Phenobarbital (Phenobarbitone) 2020

Newborn use only

<table>
<tr><td>Alert</td><td>S4 – High risk medicine.
Phenobarbital is reported in mg/L. To convert to micromol/L, multiply by 4.306.</td></tr>
<tr><td>Indication</td><td>1. Treatment of neonatal seizures.
2. Initial treatment of non-opioid neonatal abstinence syndrome (NAS).
3. Add-on treatment of opioid NAS uncontrolled by morphine at maximum dose (if 3 consecutive NAS scores average ≥ 8 or 2 consecutive NAS scores average ≥12).
4. Treatment of hyperbilirubinaemia (unclear role).
5. Treatment of cholestasis (unclear role).
6. Preparation for liver scintigraphy (unclear role).</td></tr>
<tr><td>Action</td><td>Enhances inhibitory neurotransmission via activation of GABA receptor.</td></tr>
<tr><td>Drug type</td><td>Anticonvulsant. Sedative.</td></tr>
<tr><td>Trade name</td><td>Fawns & McAllan Phenobarbitone Sodium Solution for injection; Phenobarbitone (Aspen) Solution for injection; Phenobarbitone Aspen Tablets; Phenobarbitone Elixir</td></tr>
<tr><td>Presentation</td><td>IV: 200 mg/mL ampoule (contains 10% alcohol and 67.8% propylene glycol)
Oral: 15 mg/5 mL oral liquid (contains 9.6% alcohol); 10 mg/mL and 9mg/mL alcohol free liquid can be manufactured by local pharmacy; 30 mg tablets.</td></tr>
<tr><td>Dose</td><td>IV
Loading dose 20 mg/kg/dose infusing with a maximum infusion rate of 1 mg/kg/minute.
Additional loading doses 10 mg/kg may be administered at 30 minute intervals if necessary with a maximum cumulative loading dose of 40 mg/kg.
Maintenance dose: 4 mg/kg/dose (3−5 mg/kg/dose) every 24 hours.
<table>
<tr><td>Indication</td><td>Loading dose</td><td>Maintenance dose after 24hours of loading dose</td></tr>
<tr><td>Anticonvulsant</td><td>20 mg/kg/dose
Additional 10mg/kg/doses to a maximum cumulative of 40mg/kg</td><td>3−5mg/kg every 24 hours and titrate as per seizure control and therapeutic concentrations.</td></tr>
<tr><td>NAS</td><td>15 mg/kg</td><td>5 mg/kg/day in 1−2 divided doses and titrate to NAS score.</td></tr>
<tr><td>Jaundice</td><td>-</td><td>5 mg/kg every 24 hours</td></tr>
<tr><td>Liver scintigraphy[7]</td><td>-</td><td>5 mg/kg/day in 2 divided doses for 5 days prior to scan</td></tr>
</table></td></tr>
<tr><td>Dose adjustment</td><td>To be updated.</td></tr>
<tr><td>Maximum dose</td><td></td></tr>
<tr><td>Total cumulative dose</td><td></td></tr>
<tr><td>Route</td><td>IV and oral</td></tr>
<tr><td>Preparation</td><td>IV: Draw up 1 mL (200 mg of Phenobarbital) and add 9 mL water for injection to make final volume of 10 mL with a final concentration of 20 mg/mL.
Oral elixir or liquid: Draw up prescribed dose.
Oral tablet: Pregnant staff are not to crush or disperse tablets. Crush and dissolve a 30 mg tablet in 3.75 ml of water for injection to make a final concentration of 8 mg/mL solution. Give prescribed amount, discard unused portion.</td></tr>
<tr><td>Administration</td><td>IV:
Loading dose: Infuse over 20 minutes with a maximum infusion rate 1 mg/kg/minute using a light safe extension set.
Maintenance dose: Bolus over 5 minutes.
Oral:
Give immediately before or with feeds to minimise GI irritation.</td></tr>
<tr><td>Monitoring</td><td>Serum concentrations for seizure control and therapeutic hypothermia:
24 hours after starting phenobarbital. Serum target: 15−40 mg/L (65-172 micromol/L). Consider repeating concentrations 1 week after the commencement and subsequent concentrations as per clinical need.
Consider liver function tests.</td></tr>
<tr><td>Contraindications</td><td>Hypersensitivity to phenobarbital or any ingredients. Any forms of acute porphyria.</td></tr>
<tr><td>Precautions</td><td>Use with caution in renal or hepatic impairment.</td></tr>
</table>

	Dependence may develop with prolonged use – consider weaning instead of abrupt withdrawal (Refer to special comments section). Therapeutic hypothermia may increase the serum concentrations of phenobarbital
Drug interactions	Morphine, fentanyl, midazolam and other CNS depressants may have an additive effect with phenobarbital in causing respiratory depression. Consider starting phenobarbital at the lower end of the dose range in these patients. Blood concentrations of digoxin, metronidazole, corticosteroids (e.g. betamethasone, dexamethasone), vitamin D, and beta-blockers (e.g. propranolol, sotalol) may be reduced if administered concurrently with phenobarbital. Concurrent administration of phenytoin with phenobarbital has variable effects on serum concentrations of either drug. Serum concentrations should be monitored for both drugs.
Adverse reactions	Drowsiness, lethargy - sucking reflex may be impaired and feeding may be poor. Respiratory depression, apnoea. Hypotension, laryngospasm, bronchospasm, apnoea - if IV administration is too rapid. Phlebitis, tissue necrosis if extravasation occurs.GI intolerance. Physical dependence and tolerance. May occur with prolonged use: Folate deficiency, hepatitis, hypocalcaemia.
Compatibility	Fluids: Sodium chloride 0.45%, sodium chloride 0.9%, glucose 5%, glucose 10%. Y-site: Amino acid solutions. Amikacin, atropine, calcium chloride, fentanyl, furosemide, magnesium sulfate, milrinone, phenytoin, piperacillin/tazobactam.
Incompatibility	Fluids: Lipid emulsions. Y-site: Adrenaline (epinephrine) hydrochloride, aminophylline, atracurium, benzylpenicillin, buprenorphine, caspofungin, cefotaxime, cefoxitin, chlorpromazine, ciclosporin, dobutamine, dolasetron, ephedrine, erythromycin, esmolol, haloperidol lactate, hydralazine, hydrocortisone sodium succinate, hydromorphone, ketamine, lidocaine (lignocaine), midazolam, mycophenolate mofetil, noradrenaline (norepinephrine), ondansetron, pentamidine, pethidine, phentolamine, prochlorperazine mesilate, promethazine, protamine, ranitidine, suxamethonium, verapamil.
Stability	Use diluted/opened solution as soon as possible.
Storage	Protect from light. Store below 25°C. Schedule 4 Appendix D (S4D) medication.
Excipients	
Special comments	Elimination half-life: In infants 28-41 weeks gestation: Half-life of the drug was estimated (mean+SD) to be 114-2 ± 43.0 h, 73.19 ± 24.17 h and 41.23 ± 13.95 h in patients 1 - 10, 11 - 30 and 31 - 70 days old, respectively; neonates with perinatal asphyxia undergoing hypothermia 173.9±62.5 hours. Converting from mass units to SI units: 1 mg/L = 4.306 micromol/L. The general taper recommended for phenobarbital is 10-25% of the original dose every month. A faster taper is recommended for patients on therapy for less than 1 month[18]
Evidence	Refer to full version.
Practice points	Refer to full version.
References	Refer to full version.

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Original 1.0	21/06/2016
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