

# TESTICULAR/GERM CELL CANCER

## **BEP (BLEOMYCIN – ETOPOSIDE – CISPLATIN)**

Cisplatin	20 mg/m <sup>2</sup> /day	IV*	Days 1 – 5
Bleomycin	30 units	IV	Days 2, 9 and 16
Etoposide	100 mg/m <sup>2</sup> /day	IV**	Days 1 – 5

\*Administer over 15 – 60 minutes with adequate pre- and post-hydration; \*\*Administer over 30 – 60 minutes.

Repeat cycle every 21 days for 4 cycles.

NOTE: for patients with Stage II and III seminoma and non-seminoma.

References: [Williams SD, et al. \*N Engl J Med\* 1987;316:1435–40](#); [Nichols CR, et al. \*J Clin Oncol\* 1998;16:1287 – 93](#); [Hinton S, et al. \*Cancer\* 2003;97:1869 – 75](#) (long-term data).

## **BEP (BLEOMYCIN – ETOPOSIDE – CISPLATIN)**

Cisplatin	20 mg/m <sup>2</sup> /day	IV*	Days 1 – 5
Bleomycin	30 units	IV	Days 1, 8 and 15
Etoposide	100 mg/m <sup>2</sup> /day	IV**	Days 1 – 5

\*Administer over 15 – 60 minutes with adequate pre- and post-hydration; \*\*Administer over 30 – 60 minutes.

Administer 1 cycle for patients with Clinical Stage 1 non-seminoma only.

Reference: [Albers P, et al. \*Proc Am Soc Clin Oncol\* 2006;24\(18S\): \[Abstract 4512\]](#).

## **CARBOPLATIN**

Carboplatin	AUC 7*	IV	Day 1
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\*AUC of 7 using the Calvert formula. EDTA was the preferred method for calculating the glomerular filtration rate (GFR). A 24-hour urinary collection-based creatinine clearance was allowed, but not one calculated by the Cockcroft formula.

Administer one cycle only.

Reference: [Oliver RT, et al. \*Lancet\* 2005;366:293 – 300](#).

## **CISPLATIN – EPIRUBICIN**

Cisplatin	20 mg/m <sup>2</sup> /day	IV*	Days 1 – 5
Epirubicin	90 mg/m <sup>2</sup>	IV**	Day 1

\*Adequate pre-and post-hydration; \*\*Administer over 15–30 minutes.

Repeat cycle every 21 days for maximum of 4 cycles.

NOTE: All patients received G-CSF days 7–16 or pegfilgrastim on day 6 or 7.

Reference: [Bedano P, et al. \*J Clin Oncol\* 2006;24:5403 – 7](#).

### **EP (CISPLATIN – ETOPOSIDE)**

Cisplatin	20 mg/m <sup>2</sup> /day	IV*	Days 1 – 5
Etoposide	100 mg/m <sup>2</sup> /day	IV	Days 1 – 5

\*Adequate pre-and post-hydration.

Repeat cycle every 21 days for 2<sup>a</sup> or 4<sup>b</sup> cycles.

References: <sup>a</sup>[Motzer RJ, et al. \*J Clin Oncol\* 1995;13:2700 – 4;](#) <sup>b</sup>[Bosl GJ, et al. \*J Clin Oncol\* 1988;6:1231 – 8;](#) [Bajorin DF, et al. \*J Clin Oncol\* 1993;11:598 – 606;](#) [Kondagunta GV, et al. \*J Clin Oncol\* 2005;23:9290 – 4.](#)

### **GEMCITABINE – OXALIPLATIN**

Gemcitabine	1000 mg/m <sup>2</sup>	IV*	Days 1 and 8
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*Followed immediately by*

Oxaliplatin	130 mg/m <sup>2</sup>	IV**	Day 1
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\*Administer over 30 minutes; \*\*Administer over 2 hours in D<sub>5</sub>W.

Repeat cycle every 21 days for at least 2 cycles (patients with responses or SD received 2 more cycles past best response).

Reference: [Kollmannsberger C, et al. \*J Clin Oncol\* 2004; 22:108 – 14.](#)

### **PACLITAXEL – GEMCITABINE**

Paclitaxel <sup>‡</sup>	100 – 110 mg/m <sup>2</sup>	IV*	Days 1, 8 and 15
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*Followed by*

Gemcitabine	1000 mg/m <sup>2</sup>	IV**	Days 1, 8 and 15
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Repeat cycle every 28 days for a maximum of 6 cycles.

