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Chemotherapy Regimens and Cancer Care

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VADEMECUM
Chemotherapy Regimens and Cancer Care
LANDES BIOSCIENCE
Georgetown, Texas U.S.A.

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While the authors, editors, sponsor and publisher believe that drug selection and dosage and the specifications and usage of equipment and devices, as set forth in this book, are in accord with current recommendations and practice at the time of publication, they make no warranty, expressed or implied, with respect to material described in this book. In view of the ongoing research, equipment development, changes in governmental regulations and the rapid accumulation of information relating to the biomedical sciences, the reader is urged to carefully review and evaluate the information provided herein.

Preface

Chemotherapy Regimens and Cancer Care is a book that is intended for practical use by Hematology/Oncology attendings, fellows, residents, pharmacists, and nurses. It is a concise, thorough, and portable reference guide to the multitude of complex chemotherapy protocols and other frequently utilized medications in the field of Hematology/Oncology.

This book was designed to be different from other “chemotherapy handbooks” in several ways. First, the book summarizes the most commonly used oncology regimens and gives practical guidelines for the supportive care required for optimal administration of these regimens. The regimens include not only a reference, but also recommended antiemetics and helpful reminders about unique toxicities of the various chemotherapeutic agents. The protocols are arranged in a disease-based manner for easy accessibility. Within each section, combination regimens are listed first, in alphabetical order, followed by single agents with activity in that disease. We have included many of the more commonly used chemotherapy protocols, as well as some newer, promising protocols; however, the listing of regimens is not all-inclusive or meant to direct therapy.

Second, the book includes sections on pain control, antibiotic use in neutropenic fever, antiemetic guidelines, and supportive care medications. The book continues with a section on drugs used in commonly encountered problems in hematology, and concludes with a listing of the wholesale costs of most chemotherapy agents. The rapid growth of chemotherapeutic options will make frequent updates of this handbook essential for the future state-of-the-art care of our patients.

During our educational journey into the ever-evolving fields of hematology and oncology, we noticed that there was no updated, well-organized guide, as described above. We envision this book to be utilized on a regular basis by all those involved in the day-to-day care of patients with cancer. We sincerely hope our efforts in preparing this handbook improve the care of those suffering from cancer. This handbook has already paid dividends in assisting us to better care for our patients, and we hope that you, the reader, will also be pleased.

Alan D. Langerak, M.D.

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Brain Cancer

Agent	Dosage			
Carmustine (BCNU)	BCNU	80 mg/M ²	IV	days 1-3
	REF: Walker et al. J Neurosurg 1978; 49:333-343			
	PREMEDICATIONS			
	<ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-3 2. Dexamethasone 10 mg IV before chemotherapy on days 1-3 			
Give non-cisplatin delayed emesis prophylaxis				
Repeat every 6-8 weeks				
Carmustine—maximum total dose is 1440 mg/M ² ; causes delayed myelosuppression				
PCV (standard dose) procarbazine/ lomustine (CCNU)/ vincristine	Procarbazine	60 mg/M ²	PO	days 8-21
	CCNU	110 mg/M ²	PO	day 1
	Vincristine	1.4 mg/M ²	IV	days 8,29
	–this regimen is started within 14 days of completion of XRT			
REF: Levin et al. Int J Radiat Oncol Biol Phys 1990; 18:321-324				
PREMEDICATIONS				
<ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV before chemotherapy on day 1 				
Repeat every 42 days until progression or a maximum of one year				
Lomustine—delayed myelosuppression				
Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation				
–maximum 2 mg per administration				
I-PCV (intensified) procarbazine/ lomustine (CCNU)/ vincristine	CCNU	130 mg/M ²	PO	day 1
	Procarbazine	75 mg/M ²	PO	days 8-21
	Vincristine	1.4 mg/M ²	IV	days 8,29
	–no dose maximum for Vincristine			
REF: Cairncross et al. J Clin Oncol 1994; 12:2013-2021				

Brain Cancer

Breast Cancer

Carcinoma of Unknown Primary

Endocrine Cancer

Gastrointestinal Cancer

Genitourinary Cancer

Gynecologic Cancer

Head and Neck Cancer

Hematologic Malignancies

Continued

Brain Cancer	Agent	Dosage	
Breast Cancer		<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV before chemotherapy on day 1 <p>Repeat every 6 weeks</p> <p>Lomustine—delayed myelosuppression</p> <p>Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; —maximum 2 mg per administration</p>	
Carcinoma of Unknown Primary		<p>Temozolomide</p>	<p>Temozolomide 150-200 mg/M² PO days 1-5</p> <p>REF: Yung et al. J Clin Oncol 1999; 17:2762-2771</p> <p>Repeat every 28 days</p> <p>Temozolomide—start at 150 mg/M² and advance dose up to 200 mg/M² as tolerated, based on myelosuppression (adjust dose per package insert); taken for a maximum of 2 years, or until disease progression</p>
Endocrine Cancer		<p>Thalidomide</p>	<p>for high-grade gliomas</p> <p>Thalidomide 800 mg PO QHS daily —dose advanced 200 mg every 2 weeks as tolerated to maximum of 1200 mg daily</p> <p>REF: Fine et al. J Clin Oncol 2000; 18:708-715</p> <p>Thalidomide—providers and pharmacies must be registered with the S.T.E.P.S. program; can cause significant somnolence</p>
Gastrointestinal Cancer			
Genitourinary Cancer			
Gynecologic Cancer			
Head and Neck Cancer			
Hematologic Malignancies			

Chapter 2

Breast Cancer

Breast Cancer

Agent	Dosage				Brain Cancer	
AC doxorubicin/ cyclophosphamide	Doxorubicin	60 mg/M ²	IV	day 1	Breast Cancer	
	Cyclophosphamide	600 mg/M ²	IV	day 1		
REF: Fisher et al. J Clin Oncol 1990; 8:1483-1496						
PREMEDICATIONS						
1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy						
2. Dexamethasone 20 mg IV 30 minutes before chemotherapy						
Repeat every 21 days						
Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0						
A → CMF doxorubicin followed by cyclophosphamide/ methotrexate/ fluorouracil (5-FU)	Doxorubicin	75 mg/M ²	IV	day 1	Carcinoma of Unknown Primary	
	—given every 21 days for 4 cycles					
	Cyclophosphamide	600 mg/M ²	IV	day 1	Endocrine Cancer	
	Methotrexate	40 mg/M ²	IV	day 1		
	5-FU	600 mg/M ²	IV	day 1	Gastrointestinal Cancer	
	—the CMF portion of this regimen is given every 21 days for 8 cycles					
	REF: Bonadonna et al. JAMA 1995; 273:542-547					
PREMEDICATIONS						
1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy						
2. Dexamethasone 20 mg IV 30 minutes before chemotherapy						
Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0						
Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)						
					Genitourinary Cancer	
					Gynecologic Cancer	
					Head and Neck Cancer	
					Hematologic Malignancies	

Brain Cancer	Agent	Dosage			
Breast Cancer	AC → T doxorubicin/cyclophosphamide followed by paclitaxel	Doxorubicin	60 mg/M ²	IV	day 1
Carcinoma of Unknown Primary		Cyclophosphamide	600 mg/M ²	IV	day 1
Endocrine Cancer	ATC doxorubicin/paclitaxel/cyclophosphamide (sequential)	–above combination is given every 3 weeks for 4 cycles, followed by			
Gastrointestinal Cancer		Paclitaxel	175 mg/M ²	IV	day 1
Genitourinary Cancer	ATC doxorubicin/paclitaxel/cyclophosphamide (sequential)	–every 3 weeks for 4 cycles			
Gynecologic Cancer		REF: Henderson et al. Proc Amer Soc Clin Oncol 1998; 390A			
Head and Neck Cancer	ATC doxorubicin/paclitaxel/cyclophosphamide (sequential)	PREMEDICATIONS			
Hematologic Malignancies		<ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy (for AC) 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy 3. Cimetidine 300 mg IV 30 minutes before paclitaxel 4. Diphenhydramine 25-50 mg IV 30 minutes before paclitaxel 5. Compazine 10 mg PO/IV 30 minutes before paclitaxel 			
	ATC doxorubicin/paclitaxel/cyclophosphamide (sequential)	OTHER MEDICATIONS			
		<ol style="list-style-type: none"> 1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias) <p>Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M² or 450 mg/M² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0</p>			
	ATC doxorubicin/paclitaxel/cyclophosphamide (sequential)	Doxorubicin	90 mg/M ²	IV	days 1, 15, 29
		Paclitaxel	250 mg/M ²	CIV (X 24 h)	days 43, 57, 71
	ATC doxorubicin/paclitaxel/cyclophosphamide (sequential)	Cyclophosphamide	3000 mg/M ²	IV	days 85, 99, 113
		REF: Hudis et al. J Clin Oncol 1999; 17:93-100			
	ATC doxorubicin/paclitaxel/cyclophosphamide (sequential)	PREMEDICATIONS			
		<ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1, 15, 29, 85, 99, and 113 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1, 15, 29, 85, 99, and 113 3. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 43, 57, and 71 			
	ATC doxorubicin/paclitaxel/cyclophosphamide (sequential)	OR			
		Dexamethasone 20 mg PO 6 hours and 12 hours prior to chemotherapy on days 43, 57, and 71			

Continued

Agent	Dosage	Brain Cancer
	<p>4. Cimetidine 300 mg IV 30 minutes before chemotherapy on days 43, 57, and 71</p> <p>5. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy on days 43, 57, and 71</p> <p>6. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 43, 57, and 71</p> <p>OTHER MEDICATIONS</p> <p>1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias)</p> <p>2. G-CSF through entire course of chemo (5 mcg/kg days 3-10 of each 14 day course)</p> <p>3. Give non-cisplatin delayed emesis prophylaxis</p> <p>Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M² or 450 mg/M² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0</p>	<p>Breast Cancer</p>
<p>CAF/IV cyclophosphamide/doxorubicin/5-FU</p>	<p>Cyclophosphamide 500 mg/M² IV day 1</p> <p>Doxorubicin 50 mg/M² IV day 1</p> <p>5-FU 500 mg/M² IV day 1</p> <p>REF: Smalley et al. Cancer 1977; 40:625-632</p> <p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy</p> <p>2. Dexamethasone 20 mg IV 30 minutes before chemotherapy</p> <p>Repeat every 21 days</p> <p>Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M² or 450 mg/M² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0</p>	<p>Carcinoma of Unknown Primary</p> <p>Endocrine Cancer</p> <p>Gastrointestinal Cancer</p> <p>Genitourinary Cancer</p> <p>Gynecologic Cancer</p>
<p>CEF cyclophosphamide/epirubicin/5-FU</p>	<p>Cyclophosphamide 75 mg/M² PO days 1-14</p> <p>Epirubicin 60 mg/M² IV days 1, 8</p> <p>5-FU 500 mg/M² IV days 1, 8</p> <p>REF: Levine et al. J Clin Oncol 1998; 16: 2651-2658</p> <p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1</p> <p>2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1</p>	<p>Head and Neck Cancer</p> <p>Hematologic Malignancies</p>

Continued

Brain Cancer	Agent	Dosage				
Breast Cancer		OTHER MEDICATIONS 1. Trimethoprim-sulfamethoxazole DS 2 tabs PO BID for duration of chemotherapy Repeat every 28 days for 6 cycles Epirubicin—monitor cumulative dose for cardiac toxicity (not to exceed 1000 mg/M ²); vesicant—avoid extravasation				
Carcinoma of Unknown Primary	CMF/IV cyclophosphamide/methotrexate/5-FU—21 day	Cyclophosphamide	600 mg/M ²	IV	day 1	Methotrexate 40 mg/M ² IV day 1 5-FU 600 mg/M ² IV day 1 REF: Hainsworth et al. Cancer 1997; 79:740-748
Endocrine Cancer		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy Repeat every 21 days				
Gastrointestinal Cancer		Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)				
Genitourinary Cancer	CMF/IV cyclophosphamide/methotrexate/5-FU—28 day	Cyclophosphamide	600 mg/M ²	IV	days 1, 8	Methotrexate 40 mg/M ² IV days 1, 8 5-FU 600 mg/M ² IV days 1, 8 REF: Harper-Wynne et al. Br J Cancer 1999; 81:316-322
Gynecologic Cancer		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 8 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 8 Repeat every 28 days				
Head and Neck Cancer		Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)				
Hematologic Malignancies	CMF/PO cyclophosphamide/methotrexate/5-FU	(Bonadonna regimen) Cyclophosphamide 100 mg/M ² PO days 1-14 Methotrexate 30-40 mg/M ² IV days 1, 8 5-FU 400-600 mg/M ² IV days 1, 8 —use lower doses listed for age > 65 REF: Bonadonna et al. NEJM 1976; 294:405-410				

