Drug Therapy Protocols: Levetiracetam

Policy code	DTP_LEV_0722
Date	July, 2022
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.
Source of funding	Internal – 100%
Author	Clinical Quality & Patient Safety Unit, QAS
Review date	July, 2024
Information security	UNCLASSIFIED – Queensland Government Information Security Classification Framework.
URL	https://ambulance.qld.gov.au/clinical.html

While the QAS has attempted to contact all copyright owners, this has not always been possible. The QAS would welcome notification from any copyright holder who has been omitted or incorrectly acknowledged.

All feedback and suggestions are welcome. Please forward to: Clinical.Guidelines@ambulance.qld.gov.au

Disclaimer

The Digital Clinical Practice Manual is expressly intended for use by appropriately qualified QAS clinicians when performing duties and delivering ambulance services for, and on behalf of, the QAS.

The QAS disclaims, to the maximum extent permitted by law, all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs incurred for any reason associated with the use of this manual, including the materials within or referred to throughout this document being in any way inaccurate, out of context, incomplete or unavailable.

Levetiracetam

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)	Duration (IV)	Half-life
Rapid (peak 0.5–2 hours)	1–2 days	6–8 hours

Schedule

- S4 (Restricted drugs)

Levetiracetam

Routes of administration

Intravenous infusion (IV INF)	CCP
Intraosseous infusion (IO INF)	CCP
Intravenous injection (IV INJ)	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

CCP	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 (Keppra®) 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.*
CCP	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 (Keppra®) 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	**40 mg/kg (rounded up to the nearest 5 kg)** **Slow push over 5 minutes.** **Single dose only. Total maximum dose 2 g.** ***Syringe preparation:*** *Mix the required dose of levetiracetam (Keppra®) with an equal volume of sodium chloride 0.9% (if required, dilute further with sodium chloride 0.9% to make a minimum volume of 10 mL) in an appropriately sized syringe. Ensure syringe is appropriately labelled. Administer over 5 minutes.*

UNCONTROLLED WHEN PRINTED
UNCONTROLLED WHEN PRINTED