MONOGRAPH

Aciclovir Monograph - Paediatric

Scope (Staff):	Medical, Pharmacy, Nursing,
Scope (Area):	All Clinical Areas (Perth Children's Hospital)

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

⚠ HIGH RISK MEDICINE ⚠

QUICKLINKS

DRUG CLASS

Aciclovir is a guanine analogue.[1]

Aciclovir is a High Risk Medicine.

INDICATIONS AND RESTRICTIONS

- Aciclovir is active against a number of herpes viruses. It is frequently used in the prevention and treatment of Herpes Simplex Virus (HSV) and Varicella-Zoster Virus (VZV) in specific high risk groups. [1-3]

IV: Monitored (orange) antiviral

Use that is consistent with a standard approved indication must be communicated to ChAMP by documenting that indication on all prescriptions (inpatient and outpatient).

- The ChAMP team will review if ongoing therapy is required and/or if the order does not meet ChAMP Standard Indications.
- If use is not for a standard approved indication, phone approval must be obtained from ChAMP before prescribing.

Oral and Topical: Unrestricted (green) antiviral

- Oral and topical aciclovir are not restricted agents. Follow standard ChAMP guidelines where appropriate.

CONTRAINDICATIONS

- Hypersensitivity to aciclovir, valaciclovir or any component of the formulation.[1, 2, 4-6]
- Due to similar chemical structure and possible cross reactivity aciclovir should not be used in patients with famciclovir, valganciclovir or ganciclovir hypersensitivity.[2]

PRECAUTIONS

- DO NOT REFRIGERATE the IV formulation as crystallisation may occur. The crystals may not redissolve when brought back to room temperature.[7, 8]
- Ensure adequate hydration during treatment to prevent precipitation of aciclovir in the renal tubules that may manifest as haematuria or renal impairment (particularly with IV treatment).[1, 5, 9]
- For Oncology patients ensure that IV maintenance fluids are running during treatment with IV aciclovir.
- Extravasation can cause severe local inflammation and tissue necrosis as the injection is alkaline with a pH of 11. Monitor injection site closely.[1, 10]
- The IV preparation should be used with caution in patients with underlying neurological abnormalities, hypoxia, renal, hepatic or electrolyte abnormalities, as aciclovir has been associated with reversible encephalopathic changes.[3, 4]
- Each 1 gram vial of aciclovir contains 4.2mmol of sodium.[8]

FORMULATIONS

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

- 250mg/10mL solution for injection
- 200mg tablets (dispersible)
- 3% Eye Ointment
- 5% Topical Cream

Imprest location: Formulary One

DOSAGE & DOSAGE ADJUSTMENTS

Neonates: Refer to Neonatal Medication Protocols

Children:

- **Dosing should be based on IDEAL body weight. Refer to: Dosing in Overweight and Obese Children**
- The doses listed below fall within the standard range. Higher doses may be prescribed for certain situations in consultation with an infectious diseases or clinical microbiology consultant.
- For ease of dosing consider if oral valaciclovir is appropriate for your patient, refer to: Valaciclovir Monograph

Children: Treatment			
INDICATION	**AGE**	**DOSE**	**DURATION**
Herpes Simplex Virus[7, 9, 11] - e.g. Encephalitis, disseminated disease.	≥4 weeks to <12 years	IV: 20mg/kg/dose (to a maximum of 750mg) 8 hourly	21 days
	≥ 12 years	IV: 10mg/kg/dose (to a maximum of 750mg) 8 hourly	
Herpes Simplex Virus – other infections requiring hospitalisation [2] Localised disease in immunocompromised patients (use initial IV therapy)	≥4 weeks to 18 years	IV: 10mg/kg/dose (to a maximum of 750mg) 8 hourly	14 to 21 days
Herpes Simplex Virus (localised)[11] - Gingivostomatitis - Severe primary or recurrent mucocutaneous herpes - Herpetic Whitlow - Eczema herpeticum - Oral switch post IV therapy	≥4 weeks to 18 years	Oral: 10mg/kg/dose (to a maximum of 400mg) five (5) times daily Consider valaciclovir in children ≥3 months	7 days or 5 days for episodic treatment
Varicella Zoster Virus[7] - Severe chicken pox - Severe shingles Immunocompromised patients should use initial IV therapy	≥4 weeks to <12 years	IV: 20mg/kg/dose (to a maximum of 750mg) 8 hourly See below for dosing for oral switch to complete course	Minimum 7 days (IV and oral) Immunocompromised patients up to 14 days
	≥ 12 years	IV: 10mg/kg/dose (to a maximum of 750mg) 8 hourly See below for dosing for oral switch to complete course	
Varicella Zoster Virus[7, 11] - Patients with pre-existing skin disease - Zoster ophthalmicus - Oral switch post IV therapy	≥4 weeks to 18 years	Oral: 20mg/kg/dose (to a maximum of 800mg) five (5) times a day Consider valaciclovir in children ≥2 years	7 days Immunocompromised patients up to 14 days

Children: Prophylaxis – Immunocompetent

Valaciclovir is often preferred due to improved compliance with once or twice daily dosing.

