

GUIDELINES FOR THE USE OF EPOPROSTENOL IN PATIENTS ON CRRT



Epoprostenol is a prostaglandin that is a potent inhibitor of platelet aggregation and is a powerful smooth muscle relaxant producing profound vasodilation. It has a very short half-life and is given by continuous infusion. Epoprostenol is indicated for use in continuous renal replacement therapy when the use of heparin carries a high risk of causing or exacerbating bleeding or when heparin is otherwise contraindicated. (Maintain ACT within 180-220 secs, if contraindication to Heparin exists start Epoprostenol)

Presentation: **Epoprostenol Sodium 500 micrograms** sterile freeze-dried powder + 50ml glycine buffer diluent (pH = 10.5)

Paediatric Dose: Start at 4 nanograms / kg / min (**Range 2-8 ng/kg/min**), Monitor circuit life. If less than 48hrs increase sequentially by 2ng/kg/min to max of 8ng/kg/min. Closely observe for side effects

Administration: Via the syringe driver as a continuous infusion into the anticoagulant line on the CRRT machine commenced at the start of filtration.
If both Heparin and Epoprostenol Sodium combined are needed the Epoprostenol Sodium should be administered via the CRRT machine and the Heparin via a syringe driver attached to the pre-filter access port.

DO NOT BOLUS/FLUSH EPOPROSTENOL THROUGH ANTICOAGULATION LINE

Reconstitution

Always prepare the infusion immediately prior to use, using the diluent provided.

1. Withdraw 10ml of sterile Glycine Buffer Diluent (50ml vial) into a sterile syringe.
2. Use this to reconstitute the Epoprostenol Sodium powder. Shake gently and ensure the contents of the vial are dissolved completely.
3. Draw up all of the dissolved solution back into the syringe and re-inject into the remaining volume of Glycine buffer diluent solution. Mix well.
4. This solution is now referred to as the *concentrated solution* and contains Epoprostenol Sodium 10,000 nanograms(10 mcg) per millilitre.
5. Withdraw the entire contents of the vial (*concentrated solution*) into a 50ml syringe.
6. Using the filter provided push the *concentrated* solution through the filter into a spare 50ml syringe.
7. Draw up your required dose of Epoprostenol and dilute with 0.9% saline to a total volume of 50mls.
8. Label syringe with drug concentration, dose, patient details, date and time.
9. The Infusion needs to be changed every 12hrs (due to stability of the drug).

Administration: As a continuous infusion via a syringe driver into the anticoagulant line on the CRRT machine commenced at the start of filtration.

Stability: Discard any unused solution after 12 hours.

Compatibility: Infusion solution has an approximate pH 10.5
Use a dedicated infusion line.
Incompatible with Dextrose.

Infusion: Each ml of reconstituted drug = 10 mcg
Dilute 12mcg/kg (1.2 mls /kg) of reconstituted Epoprostenol in 0.9% NaCl to make a total of 50 mls

Infusion Rates: 0.5 ml/hr = 2ng/kg/min
1.0 ml/hr = 4ng/kg/min
1.5 ml/hr = 6ng/kg/min
2.0 ml/hr = 8ng/kg/min

Example prescription:

Therefore, for a 15 kg patient:

- Epoprostenol 12mcg/kg = 180mcg (18 mls of reconstituted drug) in a total volume of 50ml 0.9% NaCl
- Initial rate = 1 ml/hr (4ng/kg/min.) Range 0.5-2 ml/hr (2-8 ng/kg/min)

Adverse effects:

- Tachycardia (in doses 5 ng/kg/min and lower)
- Bradycardia (in doses of 5 ng/kg/min and above)
- Hypotension (if excessive consider reducing dose)
- Facial flushing, headache
- Ventilation perfusion mismatching
- Hyperglycaemia

A short half life of 2-3 minutes allows rapid reversal of any unwanted effects.

Any unwanted cardiovascular effects disappear within 30 minutes of discontinuing therapy.

Monitoring required for the duration of the infusion:

- Blood pressure
- Heart rate
- Haematological Parameters(platelet count, INR, ACT)

References

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4. Injectable Medicines Guide assessed online at <http://www.medusa.wales.nhs.uk>
5. Epoprostenol Sodium 0.5mg – Sandoz Summary of Product Characteristics [Last Updated 03.10.2010] on Electronic Medicines Compendium: via www.medicines.org.uk