MONOGRAPH

Ceftazidime with avibactam 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

Combination broad-spectrum cephalosporin antibiotic with a beta-lactamase inhibitor.(1)

INDICATIONS AND RESTRICTIONS

IV: Restricted (red) antibiotic

ChAMP approval is required prior to prescription.

Ceftazidime with avibactam is reserved as treatment for proven multi-resistant infection where no other antimicrobials are appropriate.

CONTRAINDICATIONS

- Hypersensitivity to ceftazidime, avibactam, or any component of the formulation or patients with a history of high risk allergy to cephalosporins.(1-5)

PRECAUTIONS

- Use with caution in patients with confirmed aztreonam allergy, as cross-reactivity may occur.(1)
- Ceftazidime with avibactam 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.
- Each 2 gram vial contains approximately 6.37mmol of sodium.(1, 6)

FORMULATIONS

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

- Ceftazidime/ avibactam 2 gram/500 mg vials

Imprest location: Formulary One

DOSAGE & DOSAGE ADJUSTMENTS

All doses are expressed as and should be prescribed as the ceftazidime component

Neonates and children under 3 months old: Not routinely used in this age group. Doses of 30 mg/kg/dose given 8 hourly have been used.[5] Contact Infectious Diseases for advice.

Infants ≥ 3 months to < 6 months:

- 40 mg/kg/dose given 8 hourly [4, 6, 7]

Children and adolescents ≥ 6 months:

- 50 mg/kg/dose (to a maximum of 2 grams ceftazidime component) given 8 hourly.[4, 6, 7]

Dosing in Overweight and Obese Children: Dose based on measured body weight.[8]

Renal impairment:

- eGFR calculator
- **Children < 2 years:**

Consider alternative agents in severe renal impairment. There is insufficient information regarding dosing for patients in this age group with a creatinine clearance of <16 mL/minute/1.73 m^2.[4, 9]

Age	**eGFR** (mL/minute/1.73m^2)	**Dose adjustment**
≥3 to < 6 months	≥50 mL/minute/1.73m^2	No dosage adjustment required.
	31 to 50 mL/minute/1.73m^2	20 mg/kg/dose (to a maximum of 1 gram ceftazidime component) 8 hourly
	16 to 30 mL/minute/1.73m^2	15 mg/kg/dose (to a maximum of 750mg ceftazidime component) 12 hourly
	≤16 mL/minute/1.73m^2	Consider alternative agents
≥6 month to < 2 years	≥50 mL/minute/1.73m^2	No dosage adjustment required.
	31 to 50 mL/minute/1.73m^2	25 mg/kg/dose (to a maximum of 1 gram ceftazidime component) 8 hourly
	16 to 30 mL/minute/1.73m^2	19 mg/kg/dose (to a maximum of 750 mg ceftazidime component) 12 hourly
	≤16 mL/minute/1.73m^2	Consider alternative agents

- **Children and adolescents ≥ 2 years**[6, 9]

eGFR	Dose adjustment
≥50 mL/minute/1.73 m^2	No dosage adjustment required.
31 to 50 mL/minute/1.73 m^2	25 mg/kg/dose (to a maximum of 1 gram ceftazidime component) 8 hourly
16 to 30 mL/minute/1.73 m^2	19 mg/kg/dose (to a maximum of 750 mg ceftazidime component) 12 hourly
6 to 15 mL/minute/1.73 m^2	19 mg/kg/dose (to a maximum of 750 mg ceftazidime component) 24 hourly
≤5 mL/minute/1.73 m^2	19 mg/kg/dose (to a maximum of 750 mg ceftazidime component) 48 hourly

Hepatic impairment:

- No dosage adjustments are required.[4, 6, 9]

RECONSTITUTION & ADMINISTRATION

Reconstitution

- Reconstitute the 2 gram vial with 10 mL of water for injections to create a ceftazidime concentration of 167.3 mg/mL. Once reconstituted, further dilution should occur within 30 minutes.[2, 4, 6]
- Reconstitution may take up to 4 minutes and the manufacturer recommends using an airway needle to relieve pressure from the vial and prevent product loss.[2, 6]
- Powder volume is 1.95 mL[2]

Administration

- Dilute the required dose to a final ceftazidime concentration of 8 to 40 mg/mL and infuse over 2 hours.[2-4, 6, 7, 9]
- Extended infusion times may be optimal for patients with critical infections. Discuss with Infectious Diseases.[5]

COMPATIBILITY *(LIST IS NOT EXHAUSTIVE)*

Compatible fluids:

- Glucose 5%
- Hartmann's
- Sodium chloride 0.9%
- Sodium chloride 0.45% with glucose 2.5%[2-4]

Compatible at Y-site:

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

MONITORING

- Monitor renal, hepatic and haematological function at least weekly throughout therapy in patients on prolonged therapy longer than 10 days. Patients with renal impairment should have more frequent monitoring and assessment for signs of neurotoxicity.[1, 4]

ADVERSE EFFECTS

Common: diarrhoea, nausea, abdominal pain, vomiting, pain and inflammation at the injection site, rash, pruritis, headache, dizziness, allergy, *Clostridioides difficile*-associated disease, thrombocytosis, eosinophilia, leucopenia, thrombocytopenia.[1, 3, 4]

Infrequent: neutropenia, paraesthesia, anaphylactic reaction, angioedema, acute kidney injury, altered taste.[3]

Rare: neurotoxicity (especially with high doses and/or renal impairment), bleeding, renal impairment, blood dyscrasias, jaundice.[1, 4]

STORAGE

- Store vials below 30°C and protect from light.[6]

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 **ceftazidime with avibactam**. Any variations to the doses recommended should be clarified with the prescriber prior to administration

Related CAHS internal policies, procedures and guidelines
Children's Antimicrobial Management Program (health.wa.gov.au)
ChAMP Empiric Guidelines and Monographs
KEMH Neonatal Medication Protocols

References

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