Blood and fluid therapy in severe haemorrhage after trauma

15 mg/kg tranexamic acid IV/IO

Consider resuscitating with blood products if not available, give 10 mL/kg WARMED sodium chloride 0.9%

Shock remains?

Yes

Monitor for further features of shock

No

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Shock remains?

Yes

Monitor for further features of shock

No

Ensure clear plan for haemorrhage control with surgeons / radiologists¹

5 mL/kg boluses of WARMED packed red cells or FFP
Aim for 1:1 ratio of red cells: FFP; reassess

Shock remains?

Yes

Monitor for further features of shock

No

After 20 mL/kg of blood products request major haemorrhage pack 2 from blood bank²

5 mL/kg boluses of WARMED packed red cells or FFP
Aim for 1:1 ratio of red cells: FFP; reassess

Shock remains?

Yes

Monitor for further features of shock

No

After 20 mL/kg of blood products give: 10–15 mL/kg platelets³, and 0.1 mL/kg of 10% calcium chloride

Shock remains?

Yes

Consider³

No

Monitor for further features of shock

¹ Plan for haemorrhage control
- Monitor blood gases
- Keep ionised calcium level above 1 mmol/litre with 0.1 mL/kg of 10% calcium chloride
- Treat potassium level above 6 mmol/litre with bolus 0.1 units/kg insulin actrapid and 10 mL/kg 10% dextrose
- Monitor haemoglobin on blood gases, do not push higher than 12 g/dl
- Keep platelets above 100x10⁹
- Arrange anaesthetic assessment for intubation and ventilation

² Major haemorrhage pack
Major haemorrhage pack contains packed red cells, FFP and platelets

³ Consider
- Consider 10 mL/kg cryoprecipitate to keep fibrinogen at least 1 g/l
- Consider activated factor VII (Novoseven) after 2 cycles if continued bleeding
- Discuss with consultant haematologist

⁴ Platelet count
Platelet count needs to be >50 x 10⁹/l and fibrinogen at least 1 g/l. It is important to monitor this to achieve the correct level