PROSTAGLANDIN INFUSION

INDICATIONS

To achieve and or to maintain patency of ductus arteriosus and optimise systemic perfusion

DOSAGE

- Ranges from 5–50 nanogram/kg/min (higher doses may be used on recommendation of a tertiary specialist)
- Starting dose depends upon time of diagnosis and condition of baby:
- antenatal diagnosis of duct dependent lesion start at 5 nanogram/kg/min
- well but cyanosed baby with normal pH start at 5-10 nanogram/kg/min
- well baby with poorly palpable pulses but normal pH start at 10-15 nanogram/kg/min
- acidotic or unwell baby with suspected duct dependent lesion start at 50 nanogram/kg/min
- If not achieving desired response at the lower dose increase dose according to formulary Increase by 5 nanogram/kg/ minute to maximum of 100 nanogram/kg/minute under direction from specialist cardiac centre

Desired response

- Suspected left-sided obstruction:
- aim for palpable pulses, normal pH and lactate <2 mmol/L
- Suspected right-sided obstruction:
- aim for SpO₂ 75–85% and lactate <2 mmol/L
- Suspected or known transposition of the great arteries (TGA):
- aim for SpO₂ >75% and lactate <2 mmol/L
- urgently liaise with neonatal consultant, cardiologist and KIDS NTS team
- monitor for side effects

PREPARATIONS

Dinoprostone infusion

- Dinoprostone (prostaglandin E₂) is the recommended prostaglandin*
- make a solution of 500 microgram in 500 mL by adding 0.5 mL of dinoprostone 1 mg in 1 mL to a 500 mL bag of suitable diluent (glucose 5% or 10%, or sodium chloride 0.45% or 0.9%)
- transfer 50 mL of this solution into a 50 mL Luer lock syringe and label
- discard the 500 mL bag immediately into clinical waste single patient and single dose use only
- infusion rate: 0.3 mL/kg/hr = 5 nanogram/kg/min delivered continuously (short half-life)
- Stability:
- syringe stable for 24 hr, after which fresh solution must be made
- Administration:
- infuse dinoprostone via separate line
- ensure 2 working points of IV access at all times
- infusions can be given via long line or peripherally
- extravasation can cause necrosis use central access if available
- umbilical venous line can be used, but only if all other points of access have been exhausted [cardiac unit may need umbilical venous catheterisation (UVC)]
- Flush:
- sodium chloride 0.9% at same rate as infusion

*If dinoprostone IV not available, use alprostadil (prostaglandin E_1) IV as alternative (see **Neonatal**

Formulary)

Oral dinoprostone (see Neonatal Formulary)

- Used temporarily on very rare occasions when IV access is extremely difficult
- Discuss with cardiac centre before using
- Use dinoprostone injection orally
- May not be as effective as prostaglandin IV

SIDE EFFECTS

Common

- Apnoea tends to occur in first hour after starting prostaglandin or when dose increased. Consider intubation and ventilation if unwell or has recurrent apnoeas, but do not reduce infusion dose (see Intubation guideline)
- Hypotension due to systemic vasodilatation. Consider sodium chloride 0.9% 10 mL/kg bolus
- Fever
- Tachycardia
- Hypoglycaemia

Uncommon

- Hypothermia
- Bradycardia
- Convulsions
- Cardiac arrest
- Diarrhoea
- Disseminated intravascular coagulation (DIC)
- Gastric outlet obstruction
- Cortical hyperostosis
- Gastric hyperplasia (prolonged use)

MONITOR

- Heart rate
- Blood pressure
- Respiratory rate
- Temperature
- Oxygen saturations
- Blood gases
- Blood glucose and lactate

TRANSFER OF BABY RECEIVING PROSTAGLANDIN INFUSION

- Contact local retrieval team for transport of baby to cardiac centre (e.g. for Birmingham Children's Hospital contact KIDS NTS team on 0300 200 1100)
- Keep baby nil-by-mouth for transfer
- In a well baby on prostaglandin ≤10 nanogram/kg/min, risk of apnoea is low