HEPARIN

Read in conjunction with Disclaimer

HIGH RISK Medication

Formulary: Highly Restricted Requires Haematologist review **before** commencing for **treatment** doses	
Presentation	**Ampoule:** Heparin Sodium 1000 units/mL
Drug Class	Anticoagulant
Indication	• Maintenance of patency for Intra-arterial, Umbilical venous and central lines. • Treatment of thromboembolic disorders eg. thrombophlebitis, pulmonary embolus and occlusive vascular disease • Prevention of thromboembolic complications arising from cardiac and vascular surgery, dialysis and other perfusion procedures
Special Considerations	Confirm heparin vial concentration prior to administration of the drug. Administration of the incorrect heparin concentration can result in fatal haemorrhages Heparin should be ceased prior to surgery, seek advice from PCH haematology
Contraindications	• Evidence of intracranial or GI bleeding • Thrombocytopenia (below 50,000/mm^3) • History of heparin induced thrombocytopenia (HIT) or hypersensitivity to heparin • Severe hepatic, biliary or renal dysfunction • Eye, brain or spinal cord surgery
Precautions	Conditions that increase the risk of bleeding
Compatibility	**Fluids:** Sodium Chloride 0.9%, Glucose 5% Refer to KEMH Neonatal Medication Guideline: Y-Site IV Compatibility in Neonates
Incompatibility	Fat Emulsion
Interactions	Sildenafil , Ciprofloxacin, Indometacin, Lipids with Vitamins
Side Effects	**Common:** bleeding, bruising and pain at injection site, reversible thrombocytopaenia, hyperkalaemia
	Infrequent: Transient liver aminotransferases elevation, heparin-induced thrombocytopenia
	Rare: Skin necrosis, urticaria, anaphylaxis

Monitoring	**Treatment of Thromboembolic Disorders** Follow platelet counts every 2 to 3 days. Assess for signs of bleeding and thrombosis. When treating thromboses, maintain an Anti-Xa level of **0.3 to 0.7 units/mL.** Anti-Xa levels should be used to monitor heparin therapeutic activity in patients less than 1 year, as aPTT levels may be inaccurate in this patient group. **Check Anti-Xa after 6 hours and refer to the dose adjustment table for recommendations.** If no change to dose – check Anti-Xa every 24 hours. **See Dose Adjustment for more information**
Storage	Store ampoules at room temperature, below 25°C

INTRAVENOUS

Maintenance of Patency of Peripheral and Central Venous Catheters

Presentation	**Ampoule:** 1000 units/mL
Dosage	**0.5 units/mL** in compatible fluid
Preparation	***Use 50 mL syringes provided by CIVAS if appropriate***
	IV Infusion: Add prescribed number of units of heparin to diluent so the final concentration equals 0.5 units/mL
	Example for 100 mL: 100 mL x 0.5 units/mL = 50 units of heparin to be added to 100 mL of fluid
Administration	Infuse at the prescribed rate

INTRAVENOUS

Treatment of Thromboembolic Disorders

Presentation **Ampoule:** 1000 units/mL

Dosage

CGA	Bolus Dose	Maintenance Dose
All	Not routinely recommended, discuss with PCH haematology if loading dose required	28 units/kg/hour

Dosage information continues on the next page →

INTRAVENOUS

Dose Adjustment

Dose adjustment:

- See **monitoring** for more information
- **Check Anti-Xa after 6 hours and adjust as per table below if required**
- If no change to dose – check Anti-Xa every 24 hours

Anti-Xa Assay (unit/mL)	Heparin Dose Adjustment (unit/kg/hour)
Less than 0.3	Increase infusion by 5 units/kg/hour. Check Anti-Xa again in 6 hours.
0.3 – 0.7	Continue current dose
0.71 – 1	Decrease infusion by 2 units/kg/hour. Check Anti-Xa again in 6 hours.
Greater than 1	Withhold dose and seek advice from PCH haematology

Protamine Dosage

Management of Heparin Toxicity

- Cease heparin immediately.
- Protamine may be used to reverse the effects of heparin.
- Calculate dose required based on the estimated amount of heparin remaining in plasma at the time that reversal is indicated.

Refer to table below for dosing recommendation.

Do not exceed 5 mg/minute, (Maximum dose 50 mg)

Time Since last Heparin Dose (Minutes)	Protamine Dose
Less than 30 minutes	1 mg per 100 units heparin received
30 to 60 minutes	0.5 to 0.75 mg per 100 units heparin received
60 to 120 minutes	0.375 to 0.5 mg per 100 units heparin received
Greater than 120 minutes	0.25 to 0.375 mg per 100 units heparin received

Preparation

IV infusion:
To prepare an appropriate concentration for infusion at 1mL/hr:
Weight (kg) x desired rate (units/kg/hr) x volume of solution (mL)

Example:
To prepare a 50mL syringe for a baby weighing 2.5 kg requiring 20 units/kg/hr to infuse at 1 mL/hr

2.5 kg x 20 units/kg/hour x 50 mL
= 2500 units in 50 mL
= 50 units/mL

= 20 units/kg/hour = 1 mL/hour

Administration

Infuse via syringe driver at a rate of 1 mL/hour

- If giving a bolus dose it should be infused over 10 to 30 minutes

Related Policies, Procedures, and Guidelines

HDWA Mandatory Policies:

MP 0131/20: WA High Risk Medication Policy

Clinical Practice Guidelines:

Neonatology – Thromboembolic Disorders

WNHS Pharmaceutical and Medicines Management Guidelines:

High Risk Medicines

References

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