IV Cyclophosphamide

Presentation:	Prepared in Pharmacy sterile production unit, ready to infuse.
Indications:	Autoimune Glomerulonephritis: Henoch-Schonlein Purpura nephritis, Lupus nephritis, Wegener's Disease, Anti-Glomerular Basement Membrane disease
Dose:	**May only be prescribed by a Registrar or Consultant, using a blue Cytotoxic Prescription Chart.** **Cyclophosphamide** 500mg/m^2 in 100ml sodium chloride 0.9%, infused over 30 minutes. The dose can be repeated as indicated. Minimum interval between doses 4 weeks Dose may be increased incrementally to 750mg/m^2 and 1000mg/m^2 if previous doses are tolerated. **Hydration** All children who receive IV cyclophosphamide must have an adequate urine output (i.e. >0.5ml/kg/hr) for 3 hours before and 12 hours after cyclophosphamide infusion. This is essential to eliminate cyclophosphamide from the body and prevent urethral toxicity. This can be achieved with IV crystalloids or with oral hydration. Furosemide may be used if appropriate to achieve an adequate output. Discuss individual fluid plan with paediatric nephrology consultant. **Mesna** IV or Oral. Mesna = 40% of cyclophosphamide dose given at 0, 4 and 8 hours of the cyclophosphamide infusion. If using tablets the dose can be rounded to the nearest 200mg Mesna protects against haemorrhagic cystitis which is a side effect of cyclophosphamide. Mesna is not generally required for doses of 1000mg/m^2 or below, but patients with underlying kidney disease may be at a higher risk of haemorrhagic cystitis. It is therefore at the discretion of the prescribing consultant/registrar if mesna is required. **Antiemetic** IV/PO Ondansetron 0.15mg/kg (max 8mg) 30 minutes prior to cyclophosphamide (can be given 10minutes before if using IV), repeated 8 hourly as required.
Route of administration:	IV. Central access preferred due to the risk of significant tissue damage on extravasation, but peripheral can be used.
Directions for Administration:	Cyclophosphamide should only be administered by nurses who have completed the relevant competency package. Ensure a cytotoxic spillage kit and cytotoxic waste bin are available prior to infusion. IV Cyclophosphamide is usually administered over 30 minutes IV mesna can be given by direct injection over 1 minute. The injection solution can be given undiluted, but can be further diluted with sodium chloride 0.9% if needed to aid administration. If using tablets the mesna dose can be rounded to the nearest 200mg. If using smaller doses or unable to swallow tablets the injection can be mixed with orange juice or cola and taken orally.
Cautions and Contra-indications:	Cautioned in patients with urine output inadequate to aid excretion (<0.5ml/kg/hr), discuss with paediatric nephrology consultant and pharmacist.
Common Side Effects:	Short term: Haemorrhagic cystitis, Nausea and vomiting, dizziness, hot flushes, altered taste Long term: Bone marrow suppression, infection. High risk considerations: Fertility problems. Increased risk of secondary cancers, teratogenicity.
Compatibility (Y – site):	Sodium chloride, Glucose, Potassium chloride, Mesna, Ondansetron
Additional Comments:	If urine output drops below 0.5ml/kg/hr during the infusion or 12 hours post infusion the medical team must be informed. Males and females of childbearing potential should be advised of teratogenicity risks. If appropriate this should include advice on contraception while on treatment and for 6 months after.

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References

1. Sandoz Summary of product characteristics Cyclophosphamide 1000 mg Powder for Solution for Injection or Infusion Last Updated on eMC 04-Dec-2014
2. Baxter healthcare Summary of product characteristics Mesna Injection Last Updated on eMC 01-Apr-2015
3. Baxter healthcare Summary of product characteristics Mesna Tablets 400 mg Last Updated on eMC 01-Apr-2015
4. Trissel handbook of injectable medicines accessed through medicinescomplete.com on 21/04/16

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