

LEVITERACETAM

This drug must be guardrailed

Trade Name	Keppra, Rex-Levetiracetam Levetiracetam –AFT (AFT Pharmaceuticals)										
Class	Anticonvulsant										
Mechanism of Action	Exact mechanism is unknown. Some studies suggest inhibition of voltage dependant N-type calcium channels; blockade of GABA-ergic inhibitory transmission, reversal of the inhibition of glycine currents; reduction of delayed rectifier potassium current; and/or binding to synaptic proteins which modulate neurotransmitters										
Indications	Adjunctive therapy for seizures refractory to other anticonvulsants										
Contraindications	Hypersensitivity to levetiracetam or other components										
Precautions	Primarily excreted unchanged in the urine (66%). May require dose reduction in renal impairment										
Supplied As	Oral: 100mg/ml suspension IV: 500mg in 5mL vial										
Dilution	Oral: No dilution required for oral preparation IV: See below and dilute to 5mg/mL <table border="1"> <thead> <tr> <th>Drug</th> <th>0.9% Saline</th> <th>Final Volume</th> <th>Concentration</th> </tr> </thead> <tbody> <tr> <td>2.5mL (250mg)</td> <td>47.5mL</td> <td>50mL</td> <td>5mg/mL</td> </tr> </tbody> </table> This volume is needed for bigger babies having an iv load			Drug	0.9% Saline	Final Volume	Concentration	2.5mL (250mg)	47.5mL	50mL	5mg/mL
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2.5mL (250mg)	47.5mL	50mL	5mg/mL								
Dosage *Must chart guardrail and use Alaris pump for IV infusions*	Dosing will be on the Paediatric Neurologists recommendations Loading dose: 40mg/kg Maintenance dose: Start at 10mg/kg/dose 12 hrs after the load and increase as recommended by Paediatric Neurologists up to 30mg/kg/dose Maximum reported dose is 60mg/kg/day										
Guardrail	Concentration: 5mg/mL Soft Alert Min: 10 mg/kg/hr Hard Alert Max: 120 mg/kg/hr Soft Alert Max: 60 mg/kg/hr Default Setting: 20 mg/kg/hr										
Interval	12 or 24 hourly										
Administration	Oral IV infusion over 30 minutes										

Compatible With	<p>Solutions: sodium chloride 0.9%*, dextrose 5%*, lactated ringer's solution</p> <p>Y-site: diazepam, lorazepam, sodium valproate</p> <p>*compatibility with dextrose 10% and sodium chloride 0.45% have not been tested and so cannot be recommended</p>
Incompatible With	No data available
Interactions	<p>Concurrent use of phenytoin or carbamazepine with levetiracetam may reduce levetiracetam concentrations.</p> <p>Probenecid may increase levetiracetam concentrations</p> <p>Levetiracetam has a depressant effect on the central nervous system and may cause additive CNS depression when used in combination with other sedating medications such as morphine</p>
Monitoring	<p>Seizure frequency, duration and severity; full blood count. Serum trough levels are not routinely monitored, although may be useful when determining the magnitude of dosing adjustments. Therapeutic concentrations are approximately 10 to 40 microg/L</p>
Stability	<p>Oral suspension: 6 months or manufacturers expiry whichever is shorter</p> <p>Discard remaining solution in iv vial after use</p> <p>Use a new vial for each dose</p>
Storage	Store at room temperature
Adverse Reactions	Sedation, irritability, diarrhoea, weight changes, reduced appetite, drowsiness, vomiting, tiredness. Rarely causes Stevens-Johnsons Syndrome or toxic epidermal necrolysis.
Metabolism	24% of dose is metabolised by enzymatic hydrolysis of the acetamide group. Metabolites are inactive and renally cleared
Comments	<p>Avoid abrupt withdrawal.</p> <p>Oral solution is fully subsidised on discharge</p> <p>IV preparation is available (section 29). Please consult pharmacist if this is required.</p>
References	<ol style="list-style-type: none"> 1. Taketomo <i>et al</i>/ eds. Paediatric and Neonatal Dosage Handbook 2012/2013. 2. BNF for Children 2011/2012 3. Neofax www.micromedexsolutions.com 4. www.anmfonline.org
Updated By	<p>A Lynn, B Robertshawe, J Lee, C Dickson April 2014</p> <p>A Lynn, B Robertshawe Sept 2018 (funded oral solution)</p> <p>A Lynn B Robertshawe Oct 2021 (routine review – load increased as per neurology)</p>