Transfusion Management of Major Haemorrhage (Paediatric)

Activation Telephone Number
Raigmore: Dial 2222

Emergency O red cells location

A+E blood fridge 4units
Theatre blood fridge 2units

Estimated time to receive blood:

- Group O blood immediate
- Group Specific blood 20 mins
- Full X-matched blood 40 mins

Identify Patient has Major Haemorrhage
20% loss of calculated blood volume in < 1hr
50% loss of calculated blood volume in < 3hrs
Total blood volume child 80ml/kg ; neonate 90ml/kg

NHS Highland

Activate Major Haemorrhage Protocol 2222

Lead Clinician responsibilities
-Call **2222 inform operator MHP and location**
-Page BTS confirm products and location needed
-Take blood from patient organise transport to BTS
-Retrieve Fridge O negative blood if required
***BTS page 5081**

RESUSCITATION
Haemorrhage Control
Airway
Breathing
Circulation

Monitor patients vital signs
ECG, BP, Pulse, Capillary refill, Sats%, glucose, Temperature
Take Blood to monitor
K+, Ca^{2+}, FBC, Clotting, U+E, ABG

Patients blood sent to BTS for
X-match, FBC, Coags, fibrinogen, U+E, Ca^{2+} NPT: ABG
and
Order MHP Products
Red cells 10ml/kg
FFP 10ml/kg

Haemorrhage Control
Direct pressure
Tourniquet if appropriate
Stabilise fractures
Surgical interventions
Endoscopic interventions
Interventional Radiology
Obstetric/Neonate Mx

Prevent Hypothermia
Use fluid warming device
Use forced air warming blanket
Monitor / Treat Hyperkalaemia
$CaCl_2$, dextrose+insulin, ß2 agonists, HCO_3
Monitor / Treat Hypocalcaemia
$CaCl_2$ 0.1ml/kg iv
Monitor / Treat Acidosis
Maintain intravascular volume, monitor renal function, avoid hypoglycaemia
Monitor/ Treat Volume overload

*Be aware electrolytes change quickly in paediatric patients

Give MHP products in 10ml/Kg aliquots sequentially
Packed RBC→FFP

Haemostatic Drugs

Tranexamic acid 15mg/kg bolus over 10min followed by infusion 2mg/kg/hr over 8 hrs

Patient on/taken Warfarin
Vitamin K 30mcg/kg

Prothrombin Complex Concentrate
APTT/PT ratio 2 to 3.9 give 25iu/kg PCC
4 to 5.9 give 35iu/kg PCC
> 6 give 50iu/kg PCC

Reassess
Suspected continuing haemorrhage requiring further transfusion
Take bloods and send to lab:
FBC, Coags, fibrinogen, U+E, Ca^{2+} Glucose,

Order more MHP products
Red cells 10ml/kg
FFP 10ml/kg
If required
Platelets 10ml/kg
Cryoprecipitate 5ml/kg

Aims of therapy
Clinical improvement

Hb	>80g/L
Platelets	>75 x 10^9/l
PT ratio	< 1.5
APTT ratio	<1.5
Fibrinogen	>1.5g/l
Ca^{2+}	>1 mmol/l
Temp	> 36ºC
pH	> 7.35 (ABG)

Normal plasma levels K+, Ca^{2+}

Other techniques:
e.g. **Cell Salvage** if in theatre

1 unit of red cells = c.250 mls salvaged blood

Give MHP products in 10ml/Kg aliquots sequentially
Packed RBC→FFP/Cryo→Platelets

Following second MHP administered, repeat bloods:
FBC, Coags, fibrinogen, U+E, Ca^{2+} NPT: ABG
Inform **BTS** of further blood component requirement

STAND DOWN
Inform lab,
Return unused components,
Complete documentation.

Thromboprophylaxis should be considered when patient stable

ABG-arterial blood gas
NPT-near patient testing
Coags-Coagulation screen (PT, APPT)
MHP-Major Haemorrhage Protocol
XM-cross match
FFP-fresh frozen plasma
FBC-full blood count

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