ACICLOVIR: RECOMMENDATIONS FOR INTRAVENOUS DOSING IN PAEDIATRIC PATIENTS (0-12 YEARS)

DRUG PROTOCOL©

DOCUMENT SUMMARY/KEY POINTS

- Aciclovir should be given by slow infusion over a one hour period.
- Children between 3 months and 12 years of age should preferentially be dosed according to **body surface area** (BSA) and not by weight.
- Calculation for weight less than 10kg hence dose for neonates and very young children (< 3mths) should be calculated at 20mg/kg IV given every 8 hours.
- Rapid increases in blood urea and creatinine levels may occur in patients given Aciclovir IV infusion.

CHANGE SUMMARY

- Due for mandatory review – no changes made.

READ ACKNOWLEDGEMENT

- All clinical staff prescribing and administering Aciclovir should be aware of this document.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	CHW Drug Committee	SCHN CHW Policy, Procedure & Guideline Committee	
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Team Leader:	Antibiotic Stewardship Pharmacist	**Area/Dept**: Infectious Diseases	

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Recommendations for IVI Dosing of Aciclovir in Paediatric Patients (0-12 years)

- Aciclovir is an antiviral agent used for prophylaxis and treatment of herpes simplex virus (HSV) and varicella zoster virus (VZV) infections.

Administration

- Aciclovir should be given by slow infusion over a one hour period.

HSV and VZV infections between 3 months and 12 years of age

Due to differing pharmacokinetic parameters between children and adults, the manufacturer recommends that children between 3 months and 12 years of age should preferentially be dosed according to **body surface area (BSA)** and not by weight.

Calculation of BSA requires weight and height measurement.

- treatment of primary muco-cutaneous HSV infection - 250mg/m^2 IVI given every 8 hours
- treatment of VZV infection and HSV encephalitis (>3 months) - 500mg/m^2 IVI given every 8 hours

Based on pharmacokinetic data, a dose of 250mg/m^2 in younger children (up to 5yrs) is approximately equal to a weight based dose calculation of 10mg/kg and 500mg/m^2 is approximately equal to a weight based dose of 20mg/kg

Table 1: Suggested dosing IVI Aciclovir for HSV or VZV in children 3mth-12yrs

Infection	Aciclovir dose (mg/m^2) BSA	Children 3mth-5yrs (mg/kg)	Children 5-12yrs (mg/kg)	Adults, children >12yrs (equivalent dose mg/kg)
HSV skin, eye	250mg/m^2 q8h	10mg/kg q8h	7.5mg/kg q8h	5mg/kg q8h
VZV and HSV encephalitis	500mg/m^2 q8h	20mg/kg q8h	15mg/kg q8h	10mg/kg q8h

Neonatal HSV (all types) or VZV infection

BSA calculators do not allow mg/m^2 calculation for weight less than 10kg hence dose for neonates and very young children (< 3mths) should be calculated at 20mg/kg IV given every 8 hours.

Neonates with suspected HSV infection, meningitis or encephalitis, should be treated with the above dose for 21 days.

If disease is localised to skin, eyes and mouth treatment should continue for 14 days.

Toxicity and Monitoring

Rapid increases in blood urea and creatinine levels may occur in patients given Aciclovir Intravenous Infusion. These are usually reversible. The risk of renal damage is increased by bolus injection, dehydration, concomitant use of other nephrotoxic drugs and pre-existing renal disease.

Adequate hydration of the patient should be maintained. Renal impairment developing during treatment with aciclovir intravenous infusion usually responds rapidly to rehydration of the patient and/or dosage reduction or withdrawal of the drug.

Aciclovir is eliminated mainly by glomerular filtration and renal tubular secretion. Patients receiving aciclovir should have UEC monitoring twice weekly. UECs should be monitored more frequently with high dose therapy, existing renal impairment, or concurrent nephrotoxin use.

Dosage adjustment for renal impairment should be based on glomerular filtration rate (GFR) as follows:

Creatinine clearance (mL/min)	Dose (mg/m^2)
>50	100% 8hrly
25-50	100% 12hrly
10-25	100% 24hrly
< 10	50% 24hrly

Patients receiving prolonged courses of aciclovir should also have periodic FBC and LFT assays performed as decreases in haematological indices (anaemia, thrombocytopenia, leucopenia) and reversible increases in bilirubin and liver related enzymes have been reported.

References

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