Continued

Agent	Dosage	Brain Cancer												
	<p>PREMEDICATIONS</p> <p>1. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 1 and 8</p> <p>Repeat every 28 days</p> <p>Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)</p>	Breast Cancer												
<p>FEC</p> <p>fluorouracil (5-FU)/epirubicin/cyclophosphamide</p>	<table border="0"> <tr> <td>5-FU</td> <td>500 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> <tr> <td>Epirubicin</td> <td>60 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> <tr> <td>Cyclophosphamide</td> <td>500 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> </table> <p>REF: Blomqvist et al. J Clin Oncol 1993; 11:467-473</p> <p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy</p> <p>2. Dexamethasone 20 mg IV 30 minutes before chemotherapy</p> <p>Repeat every 28 days</p> <p>Epirubicin—monitor cumulative dose for cardiac toxicity (not to exceed 1000 mg/M²); vesicant – avoid extravasation</p>	5-FU	500 mg/M ²	IV	day 1	Epirubicin	60 mg/M ²	IV	day 1	Cyclophosphamide	500 mg/M ²	IV	day 1	Carcinoma of Unknown Primary
5-FU	500 mg/M ²	IV	day 1											
Epirubicin	60 mg/M ²	IV	day 1											
Cyclophosphamide	500 mg/M ²	IV	day 1											
<p>MV</p> <p>mitomycin C/vinblastine</p>	<table border="0"> <tr> <td>Mitomycin C</td> <td>12 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> <tr> <td>Vinblastine</td> <td>6 mg/M²</td> <td>IV</td> <td>days 1,22</td> </tr> </table> <p>REF: Nabholz et al. J Clin Oncol 1999; 17:1413-1424</p>	Mitomycin C	12 mg/M ²	IV	day 1	Vinblastine	6 mg/M ²	IV	days 1,22	Endocrine Cancer				
Mitomycin C	12 mg/M ²	IV	day 1											
Vinblastine	6 mg/M ²	IV	days 1,22											
<p>MV</p> <p>mitomycin C/vinblastine</p>	<p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1</p> <p>2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1</p> <p>3. Compazine 10 mg PO/IV before chemotherapy on day 22</p> <p>Repeat every 42 days</p> <p>Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity</p>	Gastrointestinal Cancer												
<p>MV</p> <p>mitomycin C/vinblastine</p>	<p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1</p> <p>2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1</p> <p>3. Compazine 10 mg PO/IV before chemotherapy on day 22</p> <p>Repeat every 42 days</p> <p>Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity</p>	Genitourinary Cancer												
<p>MV</p> <p>mitomycin C/vinblastine</p>	<p>Mitomycin C—myelosuppression occurs late (approximately 4 weeks); limit cumulative dose to 50 mg/M² (vascular toxicity)</p>	Gynecologic Cancer												
<p>TA</p> <p>docetaxel/doxorubicin</p>	<table border="0"> <tr> <td>Docetaxel</td> <td>75 mg/M²</td> <td>IV(over 1h)</td> <td>day 1</td> </tr> <tr> <td>Doxorubicin</td> <td>50 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> </table> <p>REF: Dieras et al. Oncology 1997; 11:(8 Suppl 8):31-33</p>	Docetaxel	75 mg/M ²	IV(over 1h)	day 1	Doxorubicin	50 mg/M ²	IV	day 1	Head and Neck Cancer				
Docetaxel	75 mg/M ²	IV(over 1h)	day 1											
Doxorubicin	50 mg/M ²	IV	day 1											
<p>TA</p> <p>docetaxel/doxorubicin</p>	<p>REF: Dieras et al. Oncology 1997; 11:(8 Suppl 8):31-33</p>	Hematologic Malignancies												

Continued

Agent	Dosage			
Brain Cancer	OR Docetaxel 60 mg/M ² IV(over 1h) day 1 Doxorubicin 60 mg/M ² IV day 1			
Breast Cancer	REF: Sparano et al. J Clin Oncol 2000; 18:2369-2377 PREMEDICATIONS 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy 2. Cimetidine 300 mg IV 30 minutes before chemotherapy 3. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy 4. Kytrel 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy			
Carcinoma of Unknown Primary	OTHER MEDICATIONS 1. Dexamethasone 8 mg PO BID for 8 doses—start day prior to chemo (decreases lower extremity edema) Repeat every 21 days Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0			
Endocrine Cancer	OTHER MEDICATIONS 1. Dexamethasone 8 mg PO BID for 8 doses—start day prior to chemo (decreases lower extremity edema) Repeat every 21 days Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0			
Gastrointestinal Cancer	OTHER MEDICATIONS 1. Dexamethasone 8 mg PO BID for 8 doses—start day prior to chemo (decreases lower extremity edema) Repeat every 21 days Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0			
2M mitoxantrone/ methotrexate	Mitoxantrone	6.5 mg/M ²	IV	day 1
Genitourinary Cancer	Methotrexate	30 mg/M ²	IV	day 1
Gynecologic Cancer	REF: Stein et al. Eur J Cancer 1992; 28A:1963-1965 PREMEDICATIONS 1. Compazine 10 mg PO/IV 30 minutes before chemotherapy Repeat every 21 days Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”) Mitoxantrone—watch cumulative dose—do not exceed 140 mg/M ² ; possible cardiac toxicity			
VATH vinblastine/ doxorubicin/ thiotepa/flu-oxymesterone	Vinblastine	4.5 mg/M ²	IV	day 1
Head and Neck Cancer	Doxorubicin	45 mg/M ²	IV	day 1
Hematologic Malignancies	Thiotepa	12 mg/M ²	IV	day 1
	Fluoxymesterone	30 mg	PO	days 1-21
	REF: Hart et al. Cancer 1981; 48:1522-1527			

Continued

Agent	Dosage	
	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy <p>Repeat every 21 days</p> <p>Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M² or 450 mg/M² with prior chest radiotherapy); vesicant – avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0</p> <p>Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity</p>	Brain Cancer Breast Cancer
Capecitabine	<p>Capecitabine 2510 mg/M²/d PO days 1-14 divided BID</p> <p>REF: Blum et al. J Clin Oncol 1999; 17:485-493</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Compazine 10 mg PO before chemotherapy prn <p>Repeat every 21 days</p>	Carcinoma of Unknown Primary Endocrine Cancer
Docetaxel	<p>Docetaxel 100 mg/M² IV(over 1h) day 1</p> <p>REF: Nabholz et al. J Clin Oncol 1999; 17:1413-1424</p> <p>Repeat every 21 days</p> <p>OR</p> <p>Docetaxel 40 mg/M² IV(over 1 h) day 1</p> <p>REF: Burstein et al. J Clin Oncol 2000; 18:1212-1219</p> <p>Repeat every 7 days for 6 weeks, followed by a 2 week rest</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy 2. Cimetidine 300 mg IV 30 minutes before chemotherapy 3. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy 4. Compazine 10 mg PO/IV 30 minutes before chemotherapy <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 8 mg PO BID for 8 doses—start day prior to chemo (decreases lower extremity edema) 	Gastrointestinal Cancer Genitourinary Cancer Gynecologic Cancer Head and Neck Cancer Hematologic Malignancies

	Agent	Dosage			
Brain Cancer	Gemcitabine	Gemcitabine	1000 mg/M ²	IV	days 1,8,15
Breast Cancer		REF: Possinger et al. Anticancer Drugs 1999; 10:155-162			
		PREMEDICATIONS			
		1. Compazine 10 mg PO/IV 30 minutes before chemotherapy			
		Repeat every 28 days			
	Liposomal Doxorubicin (Doxil)	Doxil	45-60 mg/M ²	IV	day 1
Carcinoma of Unknown Primary		REF: Ranson et al. J Clin Oncol 1997; 15:3185-3191			
		PREMEDICATIONS			
Endocrine Cancer		1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy			
		2. Dexamethasone 20 mg IV 30 minutes before chemotherapy			
		Repeat every 21-28 days			
Gastrointestinal Cancer		Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0			
	Paclitaxel	Paclitaxel	175 mg/M ²	IV (over 3 h)	day 1
Genitourinary Cancer		REF: Nabholz et al. J Clin Oncol 1996; 14:1858-1867			
		PREMEDICATIONS			
		1. Dexamethasone 20 mg IV 30 minutes before chemotherapy			
		OR			
Gynecologic Cancer		Dexamethasone 20 mg PO 6 and 12 hours prior to chemotherapy			
		2. Cimetidine 300 mg IV 30 minutes before chemotherapy			
		3. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy			
		4. Compazine 10 mg PO/IV 30 minutes before chemotherapy			
Head and Neck Cancer		OTHER MEDICATIONS			
		1. Dexamethasone 4 mg PO BID for 6 doses after (for myalgias)			
		Repeat every 21 days			
Hematologic Malignancies	Pamidronate	Pamidronate	90 mg	IV	day 1
		REF: Theriault et al. J Clin Oncol 1999; 17:846-854			
		Repeat every 28 days			

Agent	Dosage				
Trastuzumab (Herceptin)	Herceptin	4 mg/kg	IV	day 1	Brain Cancer
	Herceptin	2 mg/kg	IV	weekly thereafter	Breast Cancer
	(over 90 min) (over 30 min)				
	–initial infusion is over 90 min; if well-tolerated, subsequent doses are given over 30 min. REF: Cobleigh et al. J Clin Oncol 1999; 17:2639-2648 PREMEDICATIONS 1. Benadryl 25-50 mg PO/IV 30 minutes before Herceptin 2. Tylenol 650 mg PO 30 minutes before Herceptin Repeat every 7 days Trastuzumab—monitor for cardiotoxicity; increases with concurrent Doxorubicin				
Vinorelbine	Vinorelbine	30 mg/M ²	IV	weekly	Endocrine Cancer
	(over 20 min) REF: Fumoleau et al. J Clin Oncol 1993; 11:1245-1252 PREMEDICATIONS 1. Compazine 10 mg PO/IV 30 minutes before chemotherapy Repeat every 7 days Vinorelbine—vesicant; avoid extravasation; can cause peripheral neuropathy				
					Gastrointestinal Cancer
					Genitourinary Cancer
Hormonal Agents	Tamoxifen (Nolvadex)	20 mg	PO	QD	Genitourinary Cancer
	Anastrozole (Arimidex)	1 mg	PO	QD	Gynecologic Cancer
	Exemestane (Aromasin)	25 mg	PO	QD	
	Toremifene (Fareston)	60 mg	PO	QD	Head and Neck Cancer
	Letrozole (Femara)	2.5 mg	PO	QD	
	Megestrol (Megace)	40 mg	PO	QID	Hematologic Malignancies

Chapter 3

Carcinoma of Unknown Primary

Carcinoma of Unknown Primary

Agent	Dosage					
EP (PE) cisplatin/ etoposide (VP-16)	VP-16	80-120 mg/M ²	IV	days 1-3	Brain Cancer	
	Cisplatin	60-100 mg/M ²	IV	day 1		Breast Cancer
	REF: There are multiple variants of this regimen					
	PREMEDICATIONS					
1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after cisplatin 2. Dexamethasone 20 mg IV 30 minutes before cisplatin 3. Compazine 10 mg PO/IV 30 minutes before etoposide					Carcinoma of Unknown Primary	
OTHER MEDICATIONS						
1. Give cisplatin delayed emesis prophylaxis						
Repeat every 21-28 days					Endocrine Cancer	
Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5						
FAM fluorouracil (5-FU)/ doxorubicin/ mitomycin C	5-FU	600 mg/M ²	IV	days 1,8,29,36	Gastrointestinal Cancer	
	Doxorubicin	30 mg/M ²	IV	days 1,29		Gastrointestinal Cancer
	Mitomycin C	10 mg/M ²	IV	day 1		
	REF: Sporn et al. Semin Oncol 1993; 20:261-267					
PREMEDICATIONS					Genitourinary Cancer	
1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after therapy on days 1 and 29 2. Dexamethasone 20 mg IV 30 minutes before doxorubicin 3. Compazine 10 mg PO/IV 30 minutes before 5-FU PRN						
Repeat every 56 days					Gynecologic Cancer	
Mitomycin C—myelosuppression occurs late (approximately 4 weeks); limit cumulative dose to 50 mg/M ² (vascular toxicity)						
Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ²); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0 and 25% for bilirubin > 3.0					Head and Neck Cancer	
PCE paclitaxel/ carboplatin/ etoposide (VP-16)	Paclitaxel	200 mg/M ²	IV (over 1 h)	day 1		Hematologic Malignancies
	Carboplatin	AUC 6	IV	day 1		
VP-16 50 mg/100 mg PO alternating QOD					Hematologic Malignancies	
REF: Hainsworth et al. J Clin Oncol 1997; 15:2385-2393						

