

## 3 day BEP – Ambulatory regimen (Bleomycin, etoposide, cisplatin)

### Indication

Germ cell tumours with good prognosis

### Regimen details

Day	Drug	Fluid	Time
1	Etoposide 165mg/m <sup>2</sup>	1 litre sodium chloride 0.9%	1 hour
	Cisplatin 50mg/m <sup>2</sup>	500ml sodium chloride 0.9%	2 hours
	Potassium chloride 20mmol and magnesium sulphate 10mmol	1 litre sodium chloride 0.9%	2 hours
	<i>Additional infusion if given as inpatient or patient unable to tolerate adequate oral fluid intake</i>	<i>1 litre sodium chloride 0.9%</i>	<i>2 hours</i>
2	Hydrocortisone 200mg	IV bolus	
	Bleomycin 30,000 units	250ml sodium chloride 0.9%	30 min
	Etoposide 165mg/m <sup>2</sup>	1 litre sodium chloride 0.9%	1 hour
	Cisplatin 50mg/m <sup>2</sup>	500ml sodium chloride 0.9%	2 hours
	Potassium chloride 20mmol and magnesium sulphate 10mmol	1 litre sodium chloride 0.9%	2 hours
	<i>Additional infusion if given as inpatient or patient unable to tolerate adequate oral fluid intake</i>	<i>1 litre sodium chloride 0.9%</i>	<i>2 hours</i>
3	Etoposide 165mg/m <sup>2</sup>	1 litre sodium chloride 0.9%	1 hour
	<i>Additional infusion if given as inpatient or patient unable to tolerate adequate oral fluid intake</i>	<i>1 litre sodium chloride 0.9%</i>	<i>2 hours</i>
8	Hydrocortisone 200mg	IV bolus	
	Bleomycin 30,000 units	250ml sodium chloride 0.9%	30 min
15	Hydrocortisone 200mg	IV bolus	
	Bleomycin 30,000 units	250ml sodium chloride 0.9%	30 min

### Cycle frequency

Every 21 days

### Number of cycles

3 cycles

### Administration

Can be given as outpatient subject to patient and clinician preference and suitability

Patient must be able to drink the additional oral hydration of 1000-2000mls per day

Strict fluid balance

Consider Frusemide 20-40mg po if >1000ml positive balance. IV frusemide should only be given if patient is unwell, unable to take oral medication or unresponsive to oral frusemide

Do not wait for results of FBC prior to giving day 8, 15 treatments unless patient looks unwell or is pyrexial

Encourage patient to maintain oral fluid intake of 1000-2000ml per day. FOR OUT PATIENT BEP THIS IS MANDATORY Medical review daily prior to treatment. In the event of a patient being unsuitable to continue with outpatient regime then transfer to ward delivery must be arranged without deferral.

## Pre-medication

Give 200mg hydrocortisone before bleomycin

## Emetogenicity

Highly emetogenic

## Additional supportive medication

If bulky disease give rasburicase prior to first day cycle 1 of treatment, monitor for tumour lysis syndrome and discharge with allopurinol 300mg OD

All patients should be prescribed 7 days of filgastrim starting 48 hours post chemotherapy

## Investigations – pre first cycle

Calculated creatinine clearance

CT thorax/abdo/pelvis

Pulmonary function tests (Spirometry, Diffusion capacity)

Audiometry

Sperm banking

FBC, U&E, LFT incl. LDH, Uric Acid, Mg, Ca, AFP,  $\beta$ HCG

## Investigations –pre subsequent cycles

Check renal function on days 1-3

Weekly:

FBC, U&E, LFT incl LDH, Uric Acid, Mg, Ca, AFP,  $\beta$ HCG

Day 1 only:

Chest X-ray (if metastases present)

Do not wait for results of FBC prior to giving day 8, 15 treatments unless patient looks unwell or is pyrexial

## Standard limits for administration to go ahead

**ANY DEFERRAL NEEDS TO BE DISCUSSED WITH CONSULTANT AS TREATMENT DELAYS HAVE NEGATIVE EFFECT ON OUTCOME**

Do not wait for results of FBC prior to giving day 8, 15 treatments unless patient looks unwell or is pyrexial

Investigation	Limit
Neutrophil count	$\geq 0.5 \times 10^9/L$
Platelet count	$\geq 50 \times 10^9/L$
HB	Any (transfuse if $<90g/l$ )
Creatinine clearance	$\geq 50 \text{ mL/min}$
Bilirubin	$\leq 1.5 \times \text{ULN}$
AST	$< 1.5 \times \text{ULN}$

## Dose modifications

GFR  $< 50\text{ml/min}$  or Neurotoxicity  $>$  grade 2 - replace Cisplatin with Carboplatin AUC 6

Bleomycin rash/lung toxicity - omit Bleomycin (see comments below for cycle adjustment in the event of bleomycin omission)

Patients over 40 years of age who are heavy smokers (or have been until recently) consider omitting bleomycin from chemotherapy. If deranged renal function with GFR  $< 50$  and over 40 also consider omitting bleomycin.

If bleomycin omitted a total of four cycles of treatment will be usually required, e.g. bleomycin omitted on cycle 2

would mean there should be a further 3 cycles of EP alone as 3 x BEP is equivalent to 4 x EP

**Adverse effects** - for full details consult product literature/ reference texts

Nausea/vomiting

Alopecia

Infertility (some reversibility within 2 years of treatment)

Mucositis

Cough/SOB (watch out for Bleomycin pneumonitis!)

Skin rash

Peripheral neuropathy

Ototoxicity (tinnitus/deafness)

Renal toxicity, electrolyte disturbance (especially Magnesium loss)

Myelosuppression

**THIS PROTOCOL HAS BEEN DIRECTED BY DR BIRTLE, DESIGNATED LEAD CLINICIAN FOR GERM CELL TUMOURS**

**RESPONSIBILITY FOR THIS PROTOCOL LIES WITH THE HEAD OF SERVICE**

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