INDICATION – Prophylaxis Immunocompetent	AGE	DOSE	DURATION
Herpes Simplex Virus[11] - Suppressive therapy (frequent, severe recurrences)	≥4 weeks to 18 years	Oral: 10mg/kg/dose (to a maximum of 400mg) 12 hourly Consider valaciclovir in children ≥3 months	6 months then review

Children: Prophylaxis – Immunocompromised

Convert to oral aciclovir or valaciclovir as soon as oral medications are tolerated. *Valaciclovir is often preferred due to improved compliance with twice daily dosing.*

INDICATION – Prophylaxis - Immunocompromised	AGE	DOSE	DURATION
Prevention of HSV or VZV in seropositive patients[2, 9, 12]	≥4 weeks to 18 years	IV: 5mg/kg/dose (to a maximum of 750mg) 8 hourly	Variable – during period of risk
	1 to 23 months	Oral: 100mg – 200mg four times a day	
	2 to 18 years	Oral: 200mg – 300mg three times a day	
Post exposure prophylaxis[2] - Varicella	≥4 weeks to 18 years	Oral: 20mg/kg/dose (to a maximum of 800mg) four times a day	5 to 7 days beginning 7-10 days after exposure

Ocular and Topical treatment:

Children 3 months to 18 years:

- Herpes Simplex Keratitis, Dendritic Ulcers:

3% eye ointment: Apply 1cm of the ointment to the eye(s) five times per day for 14 days or for at least 3 days after healing, whichever is shorter.[7, 9]

- Herpes Simplex (cold sores)**:**

5% topical cream: Apply topically five times per day.[7]

Renal impairment:

Dosage adjustment may be required in cases of impaired renal function (with creatinine clearance of less than 50mL/min).

eGFR calculator (Google Chrome®)

IV:

CL_{cr} ≥50mL/minute : normal dose

CL_{cr} ≥25 to <50mL/minute : 100% 12 hourly

CL_{cr} ≥10 to <25mL/minute : 100% 24 hourly

CL_{cr} <10mL/minute: 50% 24 hourly.[2, 6, 9]

Oral: Herpes Simplex

CL_{cr} > 10mL/minute : normal dose

CL_{cr} < 10mL/minute : 100% 12 hourly.[9]

Oral: Herpes Zoster

CL_{cr} > 25mL/minute : normal dose

CL_{cr} 10 – 25mL/minute : 100% 8 hourly

CL_{cr} < 10mL/minute : 100% 12 hourly.[3, 9]

Hepatic impairment:

No dosage adjustment is required.[2, 6]

RECONSTITUTION & ADMINISTRATION

Solution for infusion:

- Further dilution is required, use solution prepared in Pharmacy Compounding Services (PCS) where possible.

IV Infusion:

- Dilute dose to a final concentration of 5mg/mL with compatible fluid and infuse over one hour.[3, 5, 6, 8, 10]
- In fluid restricted patients, a concentrated solution of 25mg/mL may be given via central venous access device (CVAD) over one hour by a controlled rate infusion pump.[8, 9]
- All preparations should be visually inspected and discarded if crystals or turbidity appear during preparation or infusion.[2, 8]

Oral:

- Oral preparations may be given without regard to food.[2, 3, 6, 13]
- If dosing 5 times per day, the dose may be given every 4 hours whilst awake.[7]
- Tablets may be dispersed in water to facilitate oral administration in children unable to swallow tablets or for administration via a nasogastric tube or PEG. Refer to SHPA: Don't Rush to Crush: Aciclovir

COMPATIBILITY *(LIST IS NOT EXHAUSTIVE)*

Compatible fluids:

- Glucose 5% - Note: do **not** dilute to a final concentration of <2.5mg/mL with glucose 5% due to reduced stability.[8]
- Sodium chloride 0.45% and 0.9%.

- Glucose/sodium chloride solutions.
- Hartmann's.[8, 10]

Compatible at Y-site:

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

MONITORING

- Renal function (including urine output) and hepatic function should be monitored weekly with prolonged therapy (longer than 7 days).[2, 14]
- Monitor IV site for any signs of extravasation or phlebitis.[2, 6]
- Full blood picture, renal function and neurotoxicity should be monitored with high dose therapy.[6]

For Oncology patients: Ensure IV maintenance fluids are running during IV aciclovir treatment to prevent precipitation of aciclovir in the renal tubules that may manifest as haematuria or renal impairment.[9]

For all other patients: Ensure adequate hydration during treatment to prevent precipitation of aciclovir in the renal tubules that may manifest as haematuria or renal impairment.[9]

ADVERSE EFFECTS

Common: Nausea, vomiting, diarrhoea, hallucinations (with high dose), headache, encephalopathy, injection site reactions.[1]

Infrequent: agitation, vertigo, confusion, dizziness, oedema, renal impairment, arthralgia, sore throat, dyspnoea, abdominal pain, constipation, rash, weakness.

Rare: coma, seizures, anaemia, neutropenia, leucopenia, thrombocytopenia, crystalluria, anorexia, fatigue, hepatitis, urticaria, pruritus, photosensitivity, Stevens-Johnson syndrome, toxic epidermal necrolysis, anaphylaxis.[4, 6]

STORAGE

- Do NOT refrigerate (crystals may form and do not re-dissolve at room temperature).[8]
- All formulations should be stored below 25˚C.[4, 5]

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 **aciclovir**. 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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Useful resources (including related forms)
Australian Medicines Handbook – Children's Dosing Companion

This document can be made available in alternative formats on request for a person with a disability.

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