Continued

Agent	Dosage
Brain Cancer	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> Dexamethasone 20 mg IV 30 minutes before paclitaxel OR Dexamethasone 20 mg PO 6 and 12 hours prior to paclitaxel Diphenhydramine 25-50 mg IV 30 minutes before paclitaxel Cimetidine 300 mg IV 30 minutes before paclitaxel Kytril 1 mg PO/IV 30 minutes before and 12 hours after carboplatin <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias) Give cisplatin delayed emesis prophylaxis <p>Repeat every 21 days</p>
Breast Cancer	
Carcinoma of Unknown Primary	
Endocrine Cancer	
Gastrointestinal Cancer	
Genitourinary Cancer	
Gynecologic Cancer	
Head and Neck Cancer	
Hematologic Malignancies	

Chapter 4

Endocrine Cancer

- Adrenocortical Carcinoma
- Carcinoid and Islet Cell Carcinoma
- Medullary Carcinoma of Thyroid
- Pheochromocytoma

Endocrine Cancer

Adrenocortical Carcinoma

Agent	Dosage	Cancer Type												
CE cisplatin/ etoposide	<table border="0" style="width: 100%;"> <tr> <td style="width: 30%;">Cisplatin</td> <td style="width: 20%;">40 mg/M²</td> <td style="width: 10%;">IV</td> <td style="width: 40%;">days 1-3</td> </tr> <tr> <td>Etoposide</td> <td>100 mg/M²</td> <td>IV</td> <td>days 1-3</td> </tr> </table> <p>REF: Johnson et al. Cancer 1986; 58:2198-2202</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-3 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1-3 <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Give cisplatin delayed-emesis prophylaxis <p>Repeat every 21 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>	Cisplatin	40 mg/M ²	IV	days 1-3	Etoposide	100 mg/M ²	IV	days 1-3	Brain Cancer Breast Cancer Carcinoma of Unknown Primary Endocrine Cancer Gastrointestinal Cancer				
Cisplatin	40 mg/M ²	IV	days 1-3											
Etoposide	100 mg/M ²	IV	days 1-3											
CM cisplatin/ mitotane	<table border="0" style="width: 100%;"> <tr> <td style="width: 30%;">Cisplatin</td> <td style="width: 20%;">100 mg/M²</td> <td style="width: 10%;">IV</td> <td style="width: 40%;">day 1</td> </tr> <tr> <td colspan="4">-dose reduced to 75 mg/M² in poor risk patients</td> </tr> <tr> <td>Mitotane</td> <td>1000 mg</td> <td>PO</td> <td>QID daily</td> </tr> </table> <p>- advance dose as tolerated</p> <p>REF: Bukowski et al. J Clin Oncol 1993; 11:161-165</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after Cisplatin 2. Dexamethasone 20 mg IV 30 minutes before Cisplatin 3. Compazine 10 mg PO/IV 30 minutes before each dose of mitotane if needed <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Give cisplatin delayed-emesis prophylaxis <p>Repeat every 21days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>	Cisplatin	100 mg/M ²	IV	day 1	-dose reduced to 75 mg/M ² in poor risk patients				Mitotane	1000 mg	PO	QID daily	Genitourinary Cancer Gynecologic Cancer Head and Neck Cancer Hematologic Malignancies
Cisplatin	100 mg/M ²	IV	day 1											
-dose reduced to 75 mg/M ² in poor risk patients														
Mitotane	1000 mg	PO	QID daily											

Continued

Brain Cancer	Agent	Dosage			
Breast Cancer		Mitotane—if well-tolerated, dose may be doubled on day 3; then, from day 5 onwards, may increase dose by 500 mg every 2-3 days until maximum tolerated dose (8-12 grams daily) has been reached; glucocorticoid and mineralocorticoid replacement necessary to prevent adrenal insufficiency; increased steroid doses may be needed at times of physiologic stress			
Carcinoma of Unknown Primary	MS mitotane/streptozocin	Mitotane	2000-4000 mg	PO	QD
Endocrine Cancer		Streptozocin	1000 mg	IV	days 1-5
Gastrointestinal Cancer		–followed by 1500 to 2000 mg monthly maintenance			
Genitourinary Cancer		REF: Eriksson et al. Cancer 1987; 59:1398-1403			
		PREMEDICATIONS			
Gynecologic Cancer	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5				
Head and Neck Cancer	2. Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1-5				
Hematologic Malignancies	OTHER MEDICATIONS				
	1. Give non-cisplatin delayed emesis prophylaxis				
	Streptozocin—vesicant—avoid extravasation; have 50% dextrose available in case of sudden hypoglycemia; monitor closely for renal impairment				
	Mitotane—if well-tolerated, dose may be doubled on day 3; then, from day 5 onwards, may increase dose by 500 mg every 2-3 days until maximum tolerated dose (8-12 grams daily) has been reached; glucocorticoid and mineralocorticoid replacement necessary to prevent adrenal insufficiency; increased steroid doses may be needed at times of physiologic stress				
	Mitotane (o.p.-DDD)	Mitotane	6-15 mg/kg	PO	QD
		(in 3-4 divided doses)			
		REF: Wooten et al. Cancer 1993; 72:3145-3155			
		Mitotane—if well-tolerated, dose may be doubled on day 3; then, from day 5 onwards, may increase dose by 500 mg every 2-3 days until maximum tolerated dose (8-12 grams daily) has been reached; glucocorticoid and mineralocorticoid replacement necessary to prevent adrenal insufficiency; increased steroid doses may be needed at times of physiologic stress			

Carcinoid and Islet Cell Carcinoma

Agent	Dosage				Brain Cancer
CE cisplatin/ etoposide	Cisplatin	100 mg/M ²	IV	day 1	Breast Cancer
	Etoposide	120 mg/M ²	IV	day 1	
	REF: Davis et al. Proc Am Soc Clin Oncol 1987; 6:73				
	PREMEDICATIONS				
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy				
2. Dexamethasone 20 mg IV 30 minutes before chemotherapy					Carcinoma of Unknown Primary
OTHER MEDICATIONS					
1. Give cisplatin delayed-emesis prophylaxis					
Repeat every 21days					Endocrine Cancer
Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5					
Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0					
Doxorubicin/ cisplatin	Doxorubicin	50 mg/M ²	IV	day 1	Gastrointestinal Cancer
	Cisplatin	50 mg/M ²	IV	day 1	
	REF: Sridhar et al. Cancer 1985; 55:2634-2637				
	PREMEDICATIONS				
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy				
2. Dexamethasone 20 mg IV 30 minutes before chemotherapy					
OTHER MEDICATIONS					Gynecologic Cancer
1. Give cisplatin delayed-emesis prophylaxis					
Repeat every 21-28 days					
Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5					Head and Neck Cancer
Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0					
Streptozocin/ doxorubicin	Streptozocin	500 mg/M ²	IV	days 1-5	Hematologic Malignancies
	Doxorubicin	50 mg/M ²	IV	days 1, 22	
REF: Moertel et al. NEJM 1992; 326:519-523					

Continued

Agent	Dosage								
Brain Cancer	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5 and 22 Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1-5 and 22 <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> Give non-cisplatin delayed emesis prophylaxis <p>Repeat every 42 days</p> <p>Streptozocin—vesicant—avoid extravasation; have 50% dextrose available in case of sudden hypoglycemia; monitor closely for renal impairment</p> <p>Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M² or 450 mg/M² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0</p> <table border="1"> <tr> <td>Streptozocin</td> <td>500 mg/M²</td> <td>IV</td> <td>days 1-5</td> </tr> <tr> <td>5-FU</td> <td>400 mg/M²</td> <td>IV</td> <td>days 1-5</td> </tr> </table> <p>REF: Moertel et al. NEJM 1980; 303:1189-1194</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5 Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1-5 <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> Give non-cisplatin delayed emesis prophylaxis <p>Repeat every 42 days</p> <p>Streptozocin—vesicant—avoid extravasation; have 50% dextrose available in case of sudden hypoglycemia; monitor closely for renal impairment</p>	Streptozocin	500 mg/M ²	IV	days 1-5	5-FU	400 mg/M ²	IV	days 1-5
Streptozocin		500 mg/M ²	IV	days 1-5					
5-FU		400 mg/M ²	IV	days 1-5					
Breast Cancer									
Carcinoma of Unknown Primary									
Endocrine Cancer									
Gastrointestinal Cancer									
Genitourinary Cancer									
Gynecologic Cancer									
Head and Neck Cancer									
Hematologic Malignancies									

Medullary Carcinoma of Thyroid

Agent	Dosage				Brain Cancer
CVD cyclophosphamide/vincristine/dacarbazine (DTIC)	Cyclophosphamide	750 mg/M ²	IV	day 1	Breast Cancer
	Vincristine	1.4 mg/M ²	IV	day 1	
	DTIC	600 mg/M ²	IV	days 1, 2	
	REF: Wu et al. Cancer 1994; 73:432-436				
PREMEDICATIONS					Endocrine Cancer
1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 2					
2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 2					Genitourinary Cancer
Repeat every 21-28 days					
Dacarbazine—vesicant—avoid extravasation					Head and Neck Cancer
Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration					
Dacarbazine (DTIC)/fluorouracil (5-FU)	DTIC	250 mg/M ²	IV	days 1-5 (over 15-30 min)	Gastrointestinal Cancer
	5-FU	450 mg/M ²	IV	days 1-5 (over 12 hours)	
REF: Orlandi et al. Ann Oncol 1994; 5:763-765					Genitourinary Cancer
PREMEDICATIONS					
1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5					Head and Neck Cancer
2. Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1-5					
Repeat every 28 days (maximum of 6 cycles)					
Dacarbazine—vesicant—avoid extravasation					

Pheochromocytoma

Brain Cancer	Agent	Dosage			
Breast Cancer	CVD cyclophosphamide/ vincristine/ dacarbazine (DTIC)	Cyclophosphamide	750 mg/M ²	IV	day 1
Carcinoma of Unknown Primary		Vincristine	1.4 mg/M ²	IV	day 1
Endocrine Cancer		DTIC	600 mg/M ²	IV	days 1, 2
Gastrointestinal Cancer		REF: Averbuch et al. Ann Intern Med 1988; 109:267-273			
Genitourinary Cancer		PREMEDICATIONS			
Gynecologic Cancer		1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 2			
Head and Neck Cancer		2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 2			
Hematologic Malignancies		Repeat every 21-28 days			
		Dacarbazine—vesicant—avoid extravasation			
		Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration			

Chapter 5

Gastrointestinal Cancer

- Anal Cancer
- Colorectal Carcinoma
- Esophageal Cancer
- Gastric Carcinoma
- Pancreatic Cancer

Gastrointestinal Cancer

Anal Cancer

Agent	Dosage				Brain Cancer
Fluorouracil (5-FU)/ mitomycin C/ XRT	5-FU	1000 mg/M ² /d	CIV	days 1-4 (X 4 days) & 29-32	Breast Cancer
	Mitomycin C	10 mg/M ²	IV	days 1,29	Carcinoma of Unknown Primary
	- maximum dose of mitomycin C is 20 mg - given concurrently with XRT to 45 Gy over 5 weeks If residual tumor is present on post-therapy biopsy:				Endocrine Cancer
	5-FU	1000 mg/M ² /d	CIV	days 1-4 (X 4 days)	Gastrointestinal Cancer
	Cisplatin	100 mg/M ²	IV	day 2	
	- given with XRT boost of 9 Gy over 5 days REF: Flan et al. J Clin Oncol 1996; 14:2527-2539 PREMEDICATIONS				Genitourinary Cancer
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 29 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 29 3. If cisplatin is required, give above medications on day 2 before and after cisplatin OTHER MEDICATIONS				Gynecologic Cancer
	1. Give cisplatin delayed-emesis prophylaxis (if cisplatin is required) Mitomycin C—myelosuppression occurs late (approximately 4 weeks); limit cumulative dose to 50 mg/M ² (vascular toxicity)				Head and Neck Cancer
	Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5				Hematologic Malignancies

