

**Systemic Anti Cancer Treatment Protocol**

**Etoposide Carboplatin  
Sarcoma**

**PROTOCOL REF: MPHAETOPO  
(Version No. \_1.0)**

**Approved for use in:**

3<sup>rd</sup> line / palliative Ewing's family sarcoma  
PS 0-1

**Dosage:**

Drug	Dosage	Route	Frequency
Etoposide	120mg/m <sup>2</sup> day 1	IV	Every 21 days
Etoposide	240mg/m <sup>2</sup> day 2 and 3	PO	Every 21 days
Carboplatin	AUC5 day 1	IV	Every 21 days

**Supportive treatments:**

**Anti-emetic risk: moderate**

Dexamethasone tablets 4mg twice daily for 3 days  
Domperidone 10mg oral tablets, up to 3 times a day or as required

**Extravasation risk:**

Carboplatin – Irritant  
Etoposide – Irritant

**Administration:**

Day	Drug	Dosage	Route	Diluent and Rate
1	<b>Dexamethasone</b> 30 mins before chemotherapy	8mg	PO	
1	<b>Ondansetron</b> 30 mins before chemotherapy	16mg	PO	
1	<b>Carboplatin</b>	AUC5	IV	In 500mL Glucose 5% over 30 to 60 minutes
1	<b>Etoposide phosphate</b>	120mg/m <sup>2</sup>	IV	In 100mL Sodium Chloride 0.9% over 15 minutes
2	<b>Etoposide</b>	240mg/m <sup>2</sup>	PO	Divided into 2 doses
3	<b>Etoposide</b>	240mg/m <sup>2</sup>	PO	Divided into 2 doses

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**If patient is unable to tolerate carboplatin regimen, then cisplatin can be substituted (see below)**

Day	Drug	Dosage	Route	Diluent and Rate
1	Aprepitant	125mg	PO	
1	Dexamethasone	12mg	PO	
1	Ondansetron	24mg	PO	
1	Furosemide	20mg	PO	
1	<b>Etoposide</b>	120mg/m <sup>2</sup>	IV	In 1000mL Sodium Chloride 0.9% over 2 hours
1	Monitor urine output – see notes below			
1	<b>Cisplatin</b>	50mg/m <sup>2</sup>	IV	In 1000mL Sodium Chloride 0.9% over 90 minutes
1	Potassium chloride	20mmol	IV	In 1000mL Sodium Chloride 0.9% over 90 minutes
2	Aprepitant	80mg	PO	
2	Dexamethasone	12mg	PO	
2	Ondansetron	24mg	PO	
2	Furosemide	20mg	PO	
2	<b>Etoposide</b>	120mg/m <sup>2</sup>	IV	In 1000mL Sodium Chloride 0.9% over 2 hours
	Monitor urine output – see notes below			
2	<b>Cisplatin</b>	50mg/m <sup>2</sup>	IV	In 1000mL Sodium Chloride 0.9% over 90 minutes
2	Potassium chloride	20mmol	IV	In 1000mL Sodium Chloride 0.9% over 90 minutes
3	Aprepitant	80mg	PO	
3	Dexamethasone	8mg	PO	
3	Ondansetron	16mg	PO	
3	<b>Etoposide</b>	120mg/m <sup>2</sup>	IV	In 1000mL Sodium Chloride 0.9% over 2 hours

**Measure urine output volume and record**

**If urine output averages 100mL/hour over previous 2 hours then proceed with cisplatin infusion**

**If urine output is less than 100mL/hour the patient should be assessed and further 500mL sodium chloride 0.9% given IV over 30 minutes**

**Day 3 etoposide can be switched to oral, 240mg/m<sup>2</sup> divided into 2 doses**

**Notes:**

**Calvert formula for Carboplatin dosage-**

Carboplatin dose in mg = AUC x (creatinine clearance + 25)

If estimated GFR is used the Wright formula must be used for creatinine clearance.

