IBUPROFEN

Indication	• Treatment of haemodynamically significant patent ductus arteriosus (PDA) in preterm newborn babies[1-3]

ORAL

Presentation

- Oral solution 100 mg in 5 mL
- Three doses at 24-hour intervals[1-3]

Dosage

Dose number	Dose (mg/kg)	Frequency
1	10 mg/kg	Stat
2	5 mg/kg	24 hours after dose 1
3	5 mg/kg	24 hours after dose 2

Dosage (higher dose regimen)

- Three doses[4] at 24-hour intervals (prescribed at consultant discretion)

Dose number	Dose (mg/kg)	Frequency
1	20 mg/kg	Stat
2	10 mg/kg	24 hours after dose 1
3	10 mg/kg	24 hours after dose 2

Preparation

- Shake well
- Draw up prescribed dose into enteral/oral syringe

Administration

- Oral/OGT/NGT with feeds

INTRAVENOUS

Presentation

- Vial | 800 mg in 8 mL

Dosage

- Three doses at 24-hour intervals[1-3]

Dose number	Dose	Frequency
1	10 mg/kg	Stat
2	5 mg/kg	24 hours after dose 1
3	5 mg/kg	24 hours after dose 2

Preparation (Step1)

- Draw up 100 mg (1 mL) and make up to 25 mL total volume with 0.9% sodium chloride or 5% glucose
  - o *Concentration now equal to 4 mg/mL*[5]
- Follow preparation Step 2 according to required dose
  - o Example: for a 2 kg baby prescribed 5 mg/kg the required dose is 10 mg

Preparation (Step 2)

- Required dose is less than 5 mg
  - o Draw up 3 mL of the 4 mg/mL solution prepared at Step 1
  - o Attach infusion line and reduce syringe volume to required dose volume
- Required dose is 5–10 mg
  - o Draw up 5 mL of the 4 mg/mL solution prepared at Step 1
  - o Attach infusion line and reduce syringe volume to required dose volume
- Required dose is more than 10 mg
  - o Draw up 10 mL of the 4 mg/mL solution prepared at Step 1
  - o Attach infusion line and reduce syringe volume to required dose volume

Administration

- *Do not administer via CVL*
- IV infusion via syringe driver pump over 30 minutes[1,5]
  - o On completion, disconnect syringe and infusion line
  - o Flush access port at same rate as infusion

Special considerations	• Not recommended for PDA prophylaxis due to risks associated with NSAIDs and the high rate of spontaneous PDA closure[6] • Oral dosage: higher dose regimen at consultant discretion • Contraindications o Active bleeding (intracranial or gastro-intestinal)[1], coagulation defects[1], ductal-dependent congenital heart disease, NEC[1], life-threatening infection[1]; marked unconjugated hyperbilirubinaemia[1], pulmonary hypertension[1], thrombocytopenia[1] • At second or third dose o If urinary output less than 0.6 mL/kg/hour, withhold until renal function normalises • Repeat doses o If PDA does not close within 48 hours of last dose, or if re-opens, a second course of three doses may be given at consultant discretion[2]
Monitoring	• Prior to administration: echocardiogram to detect PDA and exclude pulmonary hypertension and duct dependant cardiac lesions[5] • BP[1], urine output[2], for signs of GI bleeding[3], • Renal[1] and hepatic function, coagulation parameters[1] • Extravasation risk
Compatibility	• Fluids o 5% glucose[7], 0.9% sodium chloride[7] • Y-site[7] o No information[7]. Do not mix with other drugs
Incompatibility	• Fluids o Parenteral nutrition • Drugs o No information[7]. Do not mix with other drugs
Interactions	• Anticoagulants, antiplatelets, corticosteroids: may increase risk of GI bleeding[8] • Aminoglycosides: may decrease clearance—monitor serum levels of aminoglycosides[8] • Diuretics: may have reduced effect[8] • Cardiac glycosides, ACE-inhibitors, quinolone antibiotics, zidovudine[8]
Stability	• Vial o Store below 25° C[7]
Side effects	• Blood pathology: thrombocytopenia[3], neutropenia[3], increased total serum bilirubin requiring phototherapy and/or a longer duration of phototherapy[1] • Nervous system: IVH[3], PVL[3] • Respiratory: pulmonary hypertension reported (with oral)[1] • Digestive: GI haemorrhage[1], intestinal perforation[1] • Genitourinary: oliguria, fluid retention[3], renal impairment[3] • Other: may mask signs of infection[3]
Actions	• Non-steroidal anti-inflammatory with analgesic and antipyretic activity • Inhibits prostaglandin synthesis by decreasing activity of the enzyme cyclo-oxygenase, which results in decreased formation of prostaglandin precursors[2]
Abbreviations	BP: blood pressure, GI: gastrointestinal, IVH: intraventricular haemorrhage, OGT: oral gastric tube, NGT: nasogastric tube, NSAID: non-steroidal anti-inflammatory drug, PDA: patent ductus arteriosus, PVL: periventricular leukomalacia.
Keywords	NSAID, non-steroidal anti-inflammatory drug, ibuprofen, PDA, patent ductus arteriosus, nurofen

The Queensland Clinical Guideline *Neonatal Medicines* is integral to and should be read in conjunction with this monograph. Refer to the disclaimer. Destroy all printed copies of this monograph after use.

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Document history

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