Colorectal Carcinoma

Brain Cancer	Rectal Cancer				
Breast Cancer	Agent	Dosage			
Carcinoma of Unknown Primary	Fluorouracil (5-FU)/ radiotherapy	5-FU	500 mg/M ²	IV bolus	days 1-5, 36-40
		5-FU	225 mg/M ² /d	CIV	days 56-96
		- XRT 45 Gy given in 180 cGy fractions over 6 weeks starting day 56			
		5-FU	450 mg/M ²	IV bolus	days 120-124, 134-138, 169-173
		REF: O'Connell et al. NEJM 1994; 331:502-507			
Colorectal Cancer					
Endocrine Cancer	Fluorouracil (5-FU)/ leucovorin (Mayo)-adjuvant	5-FU	425 mg/M ²	IV bolus	days 1-5
		Leucovorin	20 mg/M ²	IV bolus	days 1-5
		REF: O'Connell et al. J Clin Oncol 1997; 15:246-250			
		Repeat every 28 days for 6 cycles			
Gastrointestinal Cancer	Fluorouracil (5-FU)/ leucovorin-adjuvant	Leucovorin	500 mg/M ²	IV (over 2 h)	weekly for 6 wks
		followed 1 hour later by			
		5-FU	500 mg/M ²	IV bolus	weekly for 6 wks
		REF: Wolmark et al. J Clin Oncol 1993; 11:1879-1887			
		Repeat every 56 days			
Genitourinary Cancer	Fluorouracil (5-FU)/ levamisole-adjuvant	5-FU	450 mg/M ²	IV	days 1-5
		then a 3 week rest followed by			
		5-FU	450 mg/M ²	IV	weekly for 48 wks
		Levamisole	150 mg	PO	days 1-3 every 2 wks for 1 yr
		REF: Moertel et al. J Clin Oncol 1995; 13:2936-2943			
		Therapy lasts a total of 52 weeks			
Head and Neck Cancer	Fluorouracil (5-FU)/ leucovorin (De Gramont)-metastatic	5-FU	1500-2000 mg/M ² /d	CIV (for 48 h)	days 1-2
		Leucovorin	500 mg/M ²	IV (over 2 h)	days 1-2
		REF: De Gramont et al. Eur J Cancer 1998; 34:619-626			
		Repeat every 14 days			
Hematologic Malignancies					

Agent	Dosage				
Fluorouracil (5-FU)/ leucovorin (Mayo)– metastatic	5-FU	425 mg/M ²	IV bolus	days 1-5	Brain Cancer
	Leucovorin	20 mg/M ²	IV bolus	days 1-5	
	REF: Buroker et al. J Clin Oncol 1994; 12:14-20				Breast Cancer
	Repeat every 28-35 days				
High-dose fluorouracil (5-FU)/ leucovorin– metastatic	5-FU	2600 mg/M ² /day	CIV (X 24 h)	day 1	Carcinoma of Unknown Primary
	Leucovorin	500 mg/M ²	IV (over 1 h) before 5-FU	day 1	
	REF: Weh et al. Ann Oncol 1994; 5:233-237				Endocrine Cancer
	Repeat every 7 days for 6 weeks, then after a 2-week rest, repeat cycle				
Irinotecan/ fluorouracil (5-FU)/ leucovorin– metastatic	Irinotecan	125 mg/M ²	IV (over 90 min)	day 1	Gastrointestinal Cancer
	Leucovorin	20 mg/M ²	IV	day 1	
	5-FU	500 mg/M ²	IV	day 1	Genitourinary Cancer
	REF: Saltz et al. Proc Amer Soc Clin Oncol 1999; 18:abstract 898				
	PREMEDICATIONS				Gynecologic Cancer
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy				
	OTHER MEDICATIONS				Head and Neck Cancer
	1. Lomotil 4 mg PO at first sign of any loose stool and 2 mg every 2 hours until formed stool				
	Repeat every 7 days for 4 weeks, followed by a 2 week break, then repeat				Hematologic Malignancies
Trimetrexate/ fluorouracil (5-FU)/ leucovorin– metastatic	Trimetrexate	110 mg/M ²	IV	day 1	
	Leucovorin	200 mg/M ²	IV	day 2	
	5-FU	500 mg/M ²	IV	day 2	Gynecologic Cancer
	- give 5-FU immediately after Leucovorin				
	Leucovorin	15 mg	PO Q6H for 7 doses	days 2,3	
	- start 6 hours after 5-FU				Head and Neck Cancer
	REF: Blanke et al. J Clin Oncol 1997; 15:915-920				
	Repeat every 7 days for 6 weeks, followed by a 2 week break, then repeat				Hematologic Malignancies
Capecitabine	Capecitabine	2510 mg/M ² /d	PO (divided BID)	days 1-14	
	REF: Van Cutsem et al. J Clin Oncol 2000; 18:1337-1345				
	PREMEDICATIONS				
	1. Compazine 10 mg PO before chemotherapy prn				
	Repeat every 21 days				

	Agent	Dosage
Brain Cancer	Fluorouracil continuous infusion–metastatic	5-FU 300 mg/M ² /d CIV daily REF: Lokich et al. J Clin Oncol 1989; 7:425-432
Breast Cancer		Treatment is continued until toxicity requires discontinuation or disease progression
Carcinoma of Unknown Primary	Irinotecan (weekly)–metastatic	Irinotecan 125 mg/M ² IV days 1,8,15,22 (over 90 min) REF: Pitot et al. J Clin Oncol 1997; 15:2910-2919
Endocrine Cancer		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy
		OTHER MEDICATIONS 1. Lomotil 4 mg PO at first sign of any loose stool and 2 mg every 2 hours until formed stool Repeat every 42 days
Gastrointestinal Cancer	Irinotecan–metastatic	Irinotecan 350 mg/M ² IV (over 30 min) day 1 REF: Rougier et al. J Clin Oncol 1997; 15:251-260
Genitourinary Cancer		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy
		OTHER MEDICATIONS 1. Lomotil 4 mg PO at first sign of any loose stool and 2 mg every 2 hours until formed stool Repeat every 21 days
Gynecologic Cancer	Oxaliplatin–metastatic	Oxaliplatin 130 mg/M ² IV (over 2 h) day 1 REF: Becouarn et al. J Clin Oncol 1998; 16:2739-2744
Head and Neck Cancer		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy Repeat every 21 days
		Hematologic Malignancies

Esophageal Cancer

Concurrent Chemotherapy/Radiotherapy Regimens

Agent	Dosage	
Fluorouracil (5-FU)/cisplatin/XRT (Wayne State)	Cisplatin	75 mg/M ² IV days 1,29,50,71
	5-FU	1000 mg/M ² /d CIV days 1-4,29-32, 50-53,71-74
	- above is given concurrently with XRT 50 Gy over 5 weeks	
	REF: Al-Sarraf et al. J Clin Oncol 1997; 15:277-284	
PREMEDICATIONS		
1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1, 29, 50 and 71		
2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1, 29, 50 and 71		
OTHER MEDICATIONS		
1. Give cisplatin delayed-emesis prophylaxis		
Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5		
Fluorouracil (5-FU)/cisplatin/XRT (Johns Hopkins)	Cisplatin	26 mg/M ² /d CIV days 1-5,26-30
	5-FU	300 mg/M ² /d CIV days 1-30
	- above is given concurrently with XRT 44 Gy at 200 cGy daily	
	- above is followed by esophagectomy when possible	
REF: Forastiere et al. Cancer J Sci Am 1997; 3:144-152		
PREMEDICATIONS		
1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5, 26-30		
2. Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1-5, 26-30		
OTHER MEDICATIONS		
1. Give cisplatin delayed-emesis prophylaxis		
Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5		
Fluorouracil (5-FU)/cisplatin/XRT (North Carolina)	Cisplatin	100 mg/M ² IV day 1
	5-FU	1000 mg/M ² /d CIV days 1-4,29-32
	- above is given concurrently with XRT 45 Gy over 5 weeks	
	- above is followed by esophagectomy when possible	
REF: Bates et al. J Clin Oncol 1996; 14:156-163		

Brain Cancer

Breast Cancer

Carcinoma of Unknown Primary

Endocrine Cancer

Gastrointestinal Cancer

Genitourinary Cancer

Gynecologic Cancer

Head and Neck Cancer

Hematologic Malignancies

Continued

Agent	Dosage
Brain Cancer	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Give cisplatin delayed-emesis prophylaxis <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>
Breast Cancer	
Carcinoma of Unknown Primary	
Chemotherapy Regimens	
CF cisplatin/ fluorouracil (5-FU) Endocrine Cancer Gastrointestinal Cancer Genitourinary Cancer	<p>Cisplatin 100 mg/M² IV day 1 5-FU 1000 mg/M²/d CIV X 5 days days 1-5</p> <p>REF: Kies et al. Cancer 1987; 60:2156-2160</p> <p>–there are multiple variations of this regimen</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Give cisplatin delayed-emesis prophylaxis <p>Repeat every 28 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>
Gynecologic Cancer	<p>CP carboplatin/ paclitaxel</p> <p>Paclitaxel 200 mg/M² IV (over 3 h) day 1 –followed by Carboplatin AUC 5 IV day 1</p> <p>REF: Philip et al. Semin Oncol 1997; 24(6 Supp 19):86-88</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy OR Dexamethasone 20 mg PO 6 and 12 hours prior 2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy 3. Cimetidine 300 mg IV 30 minutes before chemotherapy 4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy
Head and Neck Cancer	
Hematologic Malignancies	

Agent	Dosage				Brain Cancer
	<p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias) 2. Give cisplatin delayed emesis prophylaxis <p>Repeat every 21 days</p>				Breast Cancer
<p>FAP fluorouracil (5-FU)/doxorubicin/cisplatin</p>	5-FU	600 mg/M ²	IV	days 1,8	Carcinoma of Unknown Primary
	Doxorubicin	30 mg/M ²	IV	day 1	Endocrine Cancer
	Cisplatin	75 mg/M ²	IV	day 1	Gastrointestinal Cancer
	REF: Gisselbrecht et al. Cancer 1983; 52:974-977				Genitourinary Cancer
	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 				
	<p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Give cisplatin delayed-emesis prophylaxis <p>Repeat every 28 days</p>				
	<p>Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M² or 450 mg/M² with prior chest Radiotherapy); vesicant – avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0</p>				
	<p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>				Hematologic Malignancies
<p>Irinotecan/cisplatin</p>	Irinotecan	65 mg/M ²	IV	days 1, 8, 15, 22	Gynecologic Cancer
	Cisplatin	30 mg/M ²	IV	days 1, 8, 15, 22	Head and Neck Cancer
	REF: Ilson et al. J Clin Oncol 1999; 17:3270-3275				
	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy 				
	<p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Give cisplatin delayed-emesis prophylaxis <p>Repeat every 28 days</p>				
	<p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>				

Continued

	Agent	Dosage			
Brain Cancer	PCE paclitaxel/ cisplatin/ etoposide	Paclitaxel	50 mg/M ²	IV	days 1,4,8,11,15, and 18
Breast Cancer		Cisplatin	15 mg/M ²	IV	days 1,4,8,11,15, and 18
Carcinoma of Unknown Primary		Etoposide	40 mg/M ²	IV	days 1,4,8,11,15, and 18
Endocrine Cancer		REF: Lokich et al. Cancer 1999; 85:2347-2351			
Gastrointestinal Cancer		PREMEDICATIONS			
Genitourinary Cancer		1. Dexamethasone 20 mg IV 30 minutes before chemo- therapy OR Dexamethasone 20 mg PO 6 and 12 hours prior			
Gynecologic Cancer		2. Diphenhydramine 50 mg IV 30 minutes before chemo- therapy			
Head and Neck Cancer		3. Cimetidine 300 mg IV 30 minutes before chemotherapy			
Hematologic Malignancies		4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy			
			OTHER MEDICATIONS		
		1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias)			
		2. May need to give cisplatin delayed-emesis prophylaxis			
		Repeat cycle every 28 days			
		Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5			
	TCF paclitaxel/ cisplatin/ fluorouracil (5-FU)	Paclitaxel	175 mg/M ²	IV (over 3 h)	day 1
		Cisplatin	20 mg/M ²	IV	days 1-5
		- dose is decreased to 15 mg/M ² after 3 rd cycle			
		5-FU	750 mg/M ²	IV	days 1-5
		REF: Ilson et al. J Clin Oncol 1998; 16:1826-1834			
		PREMEDICATIONS			
		1. Dexamethasone 20 mg IV 30 minutes before chemo- therapy on days 1-5			
		2. Diphenhydramine 50 mg IV 30 minutes before chemo- therapy on day 1			
		3. Cimetidine 300 mg IV 30 minutes before chemotherapy on day 1			
		4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5			
		OTHER MEDICATIONS			
		1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias)			