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Avoid the use of Cockcroft and Gault formulae as it is less accurate.

### Etoposide

Day 2 and 3 Etoposide should be oral unless patients unable to swallow.

Round oral etoposide dose to nearest 50mg. Capsules available in 50mg or 100mg strengths. Dose may be taken in all 50mg capsules if preferred.

Ensure patient has day 2 and 3 oral etoposide to take at home and they know when and how to take it.

Capsules to be swallowed whole on an empty stomach 30 minutes before or 2 hours after a meal. Doses may be split if wished.

### Main Toxicities:

Carboplatin – myelosuppression, neuropathy, nephrotoxicity, anaphylaxis, nausea and vomiting

Etoposide – myelosuppression, nausea and vomiting, neuropathy, hypotension, bronchospasm

### Investigations and treatment plan

	Pre	Cycle 1	Cycle 2	Cycle 3	Cycle 4	Ongoing
Medical Assessment	X		X	X	X	Every cycle
Nursing Assessment	X	X	X	X	X	Every cycle
FBC	X	X	X	X	X	Every cycle
U&E & LFTs	X	X	X	X	X	Every cycle
Magnesium and calcium	X	X	X	X	X	Every cycle
CrCl (Wright formula)	X	X	X	X	X	Every cycle
CT scan	X			X		After cycle 3
Informed Consent	X					
Audiometry	X					If clinically indicated
PS recorded	X	X	X	X	X	Every cycle
Toxicities documented	X	X	X	X	X	Every cycle
Weight recorded	X	X	X	X	X	Every cycle

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## Dose Modifications and Toxicity Management:

### Haematological toxicity

Proceed on day 1 if:-

ANC $\geq 1.0 \times 10^9/L$	Platelets $\geq 100 \times 10^9/L$
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Delay 1 week on day 1 if:-

ANC $\leq 0.9 \times 10^9/L$	Platelets $\leq 99 \times 10^9/L$
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If platelets or ANC still below required levels for treatment at week 2, delay treatment again and patient will need assessment and consideration of chemotherapy dose reduction.

If febrile neutropenia or more than one week delay, delay until recovery and reduce subsequent doses of etoposide by 25%.

### Non-haematological toxicity

<b>Renal</b>	Carboplatin: review serum creatinine result at each cycle, if this has changed then recalculate clearance using Wright formula and amend the carboplatin dose if there will be a 10% difference			
	<b>CrCl mL/min</b>	<b>Etoposide dose</b>		
	>50	100%		
	15-50	75%		
	<15	Do not give		
<b>Hepatic</b>	Carboplatin – no dose modifications needed			
	<b>ALT / AST transaminases</b>		<b>Bilirubin</b>	<b>Etoposide dose</b>
	$\leq 1.5$ ULN	AND	$\leq 1.5$ ULN	100%
	1.5 – 5 ULN	AND/ OR	1.5 – 3 ULN	50%
	$\geq 5 \times$ ULN	OR	$\geq 3 \times$ ULN	Contraindicated

<b>Cisplatin</b>	
<b>Ototoxicity or Neurotoxicity</b>	<p>Ototoxicity observed in up to 31% of patients can be unilateral or bilateral and tends to become more frequent and severe with repeated doses; It is unclear whether ototoxicity is reversible.</p> <p>Neurotoxicity is common</p> <p>Discuss any reported oto or neurotoxicity with consultant</p>

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## Wright Creatinine Clearance Formula

Women

$$\frac{(6580 - (38.8 \times \text{age})) \times \text{bsa} \times 0.832}{\text{creatinine}}$$

Men

$$\frac{(6580 - (38.8 \times \text{age})) \times \text{bsa}}{\text{creatinine}}$$

**NB**            Weight in kg  
                  Creatinine in micromol/L

## References:

van Maldegem, AM et al  
Etoposide and carbo or cisplatin combination therapy in refractory or relapsed Ewings sarcoma: A large retrospective study  
Pediatr Blood Cancer 2015 62(1):40-4

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