



Drug Therapy Protocols: Levetiracetam

Policy code	DTP_LEV_0924
Date	18 September, 2024
Purpose	To ensure a consistent procedural approach to levetiracetam administration.
Scope	Applies to all Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless specifically mentioned.
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Levetiracetam

18 September, 2024

Drug class^[1,2]

Anticonvulsant

Pharmacology

Levetiracetam is a second-generation non-sedating anticonvulsant, the precise mechanism is not fully understood.^[1,2]

Metabolism

Non-hepatic hydrolysis and hydroxylation. Excreted by the kidneys.^[1]

Indications

- Convulsive Status Epilepticus continuing > 20 minutes post first midazolam administration

Contraindications

Absolute contraindications:

- Allergy AND/OR Adverse Drug Reaction
- Patient less than 1 year of age

Relative contraindications (*QAS Clinical Consultation & Advice Line* consultation and approval required):

- Toxicology related seizures

Precautions

- Nil

Side effects^[2]

- Drowsiness
- Dizziness
- Headache
- Fatigue^[3]

Presentation

- Vial, 500 mg/5 mL *levetiracetam*

Onset (IV)

Rapid
(peak 0.5–2 hours)

Duration (IV)

1–2 days

Half-life

6–8 hours

Schedule

- S₄ (Restricted drugs).

Routes of administration

Intravenous infusion (IV INF) CCP

Intraosseous infusion (IO INF) CCP

Intraosseous injection (IO INJ) CCP

Special notes

- All cannulae and IV lines must be flushed thoroughly with sodium chloride 0.9% following each medication administration.
- If the patient is currently on anticonvulsant therapy, the following administration protocols continue to be authorised.
- All parenteral medications must be prepared in an aseptic manner. The rubber stopper of all vials must be disinfected with an appropriate antimicrobial swab and allowed to dry prior to piercing.
- Following DTP updates, the Perfusor® Space medication library may be temporarily outdated due to logistical delays with reprogramming devices. If using a syringe driver that has not been updated, clinicians should administer the required dose at the required flow (mL/hr) by manually calculating the correct infusion rate. (see *CPP: Drug & fluid administration / Syringe infusion pump – Perfusor® Space*).

Adult dosages^[1-6]

Convulsive Status Epilepticus continuing > 20 minutes post first midazolam administration

IV
INF

60 mg/kg (rounded up to the nearest 5 kg) over 5–10 minutes.

Single dose only. Total maximum dose 4500 mg.

Infusion preparation: Prepare the required dose of levetiracetam in an appropriately sized syringe. Inject the prepared dose into a 100 mL bag of sodium chloride 0.9%. Ensure bag is appropriately labelled. Administer over 5–10 minutes.

IV/IO
INF

60 mg/kg (rounded up to the nearest 5 kg) over 10 minutes.

Single dose only (over 2 syringes). Total maximum dose 4500 mg.

*Infusion preparation: Calculate the required dose of levetiracetam and evenly distribute in 2 x 50 mL syringes. Dilute each syringe with sodium chloride 0.9% to make up a volume of 50 mL (in a 50 mL syringe). Ensure each syringe is appropriately labelled. Administer infusion via the Perfusor® Space Medication Library (Levetiracetam-1 of 2 **OR** Levetiracetam-2 of 2).*

Paediatric dosages^[1-5,7]

Convulsive Status Epilepticus continuing > 20 minutes post first midazolam administration

CCP

IV/IO
INF

60 mg/kg (rounded up to the nearest 5 kg)
over 5–10 minutes.
Single dose only.
Total maximum dose 4500 mg.

*Infusion preparation:**For doses of levetiracetam less than or equal to 2500 mg:*

Prepare the required dose of levetiracetam in a 50 mL syringe.

Dilute syringe with sodium chloride 0.9% to make up a volume of 50 mL (in a 50 mL syringe). Ensure the syringe is appropriately labelled. Administer infusion via the Perfusor® Space Medication Library (Levetiracetam-1) over 5 minutes.

For doses of levetiracetam more than 2500 mg:

Evenly distribute the required dose in 2 x 50 mL syringes.

Dilute to 50 mL in each syringe and infuse as above.