Agent	Dosage	
	<p>2. Give cisplatin delayed-emesis prophylaxis</p> <p>Repeat every 28 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>	Brain Cancer
<p>Paclitaxel</p>	<p>Paclitaxel 250 mg/M²CIV over 24 hours day 1</p> <p>- studies are currently underway utilizing 80 mg/M² IV over 1 hour weekly</p> <p>REF: Ajani et al. Semin Oncol 1995; 22(3 Suppl 6):35-40</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy 2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy 3. Cimetidine 300 mg IV 30 minutes before chemotherapy <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 4 mg PO BID for 6 doses after (for myalgias) 2. Requires use of G-CSF <p>Repeat every 21 days</p>	<p>Breast Cancer</p> <p>Carcinoma of Unknown Primary</p> <p>Endocrine Cancer</p> <p>Gastrointestinal Cancer</p> <p>Genitourinary Cancer</p> <p>Gynecologic Cancer</p> <p>Head and Neck Cancer</p> <p>Hematologic Malignancies</p>

Gastric Carcinoma

Adjuvant Concurrent Chemo/Radiotherapy

Brain Cancer	Agent	Dosage
Breast Cancer	Fluorouracil (5-FU)/leucovorin/XRT—adjuvant	5-FU 425 mg/M ² IV bolus days 1-5
Carcinoma of Unknown Primary		Leucovorin 20 mg/M ² IV bolus days 1-5
		-above is given for 1 cycle postoperatively, followed by
Endocrine Cancer		5-FU 425 mg/M ² IV bolus days 1-4,38-40
		Leucovorin 20 mg/M ² IV bolus days 1-4,38-40
	-above is given concurrently with XRT to 4500 cGy in 180 cGy fractions	
	-chemotherapy is given on first 4 and last 3 days of radiotherapy	
	-this is followed by	
	5-FU 425 mg/M ² IV bolus days 1-5	
	Leucovorin 20 mg/M ² IV bolus days 1-5	
	-above portion of regimen is repeated every 28 days for 2 cycles post-concurrent therapy	
	REF: MacDonald et al. Proc ASCO 2000: abstract 1	

Chemotherapy for Advanced Disease

Gastrointestinal Cancer	EAP-2 etoposide (VP-16)/doxorubicin/cisplatin	VP-16 100 mg/M ² IV days 1-3
Genitourinary Cancer		Doxorubicin 40 mg/M ² IV day 1
		Cisplatin 25-30 mg/M ² IV days 1-3
Gynecologic Cancer		REF: Haim et al. Oncology 1994; 51:102-107
		PREMEDICATIONS
Head and Neck Cancer		1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-3
	2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1-3	
Hematologic Malignancies	OTHER MEDICATIONS	
	1. Give cisplatin delayed-emesis prophylaxis	
	Repeat every 21 days	
	Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5	
	Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0	

Agent	Dosage				
ECF epirubicin/ cisplatin/ fluorouracil (5-FU)	Epirubicin	50 mg/M ²	IV	day 1	Brain Cancer
	Cisplatin	60 mg/M ²	IV	day 1	
	5-FU	200 mg/M ² /d	CIV(X21 days)	daily	
	REF: Webb et al. J Clin Oncol 1997; 15:261-267				
	PREMEDICATIONS				Breast Cancer
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1				
	2. Dexamethasone 10 mg IV 30 minutes before chemotherapy on day 1				Carcinoma of Unknown Primary
	OTHER MEDICATIONS				
	1. Give cisplatin delayed-emesis prophylaxis				Endocrine Cancer
	Repeat every 21 days				
	Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5				
	Epirubicin—monitor cumulative dose for cardiac toxicity (not to exceed 1000 mg/M ²); vesicant—avoid extravasation				
EFP etoposide (VP-16)/ fluorouracil (5-FU)/cisplatin	VP-16	90 mg/M ²	IV	days 1,3,5 (over 2 h)	Gastrointestinal Cancer
	5-FU	900 mg/M ² /d	CIV	days 1-5 (X 5 days)	
	Cisplatin	20 mg/M ²	IV	days 1-5	
	REF: Ajani et al. J Clin Oncol 1990; 8:1231-1238				
	PREMEDICATIONS				Genitourinary Cancer
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5				
	2. Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1-5				Gynecologic Cancer
	OTHER MEDICATIONS				
	1. Give cisplatin delayed-emesis prophylaxis				Head and Neck Cancer
	Repeat every 28 days				
	Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5				
ELF etoposide (VP-16)/ leucovorin/ fluorouracil (5-FU)	Leucovorin	300 mg/M ²	IV	days 1-3 (over 10 min)	Hematologic Malignancies
	VP-16	120 mg/M ²	IV	days 1-3 (over 50 min)	
	5-FU	500 mg/M ²	IV	days 1-3 (over 10 min)	

Continued

	Agent	Dosage
Brain Cancer	FAM fluorouracil (5-FU)/ doxorubicin/ mitomycin C	REF: Wilke et al. Invest New Drugs 1990; 8:65-70
Breast Cancer		PREMEDICATIONS 1. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 1-3 Repeat every 21 days
Carcinoma of Unknown Primary		5-FU 600 mg/M ² IV days 1,8, 29,36
		Doxorubicin 30 mg/M ² IV days 1,29 Mitomycin C 10 mg/M ² IV day 1
Endocrine Cancer		REF: MacDonald et al. Ann Intern Med 1980; 93:533-536 PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 29 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 29 Repeat every 56 days
Gastrointestinal Cancer		Mitomycin C—myelosuppression occurs late (approximately 4 weeks); limit cumulative dose to 50 mg/M ² (vascular toxicity) Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0
Genitourinary Cancer		FAMTx fluorouracil (5-FU)/ doxorubicin/ methotrexate Methotrexate 1500 mg/M ² IV day 1 - give MTX first and then wait 1 hour and give 5-FU 5-FU 1500 mg/M ² IV day 1 Leucovorin 15 mg/M ² PO Q6H days 2-4 - give total of 12 doses of Leucovorin, starting 24 hours after methotrexate
Gynecologic Cancer		Doxorubicin 30 mg/M ² IV day 15 REF: Kelsen et al. J Clin Oncol 1992; 10:541-548
Head and Neck Cancer		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 15 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 15
Hematologic Malignancies	Repeat cycle on day 29 Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0	

Continued

Agent	Dosage				
	Methotrexate—use 75% dose for CrCl < 50 and 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)			Brain Cancer	
Irinotecan/ cisplatin	Irinotecan	70 mg/M ²	IV	days 1, 15	Brain Cancer
	Cisplatin	80 mg/M ²	IV	day 1	Breast Cancer
	REF: Boku et al. J Clin Oncol 1999; 17:319-323				Carcinoma of Unknown Primary
	PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 15 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 15 OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis 2. Lomotil 4 mg PO at first sign of any loose stool and 2 mg every 2 hours until formed stool Repeat every 28 days Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5				Endocrine Cancer
PF paclitaxel/ fluorouracil (5-FU)	Paclitaxel	175 mg/M ²	IV (over 3 h)	day 1	Gastrointestinal Cancer
	5-FU	1500 mg/M ²	IV (over 3 h)	day 2	
	REF: Murad et al. Am J Clin Oncol 1999; 22:580-586				Gynecologic Cancer
	PREMEDICATIONS 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy on day 1 3. Cimetidine 300 mg IV 30 minutes before chemotherapy on day 1 4. Compazine 10 mg PO/IV 30 minutes before chemotherapy on day 2 OTHER MEDICATIONS 1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias) Repeat every 21 days for a maximum of 7 cycles				Head and Neck Cancer
Fluorouracil (5-FU)	5-FU	500 mg/M ²	IV	days 1-5	Hematologic Malignancies
	REF: Cullinan et al. J Clin Oncol 1994; 12:412-416 Repeat every 28 days				

Pancreatic Cancer

Neoadjuvant Chemoradiation

Brain Cancer	Agent	Dosage	
Breast Cancer	Fluorouracil (5-FU)/mitomycin C/XRT (ECOG)	5-FU 1000 mg/M ² /d CIV days 2-5, 29-32	
Carcinoma of Unknown Primary		Mitomycin C 10 mg/M ² IV day 2 - XRT given to 5040 cGy in 28 fractions starting on day 1 - definitive surgical resection follows completion of chemoradiation when possible REF: Hoffman et al. Am J Surg 1995; 169:71-77 PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 2 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 2 Mitomycin C—myelosuppression occurs late (approximately 4 weeks); limit cumulative dose to 50 mg/M ² (vascular toxicity)	
Endocrine Cancer			
Gastrointestinal Cancer		Fluorouracil (5-FU)/XRT (MD Anderson)	5-FU 300 mg/M ² /d CIV daily M-F during radiotherapy
Genitourinary Cancer		- XRT given to 5040 cGy in 28 fractions starting on day 1 - definitive surgical resection follows completion of chemoradiation when possible REF: Spitz et al. J Clin Oncol 1997; 15:928-937	

Adjuvant Chemoradiation

Gynecologic Cancer	Fluorouracil (5-FU)/XRT	5-FU 500 mg/M ² IV days 1-3,29-31 then weekly starting day 71
Head and Neck Cancer		- weekly for 2 years (or until disease progression) - given concurrently with XRT, 20 Gy over 2 weeks, followed by a 2 week break, followed by an additional 20 Gy over 2 weeks - this regimen is utilized after maximal surgical resection REF: Gastrointestinal Tumor Study Group. Am Surg 1979; 189:205-208
Hematologic Malignancies		

Chemotherapy Regimens

Agent	Dosage				Brain Cancer
SMF streptozocin/ mitomycin C/ fluorouracil (5-FU)	Streptozocin	1000 mg/M ² over 1 hr	IV	days 1,8,29,36	Breast Cancer
	Mitomycin C	10 mg/M ² bolus	IV	day 1	
	5-FU	600 mg/M ² bolus	IV	days 1,8,29,36	
	REF: Wiggins et al. Cancer 1978; 41:387-391				Carcinoma of Unknown Primary
	PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy				
OTHER MEDICATIONS 1. Give non-cisplatin delayed emesis prophylaxis Repeat every 56 days				Endocrine Cancer	
Streptozocin—patients require aggressive hydration Mitomycin C—myelosuppression occurs late (approximately 4 weeks); limit cumulative dose to 50 mg/M ² (vascular toxicity)					
Fluorouracil (5-FU)	5-FU	600 mg/M ²	IV	weekly	Gastrointestinal Cancer
	REF: Burris et al. J Clin Oncol 1997; 15:2403-2413				
Gemcitabine	Gemcitabine	1000 mg/M ² over 30 min	IV	weekly X 7	Genitourinary Cancer
	- followed by 1 week of rest; subsequent cycles given 3 weeks out of every 4				
	REF: Burris et al. J Clin Oncol 1997; 15:2403-2413				Gynecologic Cancer
	PREMEDICATIONS 1. Compazine 10 mg PO/IV 30 minutes before chemotherapy Repeat every 28 days (after 8 week induction course)				
				Head and Neck Cancer	
				Hematologic Malignancies	

Chapter 6

Genitourinary Cancer

- Bladder Cancer
- Penile Cancer
- Prostate Cancer
- Renal Cancer
- Testicular Cancer

Genitourinary Cancer

Bladder Cancer

Agent	Dosage	Brain Cancer
Carboplatin/ paclitaxel	Paclitaxel 200 mg/M ² IV (over 3 h) day 1 –followed by Carboplatin AUC 5 IV (over 30 min) day 1	Breast Cancer
	REF: Small et al. J Clin Oncol 2000; 18:2537-2544 PREMEDICATIONS 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy	Carcinoma of Unknown Primary
	OR Dexamethasone 20 mg PO 6 and 12 hours prior 2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy	Endocrine Cancer
	3. Cimetidine 300 mg IV 30 minutes before chemotherapy 4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy	Gastrointestinal Cancer
	OTHER MEDICATIONS 1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias) 2. Give cisplatin delayed emesis prophylaxis Repeat every 21 days	Genitourinary Cancer
CMV cisplatin/ methotrexate/ vinblastine	Cisplatin 100 mg/M ² IV day 2 Methotrexate 30 mg/M ² IV days 1,8 Vinblastine 4 mg/M ² IV days 1,8	Gynecologic Cancer
	REF: Jeffrey et al. Br J Cancer 1992; 66:542-546 PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 2 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 2 3. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 1 and 8	Head and Neck Cancer
	OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis Repeat every 21 days	Hematologic Malignancies