<sup>‡</sup>Routine premedication administered; \*Administer over 1 hour; \*\*Administer over 30 minutes.

NOTE: Paclitaxel dose of 100 mg/m<sup>2</sup> was used in post-transplant setting. Colony-stimulating factors were only used for prolonged granulocytopenia.

References: [Hinton S, et al. \*J Clin Oncol\* 2002;20:1859 – 63;](#) [Einhorn L, et al. \*J Clin Oncol\* 2007;25:513 – 6.](#)

### **TIP (PACLITAXEL – IFOSFAMIDE – CISPLATIN)**

Paclitaxel <sup>‡</sup>	250 mg/m <sup>2</sup>	IV*	Day 1
Ifosfamide	1500 mg/m <sup>2</sup> /day	IV**	Days 2 – 5
Mesna	500 mg/m <sup>2</sup> /day	IV***	Days 2 – 5
Cisplatin	25 mg/m <sup>2</sup> /day	IV#	Days 2 – 5

Repeat cycle every 21 days for 4 cycles.

<sup>‡</sup>Routine premedication administered; \*Administer as a continuous 24 hour infusion; \*\*Administer over 1 hour; \*\*\*Administer before ifosfamide and at 4 and 8 hours after each ifosfamide dose; #Administer cisplatin over 30 minutes with adequate pre- and post-hydration.

NOTE: All patients received prophylactic filgrastim 5 micrograms/kg SQ days 7 – 18. Dose reductions were not made; Recovery from toxicity was required before re-treatment at full dose occurred.

Reference: [Kondagunta GV, et al. \*J Clin Oncol\* 2005;23:6549 – 55.](#)

### **VIP (ETOPOSIDE – IFOSFAMIDE – CISPLATIN)**

Etoposide	75 mg/m <sup>2</sup> /day	IV	Days 1 – 5
Ifosfamide*	1200 mg/m <sup>2</sup> /day	IV	Days 1 – 5
Cisplatin	20 mg/m <sup>2</sup> /day	IV**	Days 1 – 5
Mesna	120 mg/m <sup>2</sup>	IVP***	Day 1

*Followed by*

Mesna	1200 mg/m <sup>2</sup> /day	CIVI	Days 1 – 5
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\*Hydration was also administered as NS at a rate of 100 – 125 mL/hour; \*\*Administer over 30 – 60 minutes with adequate pre- and post-hydration; \*\*\*Administer prior to ifosfamide on Day 1 only.

Repeat cycle every 21 days for 4 cycles.

NOTE: 25% dose reduction of etoposide and ifosfamide if prior abdominal or chest radiation.

References: [Loehrer PJ, et al. \*Ann Intern Med\* 1988;109:540 – 6;](#) [Nichols CR, et al. \*J Clin Oncol\* 1998;16:1287 – 93.](#)

**VeIP (VINBLASTINE – IFOSFAMIDE – CISPLATIN)**

Vinblastine	0.11 mg/kg/day	IV	Days 1 and 2
Ifosfamide	1200 mg/m <sup>2</sup> /day	IV*	Days 1 – 5
Cisplatin	20 mg/m <sup>2</sup> /day	IV**	Days 1 – 5
Mesna	400 mg/m <sup>2</sup>	IV	Day 1 only***

*Followed by*

Mesna	1200 mg/m <sup>2</sup> /day	CIVI	Days 1 – 5
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\*Hydration was also administered as NS at a rate of 100 mL/hour during the 5 days; \*\*Administer over 15 – 20 minutes with adequate pre- and post-hydration; \*\*\*Administer 15 minutes prior to first dose of ifosfamide.

Repeat cycle every 21 days for 4 cycles.

DOSE MODIFICATION: 25% dose reduction of etoposide and ifosfamide if prior abdominal or chest radiation. Ifosfamide dose was reduced by 25% if the SCr was greater than 2 mg/dL.

References: [Loehrer PJ, et al. \*Ann Intern Med\* 1988;109:540 – 6;](#) [Loehrer PJ, et al. \*J Clin Oncol\* 1998;16:2500 – 4.](#)