# GABAPENTIN

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| **Trade Name** | Neurontin<br>Arrow-Gabapentin® (Teva Pharma)<br>Apo-Gabapentin® (Apotex Pharmaceutical) |
| **Class** | GABA analogue, anticonvulsant |
| **Mechanism of Action** | Exact mechanism unknown.<br>Gabapentin is structurally related to the neurotransmitter GABA, however, gabapentin and its metabolites do not bind to GABAA or GABAB receptors, or influence the degradation or uptake of GABA. It has been suggested the mechanism of action may be by gabapentin preventing thrombospondin from binding to alpha 2 delta-1, a receptor involved in excitatory synapse formation. |
| **Indications** | Chronic pain<br>Neurological irritability<br>Visceral hyperalgesia |
| **Contraindications** | Hypersensitivity to gabapentin |
| **Precautions** | Caution in renal impairment<br>Caution in compromised respiratory function, respiratory or neurological disease.<br>Caution in concomitant use of CNS depressants.<br>Gabapentin has been associated with a rare risk of severe respiratory depression even without concomitant opioid medicines. Dose adjustments may be appropriate in these patients. |
| **Supplied As** | **Oral:** Gabapentin 100mg/mL (prepared by pharmacy) |
| **Dosage** | **Start only on the advice of Paediatric Neurology**<br>**Day 1** - 2.5 mg/kg/dose once a day<br>**Day 2** – 2.5 mg/kg/dose 12 hourly<br>**Day 3** – 2.5 mg/kg/dose 8 hourly<br>**Day 5-7** – 5mg/kg/dose 8 hourly if effect not yet achieved<br>**Reduce dose by ≥ 50% with renal impairment or oversedation**<br>**Maximum dose** 30mg/kg/DAY are recommended<br>If used for more than a week wean the dose over 2-4 weeks eg: wean by 5-10mg/kg/day weekly (ANMF consensus) |
| **Guardrails** | N/A |
| **Interval** | 8 hourly after initial dose introduction |
| **Administration** | May be administered without regard to meals<br>Administration with feeds may decrease adverse GI effects |

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| **Compatible With** | N/A |
| **Incompatible With** | N/A |
| **Interactions** | Gaviscon: minimally decreases gabapentin. Give 2 hours apart.<br>Morphine: may have additive effect on respiratory depression |
| **Monitoring** | Pain score, tone, heart rate, respiratory rate |
| **Stability** | Stable for 30 days at room temperature.<br>There is a risk of precipitation if the solution is stored in a refrigerator. |
| **Storage** | Room temperature ≤ 25° |
| **Adverse Reactions** | Nystagmus (appears to resolve upon discontinuation)<br>Bradycardia, gastrointestinal intolerance, sedation |
| **Metabolism** | Not metabolised. Majority excreted in urine via glomerular filtration as unchanged drug (up to 80%)<br>Half-life elimination is around 4.7 hours. |
| **Comments** | Gabapentin is highly lipophilic and penetrates well through the blood-brain barrier.<br>Decrease dose if there is renal impairment.<br>Review and consider wean / decrease of concomitant opioid analgesia and sedative medications (e.g benzodiazepines) after initiation of gabapentin.<br>Consider decreasing dose if bradycardia is noted<br>Avoid abrupt withdrawal of gabapentin. Where possible, taper over at least 1 week, preferably longer. Abrupt discontinuation may lead to autonomic withdrawal symptoms (eg episodic tachycardia, emesis, increased irritability)<br>Gabapentin suspension is subsidised in community. |
| **References** | 1. Gretchen L. Sacha, Maria G. Foreman, Kay Kyllonen, and Ricardo J. Rodriguez. The Use of Gabapentin for Pain and Agitation in Neonates and Infants in a Neonatal ICU. The Journal of Pediatric Pharmacology and Therapeutics: May-June 2017, Vol. 22, No. 3, pp. 207-211<br>2. Behm M.O and Kearns G.L (2001). Treatment of Pain with Gabapentin in a Neonate. American Academy of Paediatrics: August 2001, Vol. 108, No. 2, pp. 482-484<br>3. Micromedex® (electronic version). IBM Watson Health, Greenwood Village, Colorado, USA.<br>4. Taketomo et al eds. Paediatric and Neonatal Dosage Handbook 2012/2013<br>5. Carrasco M, Rao S, Bearer C, and Sundararajan S. Neonatal Gabapentin Withdrawal Syndrome. Pediatric Neurology: 2015, Vol 53, pp. 445-447.<br>6. Haney A, Garner S and Cox T. Gabapentin Therapy for Pain an Irritability in a Neurologically Impaired Infant. Pharmacotherapy 2009; 29(8): pp. 997-1001.<br>7. Edwards L, DeMeo S, Hornick C, Cotten C, Smith B, Pizoli C, Hauer J, and Bidegain M. Gabapentin Use in the Neonatal Intensive Care Unit. The Journal of Pediatrics 2016; 169: pp. 310-312.<br>8. Asaro J, Robinson C, Levy P. Visceral Hyperalgesia: When to Consider Gabapentin Use in Neonates- Case Study and review. Child Neurology Open: 2017, Vol. 4: pp. 1-6.<br>9. Neofax in www.micromedexsolutions.com<br>10. Burnsed JC et al. Gabapentin for pain, movement dis-orders and irritability in neonates and infants. *Developmenal Medicine and Child Neurology 2020, 62: 386-389*<br>11. www.anmfonline.org |

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| **Updated By** | A Lynn, B Robertshawe, C Vivian September 2024 |