MONOGRAPH

Cefazolin 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

Moderate spectrum cephalosporin.[1-3]

INDICATIONS AND RESTRICTIONS

- Cefazolin is commonly used in surgical prophylaxis.[1, 3]
- Cefazolin is indicated in the treatment of Staphylococcal and Streptococcal infections.[1]

IV: Unrestricted (green) antibiotic

This is not a restricted agent. Follow standard ChAMP guidelines where appropriate.

CONTRAINDICATIONS

- Hypersensitivity to cefazolin or any component of the formulation, or patients with a history of high risk allergy to cephalosporins.[1, 4-7]

PRECAUTIONS

- Cefazolin 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.[8]
- In patients with a previous low risk reaction to cefazolin 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.[1]

PRECAUTIONS

- Dose reduction may be required in renal impairment. Renal dysfunction increases the risk of neurotoxicity with high doses.[1]
- Rapid infusion of high doses can result in seizures, the risk of this is further increased in patients with renal impairment.[1]
- Each 1gram vial contains 48.3 mg (2.1 mmol) of sodium.[1, 9]
- Cefazolin may increase the risk of bleeding due to its effect on clotting factors (impaired vitamin K synthesis), especially in nutritionally deficient patients, those on prolonged treatment or with renal or hepatic impairment.[4, 7]

FORMULATIONS

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

- 1 gram powder for injection vial

Imprest location: Formulary One

DOSAGE & DOSAGE ADJUSTMENTS

Neonates: Refer to Neonatal Medication Protocols

IV (≥ 4 weeks to 18 years):

- **Usual dose:** 25 mg/kg/dose (to a maximum of 2 grams) 8 hourly.[1-3]
- **Severe infections (including bone/joint infections and *Staphylococcus aureus* bacteraemia):** 50 mg/kg/dose (to a maximum of 2 grams) 8 hourly.[1-3, 7] The dose may be increased to 50 mg/kg/dose (to a maximum of 2 grams) 6 hourly in critically unwell patients with septic shock or requiring intensive care support.[3]
- **Surgical prophylaxis:** 30 mg/kg (to a maximum of 2 grams) as a single dose given between 0 and 60 minutes prior to surgical incision. If the surgery is longer than 3 hours, repeat the dose intraoperatively at 3 hours.[2, 3]
- **Traumatic wounds requiring surgical debridement:** 50 mg/kg/dose (to a maximum of 2 grams) as a single dose given between 0 and 60 minutes prior to surgical incision. If the surgery is longer than 3 hours, repeat the dose intraoperatively at 3 hours. Refer to Surgical Prophylaxis – Skin, soft tissue and orthopaedic.

Dosing in Overweight and Obese Children:

- Dose based on measured body weight.[10]
- Patients >120 kg may require a higher dose cap of 3 grams for surgical prophylaxis.[3, 7]

Renal impairment:

- eGFR calculator
- **Note:** For a single dose for surgical prophylaxis, dose adjustment is not required.
- eGFR ≥50 mL/minute/1.73m^2: normal dosing
- eGFR ≥30 to <50 mL/minute/1.73m^2: 100% dose (to a maximum of 2 grams) given 12 hourly
- eGFR ≥10 to <30 mL/minute/1.73m^2: 100% dose (to a maximum of 2 grams) given 24 hourly
- eGFR <10 mL/minute/1.73m^2: 100% dose (to a maximum of 2 grams) given 48 hourly.[4, 7]

Hepatic impairment:

- No dosage adjustment is required in hepatic impairment.[4, 7]

RECONSTITUTION & ADMINISTRATION

Reconstitution:

Intravenous:

- Reconstitute each vial with the volume of water for injection in the table below. Further dilution with a compatible fluid may be required.[9]

Vial strength	Volume of water for injection required[9, 11]	Powder volume	Resulting concentration
500 mg	4.8 mL	0.2 mL	100 mg/mL
1 gram	9.5 mL	0.5 mL	100 mg/mL
2 grams	19 mL	1 mL	100 mg/mL

Intramuscular:

- Reconstitute each vial with the volume of water for injection or lidocaine 0.5% in the table below.[6, 7, 9, 11]

Vial strength	Volume of water for injection or lidocaine 0.5% required[6, 7, 9, 11]	Powder volume	Resulting concentration
500 mg	2 mL	0.2 mL	225 mg/mL
1 gram	2.5 mL	0.5 mL	330 mg/mL
2 grams	5 mL	1 mL	333 mg/mL

Administration:

IV injection:

- Dilute to a final concentration of 100 mg/mL or weaker with water for injection and give via slow intravenous injection over 3 to 5 minutes.[6-9]

IV infusion:

- Dilute to a final concentration of between 5 mg/mL and 20 mg/mL with a compatible fluid and infuse over 10 to 60 minutes.[6-9]

Continuous infusion:

- May be given by continuous infusion over 24 hours via Baxter™ Infusor through Hospital in the Home (HiTH).[9]

Volumes available	Maximum concentration	Minimum concentration	Minimum dose
240 mL or 120 mL	40 mg/mL	5 mg/mL	600 mg/day

Intramuscular Injection:

- Administer via deep injection into a large muscle mass.[6]
- Refer to: Intramuscular (IM) Injections (internal link)

COMPATIBILITY *(LIST IS NOT EXHAUSTIVE)*

Compatible fluids:

- Glucose 5% and 10%
- Glucose/sodium chloride solutions
- Sodium chloride 0.9%
- Hartmann's
- Ringers[9, 11]

Compatible at Y-site:

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

MONITORING

- Renal, hepatic and haematological function should be monitored weekly with prolonged therapy (i.e. longer than 7 days).[1, 4, 5, 7]
- Consider monitoring of prothrombin time in patients with renal or hepatic impairment, poor nutritional state, on long term treatment and those previously stabilised on anticoagulants.[5]

ADVERSE EFFECTS

Common: diarrhoea, nausea, vomiting, abdominal pain, reduced appetite, eosinophilia, leucopenia, pain and inflammation at injection site, rash, headache, dizziness, *Clostridioides difficile*-associated disease.[1, 8]

Infrequent: anaphylactic reaction, angioedema[8]

Rare: neurotoxicity (e.g. confusion, seizures, encephalopathy) particularly with high doses and/or renal impairment, blood dyscrasias (e.g. neutropenia, thrombocytopenia, agranulocytosis), thrombophlebitis, renal impairment, severe cutaneous adverse reactions (SCARs).[1, 8]

STORAGE

- Store the powder for injection vial below 25ºC and protect from light.[6, 9]
- Products prepared by Pharmacy Compounding Service (PCS) and Baxter™ Infusors should be stored between 2ºC and 8ºC.[6, 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 **cefazolin**. 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

References

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