Continued

	Agent	Dosage	
Brain Cancer		Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5	
Breast Cancer		Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)	
Carcinoma of Unknown Primary	Docetaxel/ cisplatin	Docetaxel 75 mg/M ² IV (over 1 h) day 1 Cisplatin 75 mg/M ² IV (over 1 h) day 1 REF: Dimopoulos et al. Ann Oncol 1999; 10:1385-1388 PREMEDICATIONS 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy 2. Cimetidine 300 mg IV 30 minutes before chemotherapy 3. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy 4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy OTHER MEDICATIONS 1. Dexamethasone 8 mg PO BID for 8 doses—start day prior to chemo (decreases lower extremity edema) 2. Give cisplatin delayed-emesis prophylaxis 3. G-CSF is given from day 5 until resolution of neutropenia Repeat every 21 days Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5	
Endocrine Cancer			
Gastrointestinal Cancer			
Genitourinary Cancer			
Gynecologic Cancer		Gemcitabine/ cisplatin	Gemcitabine 1000 mg/M ² IV days 1,8,15 Cisplatin 70 mg/M ² IV day 2 REF: Moore et al. J Clin Oncol 1999; 17:2876-2881 OR Gemcitabine 1000 mg/M ² IV days 1,8,15 Cisplatin 75 mg/M ² IV day 1 REF: Kaufman et al. J Clin Oncol 2000; 18:1921-1927 PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 2 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 2 3. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 1, 8, and 15 if needed
Head and Neck Cancer			
Hematologic Malignancies			

Continued

Agent	Dosage	
	<p>OTHER MEDICATIONS</p> <p>1. Give cisplatin delayed-emesis prophylaxis</p> <p>Repeat every 28 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>	Brain Cancer
<p>MVAC methotrexate/ vinblastine/ doxorubicin/ cisplatin</p>	<p>Methotrexate 30 mg/M² IV days 1,15,22</p>	Breast Cancer
	<p>Vinblastine 3 mg/M² IV days 2,15,22</p>	
	<p>Doxorubicin 30 mg/M² IV day 2</p>	
	<p>- reduce dose to 15 mg/M² if patient has received > 2000 cGy in 5 days to pelvis</p> <p>Cisplatin 70 mg/M² IV day 2</p> <p>- vinblastine and methotrexate given on days 15 and 22 only if WBC >2500 and platelet count is > 100,000</p> <p>REF: Loehrer et al. J Clin Oncol 1992; 10:1066-1073</p>	Carcinoma of Unknown Primary
	<p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 2</p> <p>2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 2</p> <p>3. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 1, 15, and 22 if needed</p>	Endocrine Cancer
	<p>OTHER MEDICATIONS</p> <p>1. Give cisplatin delayed-emesis prophylaxis</p> <p>Repeat every 28 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p> <p>Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M² or 450 mg/M² with prior chest radiotherapy); vesicant – avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0</p>	Gastrointestinal Cancer
	<p>Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity</p>	Genitourinary Cancer
<p>Methotrexate – use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)</p>	Gynecologic Cancer	
	Head and Neck Cancer	
	Hematologic Malignancies	

	Agent	Dosage			
Brain Cancer	Paclitaxel/ cisplatin	Paclitaxel	175 mg/M ²	IV (over 3 h)	day 1
Breast Cancer		Cisplatin	75 mg/M ²	IV	day 1
Carcinoma of Unknown Primary		REF: Dreicer et al. J Clin Oncol 2000; 18:1058-1061			
Endocrine Cancer		PREMEDICATIONS 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy OR Dexamethasone 20 mg PO 6 and 12 hours prior			
Gastrointestinal Cancer		2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy 3. Cimetidine 300 mg IV 30 minutes before chemotherapy 4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy			
Genitourinary Cancer		OTHER MEDICATIONS 1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias) 2. Give cisplatin delayed emesis prophylaxis Repeat every 21 days for a maximum of 6 cycles			
	Docetaxel	Docetaxel	100 mg/M ²	IV(over 1 h)	day 1
Gynecologic Cancer	Gastrointestinal Cancer	REF: de Wit et al. Br J Cancer 1998; 78:1342-1345			
Head and Neck Cancer		PREMEDICATIONS 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy 2. Cimetidine 300 mg IV 30 minutes before chemotherapy 3. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy			
Hematologic Malignancies		OTHER MEDICATIONS 1. Dexamethasone 8 mg PO BID for 8 doses—start day prior to chemo (decreases lower extremity edema) Repeat every 21 days			
	Gemcitabine	Gemcitabine	1200 mg/M ²	IV	days 1,8,15
		REF: Moore et al. J Clin Oncol 1997; 15:3441-3445			
		PREMEDICATIONS 1. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 1, 8, and 15 Repeat every 28 days			

Agent	Dosage	
Paclitaxel	Paclitaxel 250 mg/M ² CIV (over 24 h) day 1 REF: Roth et al. J Clin Oncol 1994; 12:2264-2270	Brain Cancer
	PREMEDICATIONS 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy OR Dexamethasone 20 mg PO 6 and 12 hours prior	Breast Cancer
	2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy 3. Cimetidine 300 mg IV 30 minutes before chemotherapy	Carcinoma of Unknown Primary
	OTHER MEDICATIONS 1. Dexamethasone 4 mg PO BID for 6 doses after (for myalgias) 2. G-CSF support is required	Endocrine Cancer
	Repeat every 21 days	Gastrointestinal Cancer
		Genitourinary Cancer
		Gynecologic Cancer
		Head and Neck Cancer
	Hematologic Malignancies	

Penile Cancer

Brain Cancer	Agent	Dosage				
Breast Cancer	CF cisplatin/ fluorouracil (5-FU)	Cisplatin	100 mg/M ²	IV	day 1	
Carcinoma of Unknown Primary		5-FU	1000 mg/M ² /d (X 5 days)	CIV	days 1-5	
Endocrine Cancer		REF: Shamma et al. J Urol 1992; 147:630-632				
Gastrointestinal Cancer		PREMEDICATIONS				
Genitourinary Cancer		1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1				
Gynecologic Cancer	MF mitomycin C/ fluorouracil (5-FU)	Mitomycin C	10 mg/M ²	IV	day 1	
Head and Neck Cancer		5-FU	1000 mg/M ² /d	CIV	days 1-4,29-32	
Hematologic Malignancies		- regimen is given concurrently with XRT				
		REF: Oberfield et al. Br J Urol 1996; 78:573-578				
		PREMEDICATIONS				
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1					
	Mitomycin C—myelosuppression occurs late (approximately 4 weeks); limit cumulative dose to 50 mg/M ² (vascular toxicity)					

Prostate Cancer

Prostate Cancer					Brain Cancer	
Hormonal Agents						
LHRH agonists					Breast Cancer	
Agent	Dosage					
Goserelin (Zoladex)	3.6 mg SQ every 4 weeks REF: Soloway et al. Urology 1991; 37:46-51					Carcinoma of Unknown Primary
	10.8 mg SQ every 12 weeks REF: Dijkman et al. Eur Urol 1995; 27:43-46					
Leuprolide (Lupron)	7.5 mg IM every 4 weeks REF: Leuprolide Study Group: NEJM 1984; 311:1281-1286				Endocrine Cancer	
	22.5 mg IM every 12 weeks REF: Sharifi et al. Clin Ther 1996; 18:647-657					
Antiandrogens					Gastrointestinal Cancer	
Flutamide (Eulexin)	250 mg PO TID REF: McLeod et al. Prostate 1999; 40:218-224					
Bicalutamide (Casodex)	50 mg PO QD REF: Schellhammer et al. Urology 1995; 45:745-752					
Nilutamide (Nilandron)	150 mg PO QD REF: Janknegt et al. J Urol 1993; 149:77-82					
Other Hormonal Agents					Genitourinary Cancer	
Aminogluthimide/ hydrocortisone	Aminogluthimide	250 mg	PO	QID		
	Hydrocortisone	20 mg	PO	QAM		
REF: Sartor et al. J Natl Cancer Inst 1994; 86:222-227					Gynecologic Cancer	
Ketoconazole/ hydrocortisone	Ketoconazole	400 mg	PO	TID		
	Hydrocortisone	20 mg	PO	QAM		
REF: Small et al. Cancer 1997; 80:1755-1759					Head and Neck Cancer	
10 mg PO QPM						
Chemotherapy Regimens					Hematologic Malignancies	
Cyclophosphamide/ etoposide (VP-16)	Cyclophosphamide	100 mg	PO	days 1-14		
VP-16 50 mg PO days 1-14						
REF: Maulard-Durdux et al. Cancer 1996; 77:1144-1148						
Repeat every 28 days						

	Agent	Dosage			
Brain Cancer	Estramustine/ docetaxel	Estramustine	280 mg	PO TID	days 1-5
Breast Cancer		Docetaxel	70 mg/M ²	IV	day 1
Carcinoma of Unknown Primary		- dose is reduced to 60 mg/M ² in extensively pretreated patients			
Endocrine Cancer		REF: Petrylak et al. J Clin Oncol 1999; 17:958-967			
Gastrointestinal Cancer		PREMEDICATIONS			
		1. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1			
		2. Cimetidine 300 mg IV 30 minutes before chemotherapy on day 1			
		3. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy on day 1			
		4. Compazine 10 mg PO/IV 30 minutes before chemotherapy on day 1			
		OTHER MEDICATIONS			
		1. Dexamethasone 8 mg PO BID for 8 doses—start day prior to chemotherapy (decreases lower extremity edema)			
		Repeat every 21 days			
	Estramustine/ etoposide (VP-16)	Estramustine	15 mg/kg/d	PO (divided QID)	days 1-21
		VP-16	50 mg/M ²	PO (divided BID)	days 1-21
		REF: Pienta et al. J Clin Oncol 1994; 12:2005-2012			
		Repeat every 28 days			
	Estramustine/ etoposide (VP-16)/ paclitaxel	Estramustine	280 mg	PO TID	days 1-14
		VP-16	100 mg	PO	days 1-14
		Paclitaxel	135 mg/M ²	IV (over 1 h)	day 2
		REF: Smith et al. J Clin Oncol 1999; 17:1664-1674			
		PREMEDICATIONS			
		1. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 2			
		OR			
		Dexamethasone 20 mg PO 6 and 12 hours prior			
		2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy on day 2			
		3. Cimetidine 300 mg IV 30 minutes before chemotherapy on day 2			
		4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 2			
		OTHER MEDICATIONS			
		1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias)			
		Repeat every 21 days			

Agent	Dosage					
Estramustine/ vinblastine	Estramustine	600 mg/M ²	PO	days 1-42	Brain Cancer	
	Vinblastine	4 mg/M ²	IV	days 1,8,15,22,29,36		Breast Cancer
	REF: Hudes et al. J Clin Oncol 1999; 17:3160-3166 PREMEDICATIONS 1. Compazine 10 mg PO/IV 30 minutes before chemotherapy Repeat every 56 days Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity					
Mitoxantrone/ prednisone	Mitoxantrone	12 mg/M ²	IV	day 1	Endocrine Cancer	
	Prednisone	5 mg	PO BID	daily		Gastrointestinal Cancer
	REF: Tannock et al. J Clin Oncol 1996; 14:756-64 PREMEDICATIONS 1. Compazine 10 mg PO/IV prior to chemotherapy Repeat every 21 days Mitoxantrone—watch cumulative dose—do not exceed 140 mg/M ² ; possible cardiac toxicity					
Cyclophosphamide	Cyclophosphamide	100 mg/M ²	PO	days 1-14	Gastrointestinal Cancer	
	REF: Raghavan et al. Br J Urol 1993; 72:625-628 Repeat every 28 days					

Renal Cell Cancer

Brain Cancer	Agent	Dosage			
Breast Cancer	Vinblastine/interferon-alpha2a (IFN)	Vinblastine	0.1 mg/kg	IV	day 1
Carcinoma of Unknown Primary		IFN	3 MIU	SQ TIW	week one
Endocrine Cancer		Interferon (IFN)/interleukin-2 (IL-2)	IL-2	4 MIU	SQ
Gastrointestinal Cancer	IFN		9 MIU	SQ	days 1-4, weekly X 4
Genitourinary Cancer	Alpha-interferon (IFN)	IFN	18 MIU	IM	TIW
Gynecologic Cancer		Interleukin-2 (IL-2) high-dose	IL-2	600,000-720,000 IU/kg	IV
Head and Neck Cancer					(over 15 min)
Hematologic Malignancies					

REF: Pyrhönen et al. J Clin Oncol 1999; 17:2859-2867

PREMEDICATIONS

1. Compazine 10 mg PO/IV 30 minutes before chemotherapy
2. Tylenol 650 mg PO prior to IFN

Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity

REF: Vogelzang et al. J Clin Oncol 1993; 11:1809-1816

PREMEDICATIONS

1. Compazine 10 mg PO/IV 30 minutes before biotherapy
2. Tylenol 650 mg PO before biotherapy

Repeat every 42 days

REF: Fossa et al. Ann Oncol 1992; 3:301-305

PREMEDICATIONS

1. Tylenol 650 mg PO prior to IFN

Repeat above in 6-9 days

REF: Fyfe et al. J Clin Oncol 1995; 13:688-696

PREMEDICATIONS

1. Kytril 1 mg PO/IV 30 minutes before therapy and Q12H during therapy
2. Tylenol 650 mg PO 30 minutes before each dose of IL-2, and Q4H prn
3. Cimetidine 800 mg PO/IV daily during IL-2 therapy (given in single or divided doses)

