Heparin (for anticoagulation)

Neonatal

FORM Ampoule containing 5000units in 5ml

INDICATION Treatment and prophylaxis of thrombosis/embolism

DOSE RANGE

TREATMENT SCHEDULE:

AGE	DOSE	FREQUENCY	ROUTE
Birth – 6 months	**IF APTT <50s**: Initial loading dose of 50units/kg **(DO NOT LOAD IF JUST RETURNED FROM THEATRE)**	Loading Dose	IV
	Then immediately after run infusion at 20units/kg/hour and check APTT in 4 hours (see monitoring below)	Continuous Infusion	IV
	IF APTT 50-80s: Initially run infusion at 20units/kg/hour and check APTT in 4 hours (see monitoring below)	Continuous Infusion	IV

PROPHYLAXIS SCHEDULE:

AGE	DOSE	FREQUENCY	ROUTE
Birth – 6 months	10units/kg/hour	Continuous infusion	IV

PRESCRIPTION OF CONTINUOUS INFUSION

1000units/kg of heparin diluted to 50ml with sodium chloride 0.9%

This gives;
20units/kg/hr at 1ml/hr
10units/kg/hr at 0.5ml/hr

RECONSTITUTION

Already in solution.

DILUTION

<u>For loading dose and continuous Infusion</u>

1ml x weight (kg) is the number of ml of heparin 1000units/ml to be diluted up to 50ml total with sodium chloride 0.9% (equivalent to 1000units/kg in 50ml)

METHOD OF ADMINISTRATION

<u>For Loading dose:</u>
Loading dose of 2.5ml should be administered as a continuous infusion at a rate of 15ml/hr over 10 minutes.

<u>For continuous Infusion:</u>
By continuous intravenous infusion, rate adjusted according to APTT if necessary as below.

MONITORING

TREATMENT

Aim for an APTT of 60-90 unless specific instructions otherwise. Adjust rate as follows:

APTT (s)	Bolus (units/kg)	Stop infusion	Rate Change	Recheck APTT (hr)
<50	50units/kg		+ 10%	4
50 - 59				4
60 - 89			No change	24 hours
90 - 99			- 10%	4
100 - 120		30min		4
>120		60min	- 15%	4

- Any change in heparin dosage should be followed by a repeat clotting profile after 4 hours.
- The need for more than 30units/kg/hr of heparin to achieve APTT should be made known to the consultant.
- Consider measuring anti-Xa level or anti-thrombin III level. This will be age dependent. It is not unusual for a child <1 year old to require 28units/kg/hr in order to achieve therapeutic APTT levels.
- It is mandatory to measure APTT level 4 hours after the loading dose, 4 hours after any dose change then at least daily when in the therapeutic range.
- Once the APTT is achieved and the heparin infusion is stable, once daily clotting profile is acceptable.

Platelets: Check daily. If platelets drop by >50% from baseline consider Heparin Induced Thrombocytopenia (HIT), this is more likely after 5-10 days of treatment. However there are many other reasons for thrombocytopenia (NEC /infection etc). Notify consultant.
Consider sending HIT antibody screen.

PROPHYLAXIS

Clotting profile (APTT, PT and fibrinogen) should be checked as follows:

- On arrival back from theatre
- 4 hours after INITIAL commencement of heparin infusion
- 1 hour after a syringe is changed (APTT needed only)
- Daily whilst on heparin infusion

Platelets: As above

COMPATIBILITY

Solution compatibility	Sodium chloride 0.9%, Glucose 5%, Glucose 10%
Solution incompatibility	No information
IV Line compatibility	Adrenaline, calcium gluconate, clonidine, dexamethasone, dopamine, flucloxacillin, fluconazole, furosemide, ganciclovir, insulin, linezolid, meropenem, metronidazole, midazolam, milrinone, morphine, noradrenaline, piperacillin/ tazobactam, potassium chloride, ranitidine, sodium bicarbonate, sodium nitroprusside, vecuronium
IV Line incompatibility	Amiodarone, aprotinin, benzylpenicillin, ciprofloxacin, gentamicin, hydrocortisone sodium succinate, labetolol, omeprazole, vancomycin

THIS LIST IS NOT EXHAUSTIVE PLEASE CONTACT PHARMACY FOR FURTHER INFORMATION ON COMPATIBILITY WITH ANY MEDICINES NOT INCLUDED

CAUTIONS, CONTRA-INDICATIONS AND SIDE EFFECTS

See Summary of Product Characteristics and most recent edition of BNF for Children (links below)

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FURTHER INFORMATION Sodium content: Nearly "sodium free" at < 23mg / 1,000units

STORAGE Store below 25°C

LICENSED STATUS Licensed in neonates for treatment and prophylaxis of thrombotic episodes

LINKS BNF for Children / Electronic Medicines Compendium:

APPLICABLE POLICIES **Applicable GG&C policies:**
http://www.clinicalguidelines.scot.nhs.uk/PICU%20HDU%20guidelines/YOR-PICU-004%20Anticoagulation%20approved%20new%20July%202015.pdf

Document Number:	001	Supersedes:	Nil
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Date prepared	October 2017	Date updated	
Updated by		Review Date	October 2020

Administer reconstituted solutions immediately.
All vials, ampoules and infusion bags are for single use only unless otherwise stated.
Dose may vary depending on indication, age, renal function, hepatic function, and concomitant medications. This monograph should be used in conjunction with the package insert, BNF for Children, and Summary of Product Characteristics. For further advice contact your clinical pharmacist or pharmacy department.