MONOGRAPH

Cefepime Monograph - Paediatric

Scope (Staff):	Medical, Pharmacy, Nursing
Scope (Area):	All Clinical Areas

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this DISCLAIMER

QUICKLINKS

Dosage/Dosage Adjustments	Administration	Compatibility	Monitoring

DRUG CLASS

Broad spectrum cephalosporin antibiotic.[1-3]

INDICATIONS AND RESTRICTIONS

- Cefepime is active against most enteric Gram-negative bacilli, including *Pseudomonas aeruginosa*.[3, 4]

IV: Monitored (orange) antibiotic

As per indications stipulated in Formulary One. For any other use, phone approval must be obtained from ChAMP before prescribing as per the Antimicrobial Stewardship Policy.

CONTRAINDICATIONS

- Hypersensitivity to cefepime, any component of the formulation (including arginine) or a history of high-risk allergy to cephalosporins.[2, 3, 5-9]

PRECAUTIONS

- Cefepime may be prescribed in selected patients with high risk allergy to another Beta-lactam sub-class (e.g. some penicillins, carbapenems) in discussion with immunology.
- In patients with a previous low risk reaction to cefepime or another cephalosporin (delayed rash [>1hr after initial exposure] without mucosal or systemic involvement) the risk of subsequent reaction is low. Re-challenge may be acceptable in discussion with immunology.

- Use with caution in patients with seizure disorders or renal impairment due to increased risk of neurotoxicity.[7, 9]
- Each vial of cefepime contains L-arginine as a buffer.[2, 5]

FORMULATIONS

Listed below are products available at PCH, other formulations may be available, check with pharmacy if required:

- 2 gram powder for injection vial

Imprest location: Formulary One

DOSAGE & DOSAGE ADJUSTMENTS

Neonates: Refer to Neonatal Medication Protocols

IV/IM: Children (>4 weeks to 18 years):

Usual dose: 50 mg/kg/dose (to a maximum of 2 grams) 8 hourly.[1-3, 8, 9]

Dosing for Hospital in the Home (HiTH) – Baxter Elastomeric devices:

Usual dose: 150 mg/kg/**DAY** (to a maximum of 6 grams) infused over 24 hours. Doses must be rounded to the nearest 100 mg.

Minimum dose possible: 120 mg/24 hours.[10]

Dosing in Overweight and Obese Children: Dose based on measured body weight.[11]

Renal impairment:

- eGFR calculator

eGFR	**Recommended dose**[7, 9]
≥ 60 mL/minute/1.73m^2	Normal dose
≥30 to < 60 mL/minute/1.73m^2	50 mg/kg/dose (to a maximum of 2 grams) given 12 hourly
≥10 to < 30 mL/minute/1.73m^2	50 mg/kg/dose (to a maximum of 2 grams) given 24 hourly
<10 mL/minute/1.73m^2	25 to 50 mg/kg/dose (to a maximum of 1 gram) given 24 hourly

Hepatic impairment:

- No dosage adjustments are required in hepatic impairment.[2, 7, 9]

RECONSTITUTION & ADMINISTRATION

IV reconstitution:

- Reconstitute each vial with the exact volume of compatible fluid in the table below to give a 100 mg/mL solution.[5]

Vial size	Powder volume	Reconstitution volume	Final concentration[5]
1 gram	1.3 mL	8.7 mL	100 mg/mL
2 grams	2.6 mL	17.4 mL	100 mg/mL

IV infusion:

- Dilute with compatible fluid to a final concentration of 40 mg/mL or less and infuse over 30 minutes.[5, 6, 9]
- Cefepime may also be given as an extended infusion over 3 hours in critically unwell patients.[5, 9]

IV push:

- Reconstitute to a concentration of 100 mg/mL and give slowly over 3 to 5 minutes.[5, 9]

Continuous infusion:

May be given over 24 hours by continuous (Baxter elastomeric device) infusion. Possible dose range is 120 mg to a maximum of 6 grams over 24 hours. Refer to dosing section above.

IM reconstitution:

- Intravenous is the preferred method of administration for cefepime, especially in the treatment of severe infections.[2, 6]
- Reconstitute each vial with the exact volume of water for injection or lidocaine 1% (10 mg/mL) in the table below for intramuscular injection only.[5]

Vial size	Reconstitution volume[12]	Final concentration
2 grams	6.1 mL	230 mg/mL

IM injection:

- Doses up to 1 gram may be injected into a large muscle mass (ventrogluteal site preferred).[5] Refer to the Intramuscular Injections Guideline for advice on maximum recommended injection volumes for different aged children.

COMPATIBILITY *(LIST IS NOT EXHAUSTIVE)*

Compatible fluids:

- Glucose 5%
- Glucose/sodium chloride combinations
- Sodium chloride 0.9%[5]

Compatible at Y-site:

Compatibilities of IV drugs must be checked when two or more drugs are given concurrently.

MONITORING

- Renal and haematological function should be monitored weekly with prolonged therapy (i.e. longer than 7 days) or high dose treatment.[3, 7]

ADVERSE EFFECTS

Common: diarrhoea, nausea, vomiting, abdominal pain, anaemia, pain and inflammation at injection site, rash, headache, dizziness and *Clostridioides difficile*-associated disease.[3, 6]

Infrequent: anaphylaxis, angioedema.[6]

Rare: neurotoxicity (e.g. confusion, seizures, encephalopathy) increased in high dose and/or renal impairment, constipation, vasodilation, altered taste, paraesthesia, dyspnoea, blood dyscrasias (e.g. neutropenia), thrombocytopenia, bleeding and renal impairment. Immunological reactions (including eosinophilia, drug fever, urticaria, haemolytic anaemia, Stevens-Johnson syndrome, toxic epidermal necrolysis, severe cutaneous adverse reactions (SCARs), interstitial nephritis, arthritis, serum sickness-like syndrome).**[3, 6]**

STORAGE

- Store vials below 25˚C and protect from light.[2, 5, 7, 9]
- Store syringes prepared by Pharmacy Compounding Service (PCS) between 2 and 8˚C and protect from light.[2, 5, 7, 9]

INTERACTIONS

This medication may interact with other medications; consult PCH approved references (e.g. Clinical Pharmacology), a clinical pharmacist or PCH Medicines Information Service on extension 63546 for more information.

Please note: The information contained in this guideline is to assist with the preparation and administration of **cefepime**. Any variations to the doses recommended should be clarified with the prescriber prior to administration

Related CAHS internal policies, procedures and guidelines
Antimicrobial Stewardship Policy
ChAMP Empiric Guidelines and Monographs
KEMH Neonatal Medication Protocols
Identification and Management of Children with Cancer and Low Risk Febrile Neutropenia

References

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