Repeat every 6-12 weeks

IL-2 may cause capillary leak syndrome with profound hypotension and patients may require vasopressor support and aggressive fluid management. Patients should be cared for in an intensive care setting

Testicular Cancer

Brain Cancer	Agent	Dosage				
Breast Cancer	BEP bleomycin/ etoposide (VP-16)/ cisplatin	Cisplatin	20 mg/M ²	IV	days 1-5	
Carcinoma of Unknown Primary		VP-16	100 mg/M ²	IV	days 1-5	
Endocrine Cancer		Bleomycin	30 units	IV	days 2,9,16	
Gastrointestinal Cancer		REF: Einhorn et al. J Clin Oncol 1989; 7:387-391				
Genitourinary Cancer		PREMEDICATIONS				
Gynecologic Cancer		<ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5 2. Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1-5 				
Head and Neck Cancer	OTHER MEDICATIONS					
Hematologic Malignancies	<ol style="list-style-type: none"> 1. Give cisplatin delayed-emesis prophylaxis 					
Repeat every 21 days		Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5				
Repeat every 21 days		Bleomycin—give test dose of 1-2 units because of possible acute pulmonary, anaphylactoid, or severe febrile reactions; must dose adjust for renal insufficiency; total lifetime dose should not exceed 400 units; avoid high FiO ₂ as it can exacerbate pulmonary toxicity				
Genitourinary Cancer	EP etoposide (VP-16)/ cisplatin	VP-16	100 mg/M ²	IV	days 1-5	
Gynecologic Cancer		Cisplatin	20 mg/M ²	IV	days 1-5	
Head and Neck Cancer		REF: Motzer et al. J Clin Oncol 1995; 13:2700-2704				
Hematologic Malignancies		PREMEDICATIONS				
		<ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5 2. Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1-5 				
		OTHER MEDICATIONS				
	<ol style="list-style-type: none"> 1. Give cisplatin delayed-emesis prophylaxis 					
	Repeat every 21 days					
	Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5					

Agent	Dosage	
PVB cisplatin/ vinblastine/ bleomycin	Cisplatin 20.00 mg/M ² IV days 1-5 Vinblastine 0.15 mg/kg IV days 1, 2 –reduce dose by 20% for prior radiotherapy Bleomycin 30 units IV days 2,9,16	Brain Cancer
	REF: Einhorn et al. Ann Intern Med 1977; 87:293-298 PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5 2. Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1-5	Breast Cancer
	OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis Repeat every 21 days	Carcinoma of Unknown Primary
	Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5 Bleomycin—give test dose of 1-2 units because of possible acute pulmonary, anaphylactoid, or severe febrile reactions; must dose adjust for renal insufficiency; total lifetime dose should not exceed 400 units; avoid high FiO ₂ as it can exacerbate pulmonary toxicity	Endocrine Cancer
	Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity	Gastrointestinal Cancer
VeIP vinblastine/ ifosfamide/ cisplatin (salvage)	Vinblastine 0.11 mg/kg IV days 1,2 Ifosfamide 1200 mg/M ² /d CIV (120 hr) days 1-5 Cisplatin 20 mg/M ² IV days 1-5 Mesna 400 mg/M ² IV day 1 –give bolus 15 minutes prior to Ifosfamide Mesna 1200 mg/M ² /d CIV (120 hr) days 1-5	Genitourinary Cancer
	–start immediately after Mesna bolus REF: Loehrer et al. Ann Intern Med 1988; 109:540-546	Gynecologic Cancer
	PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5 2. Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1-5	Head and Neck Cancer
	OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis Repeat every 21 days	Hematologic Malignancies

Continued

Agent	Dosage																
Brain Cancer	Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5																
Breast Cancer	Ifosfamide—adequate hydration is necessary to prevent nephrotoxicity Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity																
Carcinoma of Unknown Primary	<p>VIP etoposide (VP-16)/ifosfamide/cisplatin (salvage)</p> <table border="0"> <tr> <td>VP-16</td> <td>75 mg/M²</td> <td>IV</td> <td>days 1-5</td> </tr> <tr> <td>Ifosfamide</td> <td>1200 mg/M²/d</td> <td>CIV (120 hr)</td> <td>days 1-5</td> </tr> <tr> <td>Cisplatin</td> <td>20 mg/M²</td> <td>IV</td> <td>days 1-5</td> </tr> <tr> <td>Mesna</td> <td>400 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> </table> <p>–give bolus 15 minutes prior to Ifosfamide Mesna 1200 mg/M²/d CIV (120 hr) days 1-5 –start immediately after Mesna bolus</p>	VP-16	75 mg/M ²	IV	days 1-5	Ifosfamide	1200 mg/M ² /d	CIV (120 hr)	days 1-5	Cisplatin	20 mg/M ²	IV	days 1-5	Mesna	400 mg/M ²	IV	day 1
VP-16	75 mg/M ²	IV	days 1-5														
Ifosfamide	1200 mg/M ² /d	CIV (120 hr)	days 1-5														
Cisplatin	20 mg/M ²	IV	days 1-5														
Mesna	400 mg/M ²	IV	day 1														
Endocrine Cancer	REF: Loehrer et al. Ann Intern Med 1988; 109:540-546																
Gastrointestinal Cancer	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5 Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1-5 <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> Give cisplatin delayed-emesis prophylaxis 																
Genitourinary Cancer	<p>Repeat every 21 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p> <p>Ifosfamide—adequate hydration is necessary to prevent nephrotoxicity</p>																
Gynecologic Cancer	<p>Gemcitabine</p> <p>–for use in refractory, heavily pretreated patients</p> <table border="0"> <tr> <td>Gemcitabine</td> <td>1200 mg/M²</td> <td>IV</td> <td>days 1,8,15</td> </tr> </table> <p>REF: Einhorn et al. J Clin Oncol 1999; 17:509-511</p>	Gemcitabine	1200 mg/M ²	IV	days 1,8,15												
Gemcitabine	1200 mg/M ²	IV	days 1,8,15														
Head and Neck Cancer	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 1, 8, and 15 <p>Repeat every 28 days</p>																
Hematologic Malignancies																	

Chapter 7

Gynecologic Cancer

- Cervical Cancer
- Endometrial Cancer
- Ovarian Cancer
- Trophoblastic Cancer

Gynecologic Cancer

Cervical Cancer

Agent	Dosage	Brain Cancer
BIP #1 bleomycin/ ifosfamide/ cisplatin	Bleomycin 15 mg IV day 1	Breast Cancer
	Ifosfamide 1000 mg/M ² IV days 1-5	
	Cisplatin 50 mg/M ² IV day 1	Carcinoma of Unknown Primary
	Mesna 1000 mg/M ² IV days 1-5	
	REF: Kumar et al. Gynecol Oncol 1991; 40:107-111	Endocrine Cancer
	PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5 2. Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1-5	
	OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis	Gastrointestinal Cancer
	Repeat every 21 days Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5	
	Bleomycin—give test dose of 1-2 units because of possible acute pulmonary, anaphylactoid, or severe febrile reactions; must dose adjust for renal insufficiency; total lifetime dose should not exceed 400 units; avoid high FiO ₂ as it can exacerbate pulmonary toxicity	Gynecologic Cancer
	Ifosfamide—adequate hydration is necessary to prevent nephrotoxicity	
BIP #2 bleomycin/ ifosfamide/ cisplatin	Bleomycin 30 units CIV (over 24 h) day 1	Head and Neck Cancer
	Ifosfamide 5000 mg/M ² CIV (over 24 h) day 2	
	Mesna 8000 mg/M ² CIV (over 36 h) day 2	Hematologic Malignancies
	—starting with ifosfamide Cisplatin 50 mg/M ² IV day 2	
	REF: Buxton et al. J Natl Cancer Inst 1989; 81:359-361	
	PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 2 2. Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1 and 2	

Continued

Brain Cancer	Agent	Dosage
		<p>OTHER MEDICATIONS</p> <p>1. Give cisplatin delayed-emesis prophylaxis</p> <p>Repeat every 21 days</p>
Breast Cancer		<p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p> <p>Bleomycin—give test dose of 1-2 units because of possible acute pulmonary, anaphylactoid, or severe febrile reactions; must dose adjust for renal insufficiency; total lifetime dose should not exceed 400 units; avoid high FiO₂ as it can exacerbate pulmonary toxicity</p> <p>Ifosfamide—adequate hydration is necessary to prevent nephrotoxicity</p>
Carcinoma of Unknown Primary		
Endocrine Cancer	Cisplatin/XRT (neoadjuvant)	<p>Cisplatin 40 mg/M² IV weekly X 6 —given concurrently with XRT</p> <p>REF: Keys et al. NEJM 1999; 340:1154-1161</p>
Gastrointestinal Cancer		<p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy</p> <p>2. Dexamethasone 10 mg IV 30 minutes before chemotherapy</p> <p>OTHER MEDICATIONS</p> <p>1. Give cisplatin delayed-emesis prophylaxis</p>
Genitourinary Cancer		<p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>
Gynecologic Cancer	Gemcitabine/cisplatin	<p>Gemcitabine 1250 mg/M² IV days 1, 8 Cisplatin 50 mg/M² IV day 1</p> <p>REF: Burnett et al. Gynecol Oncol 2000; 76:63-66</p> <p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1</p> <p>2. Dexamethasone 10 mg IV 30 minutes before chemotherapy on day 1</p> <p>OTHER MEDICATIONS</p> <p>1. Give cisplatin delayed-emesis prophylaxis</p>
Head and Neck Cancer		<p>Repeat every 21 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>
Hematologic Malignancies		

Agent	Dosage					
Paclitaxel/ cisplatin	Paclitaxel	175 mg/M ²	IV (over 3 h)	day 1	Brain Cancer	
	Cisplatin	75 mg/M ²	IV	day 1	Breast Cancer	
	REF: Papadimitriou et al. J Clin Oncol 1999; 17:761-766					Carcinoma of Unknown Primary
	PREMEDICATIONS					Endocrine Cancer
	<ol style="list-style-type: none"> 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy OR Dexamethasone 20 mg PO 6 and 12 hours prior to chemotherapy 2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy 3. Cimetidine 300 mg IV 30 minutes before chemotherapy 4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 					Gastrointestinal Cancer
OTHER MEDICATIONS					Gastrointestinal Cancer	
<ol style="list-style-type: none"> 1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias) 2. Give cisplatin delayed-emesis prophylaxis 					Genitourinary Cancer	
Repeat every 28 days					Gynecologic Cancer	
Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5					Head and Neck Cancer	
Docetaxel	Docetaxel	100 mg/M ²	IV (over 1 h)	day 1	Gynecologic Cancer	
	REF: Kudelka et al. Anticancer Drugs 1996; 7:398-401					Gynecologic Cancer
PREMEDICATIONS					Gynecologic Cancer	
<ol style="list-style-type: none"> 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy 2. Cimetidine 300 mg IV 30 minutes before chemotherapy 3. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy 					Hematologic Malignancies	
OTHER MEDICATIONS						
<ol style="list-style-type: none"> 1. Dexamethasone 8 mg PO BID for 8 doses—start day prior to chemotherapy (decreases lower extremity edema) 						
Repeat every 21 days						
Irinotecan	Irinotecan	125 mg/M ²	IV (over 90 min)	days 1,8, 15,22	Hematologic Malignancies	
	REF: Look et al. Gynecol Oncol 1998; 70:334-338					
PREMEDICATIONS						
<ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 						

Continued

Brain Cancer	Agent	Dosage
Breast Cancer	Paclitaxel	<p>OTHER MEDICATIONS</p> <p>1. Lomotil 4 mg PO at first sign of any loose stool and 2 mg every 2 hours until formed stool</p> <p>Repeat every 42 days</p>
Carcinoma of Unknown Primary		<p>Paclitaxel 250 mg/M² IV (over 3 hr) day 1</p> <p>REF: Kudelka et al. Anticancer Drugs 1997; 8:657-661</p>
Endocrine Cancer		<p>PREMEDICATIONS</p> <p>1. Dexamethasone 20 mg IV 30 minutes before chemotherapy OR Dexamethasone 20 mg PO 6 and 12 hours prior to chemotherapy</p> <p>2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy</p> <p>3. Cimetidine 300 mg IV 30 minutes before chemotherapy</p>
Gastrointestinal Cancer		<p>OTHER MEDICATIONS</p> <p>1. Dexamethasone 4 mg PO BID for 6 doses after (for myalgias)</p> <p>2. Requires G-CSF support</p> <p>Repeat every 21 days</p>
Genitourinary Cancer		
Gynecologic Cancer		
Head and Neck Cancer		
Hematologic Malignancies		

