TRANEXAMIC ACID for IV INFUSION following major haemorrhagic trauma

Indications for use:

Treatment of actual or suspected haemorrhage, associated with trauma.

Patient Inclusion Criteria:

Patients who fulfil ANY of the following:

- Significant haemorrhage
- Systolic blood pressure less than the 5th centile (*see below*)
- Heart rate greater than normal range (*see below*)
- Transfusion of blood, due to actual or suspected haemorrhage

or are high risk groups:

- Multiple rib fractures
- Penetrating wounds
- More than one proximal long bone fracture
- Amputation proximal to the wrist / ankle

Age (Years)	Respiratory rate (breaths/min)	Systolic BP (50th centile)	Systolic BP (5th centile)	Pulse (beats/min)
<1	30-40	80-90	65-75	110-160
1-2	25-35	85-95	70-75	100-150
2-5	25-30	85-100	70-80	95-140
5-12	20-25	90-110	80-90	80-120
>12	15-20	100-120	90-105	60-100

Administration:

Presentation

Tranexamic Acid 100 mg in 1 ml (5 ml ampoules)

Prescribing

Dose: schedule based on CRASH2 trial.

Loading dose: prescribe on once only section of drug chart 15 mg/kg over 10 minutes (maximum 1 gram)

Maintenance dose: 2mg/kg/hour, or until bleeding stops. Maximum 1gram over 8 hours.

Maintenance prescription for under 60kg and not fluid restricted: prescribe on the infusion section of drug chart (see example below) as tranexamic acid 1 gram, in 500ml sodium chloride 0.9% with glucose 5%. Infuse at 1ml/kg/hour, to give 2mg/kg/hour over 8 hours, or until bleeding stops.

Maintenance prescription for 60kg and over or fluid restricted: prescribe on the infusion section of drug chart as tranexamic acid 1 gram, in 50ml sodium chloride 0.9%. Infuse at 0.1ml/kg/hour, to give 2mg/kg/hour over 8 hours, or until bleeding stops. (maximum 1gram over 8 hours i.e. 6.25ml/hour)

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Dose reduction required in renal impairment.
See below in "Monitoring / other comments"

Further doses can be given after the 8hr infusion if bleeding still persists, but this should only be considered ***after*** discussions between the patients responsible consultant and the haematology consultant

Storage

Store at room temperature

Preparation/ Dilution

Loading dose: draw required dose via filter needle into 10ml syringe and dilute to 10ml using sodium chloride 0.9%.

Maintenance prescription for under 60kg and not fluid restricted: draw 10ml tranexamic acid via filter needle into 10ml syringe. Change needle and add to 500ml bag of sodium chloride 0.9% with glucose 5%.

Maintenance prescription for under 60kg and not fluid restricted: draw 10ml tranexamic acid via filter needle into 50ml syringe. Change needle and make up to 50ml using sodium chloride 0.9%.

Route of Administration

Tranexamic Acid **1g in 500ml**: central or peripheral
Tranexamic Acid **1g in 50ml** Central preferable- where patient has free central access this should be used

Rate of Administration

Loading dose over 10 minutes
Maintenance infusion at rate of 2 mg/kg/hour, for 8hrs

Stability

Use immediately - assign 24 hour expiry to IV label for maintenance infusion.

Flushes

Sodium chloride 0.9%

Common compatibilities at terminal Y-site

Maintenance fluids containing sodium chloride/ glucose. Contact pharmacist for further advice.

Monitoring/ other comments

Monitor blood pressure- increased risk of hypotension with rapid injections. Contra-indicated in patients with arterial or venous thrombosis. Caution in patients with history of seizures.

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Increased risk of seizures in accumulation, therefore dose reduction in renal dysfunction recommended.

Suggested dose reduction in renal impairment:

mild renal impairment reduce infusion to 1.3 mg/kg/hour,
moderate renal impairment 1mg/kg/hour,
severe renal failure 0.5 mg/kg/hour.

Extravasation risk

Extreme of pH	Hyperosmolar	Vasoactive	Vesicant
pH 6.5-8	1g in 50ml ~ 650mosmol	No	No
	1g in 500ml ~ 350mosm		

Links to other protocols/ guidelines

RCPCH Evidence Statement: Paediatric TXA for Major Trauma

Infusion calculation equation

$$\text{Pump rate in ml/hr} = \frac{\text{(Dose in mg/kg/hour) x weight}}{\text{(Concentration in mg/ml)}}$$

Calculation example

e.g. 25kg child presents in ED with major trauma with significant blood loss. Prescribe 15mg/kg = 375mg over 10 minutes on once only section of drug chart. Followed by tranexamic acid 1 gram in 500ml, infusion at rate of 25ml/hour- as shown below:

ATE/ ART ME	INFUSION FLUID		CENTRAL / PERIPHERAL	MEDICINE ADDED		PRI &
	TYPE / STRENGTH	VOLUME		APPROVED NAME	DOSE	
	Sodium Chloride 0.9%/Glucose 5%	500ml	C or P	TRANEXAMIC ACID	1 gram	
fusion Rate or duration	2mg/kg/hour for 8 hours = 25ml/hour				*Dr to initial if conti	

Administer as follows:

Loading dose: Draw up 3.8mls tranexamic acid into 10ml syringe and dilute to 10mls using sodium chloride 0.9%.

Maintenance dose: Draw 10ml tranexamic acid into 10ml syringe and transfer to 500ml bag of sodium chloride 0.9% with glucose 5%. Label as per Trust policy. Attach to patient and set pump to run at 25mls/hour (The volume to be infused would be 25mls/hr for 8hrs = 200mls)