unit i<br>removed from<br>BT lab fridge |  |
| Fibrinogen                   | 70 mgs/kg  Reconstitute 1g vial with 50mls water for injection   | Must not exceed 5mls/min<br>Always given as infusion                       | Once product is<br>re-constituted start<br>infusion       |  |
| Albumin 5 %                  | 10-20 mls/kg   | Maximum infusion rate to<br>not exceed 5 ml / minute                       | 4 hours from time bottle<br>is opened                     |  |
| Albumin 20%                  | 0.5 -1 gram/kg to a maximum of 40 grams per dose<br>* please refer to Albumin 20% guideline  | Should not exceed 0.25 gram<br>/kg/hour                                    | 4 hours per bag   |  |
| Novoseven                    | Dose as per Consultant Haematologist<br>(Authorised by Consultant Haematologist only for use<br>in non Haemophilia patients)   | IV bolus given over 2-5 mins   | Once re-constituted giv<br>immediately                    |  |

#### Giving sets & Blood Filters Giving set & Blood

Administration

Infusomat Space

set (BBraun

To administer

Cryoprecipitate

Red Cells,

Octaplas,

via pump

Platelets,

No pump

Leucocytes

Used

Administration Set (BBraun Infusomat Line-Transfusion-Space Line- IV 200 micron filter) Standard-15 micron filter)

To administer

Albumin 5% &

20% via pump

**Paediatric** Blood Administration set (BBraun pro set)

To administer

Paedipack Red

Cells, Octaplas

(small volumes)

Platelets,

via syringe

driver

Single Burette (Baxter)&Blood BBraun (15 Administration Set - 200 micron filter

To administer

smaller

volume

< 16 kgs

patients

gravity

Infuse via

(see table for rate)

platelets ie

Mini spike by micron filter) Used with 50ml Original Perfusor( leur lock sysringe

To administer

small volume

driver

Albumin 5% &

20% via syringe

50 ml Original Perfusor (leur lock syringe & an Extension set)

Fibrinogen

Use filter

provided to

draw back

product

(Riastap) via

Single use Proset Sangofix For emergency /rapid Transfusion



To administer In an emergency for rapid transfusion syringe driver

Red Cells,

Octaplas,

**Platelets** 

**Blood Group Compatibilities** Patients ARO

| Blood Group                              | A              | В              | AB         | 0   |
|--|----------------|----------------|------------|-----|
| Con<br>receive<br>Red Cells<br>from      |                |                |            |     |
| Can<br>receive<br>Plasma<br>from         | A<br>end<br>AB | B<br>ond<br>AB | AB<br>only | ALL |
| - Should<br>receive<br>Platelets<br>from | A              | В              | AB         | O   |

In an emergency situation/massive transfusion incompatible Platelets can be issued \*

\* Rh D Positive Patients can receive Rh D Negative Red Cells Rh D Negative Females should only receive Rh D Negative Red Cells

Immunocompromised patients require irradiated products. In an emergency contact BT lab on 6571/6254 or out of hours Haematology Medical Scientist on call

#### Care of patient receiving transfusion

- Monitor patient closely, Visual Observation & Vital Signs: 15 minutes post commencing, hourly, & at the end of transfusion
- Monitor for any adverse event/reaction and manage as per transfusion reaction guidelines & algorithm
- Documentation of transfusion episode, volume transfused, outcome for patient, & traceability of each blood product

#### RESULTS

The Paediatric Blood Transfusion Poster was distributed to and displayed in all clinical areas from August 2018, and has been received very positively amongst nurses and medical staff since for its practical and relevant information.

#### **FUTURE DIRECTION**

- Move away from lengthy transfusion guidelines
- Present information via visual aids, flow charts/ algorithms, digital software.