Endometrial Carcinoma

Agent	Dosage	Brain Cancer	
CAP cyclophosphamide/ doxorubicin/ cisplatin	Cyclophosphamide 500 mg/M ² IV day 1	Breast Cancer	
	Doxorubicin 50 mg/M ² IV day 1		
	Cisplatin 50 mg/M ² IV day 1		
	REF: Burke et al. Gynecol Oncol 1991; 40:264-267		
	PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy		Carcinoma of Unknown Primary
OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis Repeat every 28 days Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5		Endocrine Cancer	
Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0		Gastrointestinal Cancer	
CP carboplatin/ paclitaxel	Paclitaxel 175 mg/M ² IV (over 3 h) day 1 followed by	Genitourinary Cancer	
	Carboplatin AUC 5 IV (over 1 h) day 1		
	REF: Price et al. Semin Oncol 1997; 24(5suppl15):S78-S82		
	PREMEDICATIONS 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy OR Dexamethasone 20 mg PO 6 and 12 hours prior to chemotherapy 2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy 3. Cimetidine 300 mg IV 30 minutes before chemotherapy 4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy		Gynecologic Cancer
	OTHER MEDICATIONS 1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias) 2. Give cisplatin delayed emesis prophylaxis Repeat every 28 days		Head and Neck Cancer
		Hematologic Malignancies	

	Agent	Dosage	
Brain Cancer	Doxorubicin/ cisplatin	Doxorubicin 50 mg/M ² IV day 1 Cisplatin 50 mg/M ² IV day 1 REF: Deppe et al. Eur J Gynaecol Oncol 1994; 15:263-266	
Breast Cancer		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy	
Carcinoma of Unknown Primary		OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis Repeat every 21 days	
Endocrine Cancer		Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5 Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0	
Gastrointestinal Cancer		Doxorubicin/ cyclophosphamide	Doxorubicin 60 mg/M ² IV day 1 Cyclophosphamide 500 mg/M ² IV day 1 REF: Thigpen et al. J Clin Oncol 1994; 12:1408-1414
Genitourinary Cancer	PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy		
Gynecologic Cancer	Repeat every 21 days Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0		
Head and Neck Cancer	Medroxy-progesterone		Medroxyprogesterone 200 mg PO daily REF: Thigpen et al. J Clin Oncol 1999; 17:1736-1744
Hematologic Malignancies			Paclitaxel Paclitaxel 175 mg/M ² IV over 3 hours day 1 REF: Lissoni et al. Ann Oncol 1996; 7:861-863

Continued

Agent	Dosage	
	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy OR Dexamethasone 20 mg PO 6 and 12 hours prior to chemotherapy 2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy 3. Cimetidine 300 mg IV 30 minutes before chemotherapy <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 4 mg PO BID for 6 doses after (for myalgias) <p>Repeat every 21 days</p>	<p>Brain Cancer</p> <p>Breast Cancer</p> <p>Carcinoma of Unknown Primary</p> <p>Endocrine Cancer</p> <p>Gastrointestinal Cancer</p> <p>Genitourinary Cancer</p> <p>Gynecologic Cancer</p> <p>Head and Neck Cancer</p> <p>Hematologic Malignancies</p>

Ovarian Cancer

Brain Cancer		Agent	Dosage								
Breast Cancer	Carcinoma of Unknown Primary	CC carboplatin/cyclophosphamide	Carboplatin	300 mg/M ²	IV	day 1					
			Cyclophosphamide	600 mg/M ²	IV	day 1					
Endocrine Cancer	Gastrointestinal Cancer	CP cyclophosphamide/cisplatin	REF: Alberts et al. J Clin Oncol 1992; 10:706-717								
			<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> Kytril 1 mg IV/PO 30 minutes before and 12 hours after chemotherapy Dexamethasone 20 mg IV 30 minutes before chemotherapy <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> Give cisplatin delayed emesis prophylaxis <p>Repeat every 28 days</p>								
Gynecologic Cancer	Head and Neck Cancer	CT paclitaxel/cisplatin	Cyclophosphamide	600 mg/M ²	IV	day 1					
			Cisplatin	100 mg/M ²	IV	day 1					
Gynecologic Cancer	Hematologic Malignancies	CT paclitaxel/cisplatin	REF: Alberts et al. J Clin Oncol 1992; 10:706-717								
			<p>OR</p> <table> <tr> <td>Cyclophosphamide</td> <td>750 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> <tr> <td>Cisplatin</td> <td>75 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> </table> <p>REF: McGuire et al. NEJM 1996; 334:1-6</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy Dexamethasone 20 mg IV 30 minutes before chemotherapy <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> Give cisplatin delayed-emesis prophylaxis <p>Repeat every 21 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>				Cyclophosphamide	750 mg/M ²	IV	day 1	Cisplatin
Cyclophosphamide	750 mg/M ²	IV	day 1								
Cisplatin	75 mg/M ²	IV	day 1								

Continued

Agent	Dosage				
	OR Paclitaxel 175 mg/M ² IV (over 3 h) day 1 Cisplatin 75 mg/M ² IV day 1	Brain Cancer			
	REF: Piccant et al. Proc ASCO 1997; 16:abstract 1258 PREMEDICATIONS 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy OR Dexamethasone 20 mg PO 6 and 12 hours prior to chemotherapy	Breast Cancer			
	2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy 3. Cimetidine 300 mg IV 30 minutes before chemotherapy 4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy	Carcinoma of Unknown Primary			
	OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis 2. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias)	Endocrine Cancer			
	Repeat every 21 days Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5	Gastrointestinal Cancer			
PC paclitaxel/ carboplatin	Paclitaxel 175 mg/M ² IV (over 3 h) day 1 followed by Carboplatin AUC 7-7.5 IV (over 1 h) day 1	Genitourinary Cancer			
	REF: Coleman et al. Cancer J Sci Am 1997; 3:246-253 PREMEDICATIONS 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy OR Dexamethasone 20 mg PO 6 and 12 hours prior to chemotherapy	Gynecologic Cancer			
	2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy 3. Cimetidine 300 mg IV 30 minutes before chemotherapy 4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy	Head and Neck Cancer			
	OTHER MEDICATIONS 1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias) 2. Give cisplatin delayed emesis prophylaxis Repeat every 21 days	Hematologic Malignancies			

	Agent	Dosage
Brain Cancer	Docetaxel	Docetaxel 100 mg/M ² IV (over 1 h) day 1 REF: Kaye et al. Eur J Cancer 1997; 33:2167-2170 PREMEDICATIONS 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy 2. Cimetidine 300 mg IV 30 minutes before chemotherapy 3. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy 4. Compazine 10 mg PO/IV 30 minutes before chemotherapy OTHER MEDICATIONS 1. Dexamethasone 8 mg PO BID for 8 doses—start day prior to chemo (decreases lower extremity edema) Repeat every 21 days
Breast Cancer		
Carcinoma of Unknown Primary		
Endocrine Cancer		Etoposide (VP-16)
Gastrointestinal Cancer	Gemcitabine	Gemcitabine 1250 mg/M ² IV days 1,8,15 REF: von Minckwitz et al. Ann Oncol 1999; 10:853-855 PREMEDICATIONS 1. Compazine 10 mg PO/IV 30 minutes before Repeat every 28 days
Genitourinary Cancer		Hexamethylmelamine
Gynecologic Cancer	Liposomal doxorubicin (Doxil)	Doxil 50 mg/M ² IV day 1 REF: Muggia et al. J Clin Oncol 1997; 15:987-993 PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy Repeat every 21-28 days
Head and Neck Cancer		
Hematologic Malignancies		

Continued

Agent	Dosage	
	Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0	Brain Cancer
Paclitaxel	Paclitaxel 175 mg/M ² IV (over 3 h) day 1	Breast Cancer
	REF: Eisenhauer et al. J Clin Oncol 1994; 2654-2666	
	PREMEDICATIONS	
	<ol style="list-style-type: none"> 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy OR Dexamethasone 20 mg PO 6 and 12 hours prior to chemotherapy 2. Cimetidine 300 mg IV 30 minutes before chemotherapy 3. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy 4. Compazine 10 mg PO/IV 30 minutes before chemotherapy 	Carcinoma of Unknown Primary
Topotecan	Topotecan 1.5 mg/M ² IV (over 30 min) days 1-5	Endocrine Cancer
	REF: McGuire et al. J Clin Oncol 2000; 18:1062-1067	
	PREMEDICATIONS	
	<ol style="list-style-type: none"> 1. Kytril 1 mg IV/PO 30 minutes before and 12 hours after chemotherapy on days 1-5 2. Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1-5 	Gastrointestinal Cancer
	Repeat every 21 days	
	Topotecan—hold for ANC < 1500 or platelets < 100,000; decrease dose by 0.25 mg/M ² /d for prior episode of severe neutropenia or administer G-CSF starting on day 6	Genitourinary Cancer
		Gynecologic Cancer
		Head and Neck Cancer
		Hematologic Malignancies

Trophoblastic Disease

LOW RISK DISEASE

Brain Cancer	Agent	Dosage
Breast Cancer	Dactinomycin	Dactinomycin 1.25 mg/M ² IV day 1 REF: Osathanondh et al. Cancer 1975; 36:863-866
Carcinoma of Unknown Primary		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy Repeat every 14 days; treat for 1 to 2 cycles beyond negative HCG titers
Endocrine Cancer		Dactinomycin—vesicant—watch for extravasation
Gastrointestinal Cancer		Methotrexate Methotrexate 40 mg/M ² IM weekly REF: Gleeson et al. Eur J Gynaecol Oncol 1993; 14:461-465 Treat for 2 courses beyond negative HCG titers Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)
INTERMEDIATE/HIGH RISK DISEASE		
Genitourinary Cancer	EMA-CO etoposide (VP-16)/dactinomycin/methotrexate/vincristine/cyclophosphamide	Etoposide 100 mg/M ² IV days 1, 2 Dactinomycin 0.5 mg IV days 1, 2 Methotrexate 100 mg/M ² IV day 1 —followed by Methotrexate 200 mg/M ² CIV (over 12 h) day 1
Gynecologic Cancer		Folic Acid 15 mg PO/IM BID for 4 doses, starting 24 h after first methotrexate dose Vincristine 0.8 mg/M ² IV day 8 Cyclophosphamide 600 mg/M ² IV day 8
Head and Neck Cancer		—patients with pulmonary metastases receive intrathecal methotrexate every 2 weeks with cycles of CO REF: Bower et al. J Clin Oncol 1997; 15:2636-2643
Hematologic Malignancies		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1, 2, and 8 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1, 2, and 8
		Repeat every 14 days

Continued

Agent	Dosage				
	Dactinomycin—vesicant—watch for extravasation Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)				Brain Cancer
	Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration				Breast Cancer
EP/EMA etoposide (VP-16)/ cisplatin/ dactinomycin/ methotrexate	Etoposide	150 mg/M ²	IV	day 1	Carcinoma of Unknown Primary
	Cisplatin	75 mg/M ²	IV (over 12 h)	day 1	
	Etoposide	100 mg/M ²	IV	day 8	Endocrine Cancer
	Methotrexate	300 mg/M ²	IV (over 12 h)	day 8	
	Dactinomycin	0.5 mg	IV	day 8	
Folinic Acid	15 mg	PO/IM BID	days 9, 10 —for 4 doses, starting 24 h after MTX	Gastrointestinal Cancer	
	REF: Newlands et al. J Clin Oncol 2000; 18:854-859				Gynecologic Cancer
	PREMEDICATIONS				
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 8 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 8				
	OTHER MEDICATIONS				Genitourinary Cancer
	1. Give cisplatin delayed-emesis prophylaxis				
	Repeat every 14 days				Head and Neck Cancer
	Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5				
	Dactinomycin—vesicant—watch for extravasation				
	Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)				Hematologic Malignancies
	PVB cisplatin/ vinblastine/ bleomycin	Cisplatin	20 mg/M ²	IV	
Vinblastine		0.15 mg/kg	IV	days 1, 2	
Bleomycin		30 units	IV	days 2,9,16	
	REF: Hainsworth et al. Cancer Treat Rep 1983; 67:393-395				Head and Neck Cancer
	PREMEDICATIONS				
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5				Hematologic Malignancies
	2. Dexamethasone 10 mg IV 30 minutes before chemotherapy on days 1-5				

Continued

Agent	Dosage
Brain Cancer	<p>OTHER MEDICATIONS</p> <p>1. Give cisplatin delayed-emesis prophylaxis</p> <p>Repeat every 21 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p> <p>Bleomycin—give test dose of 1-2 units because of possible acute pulmonary, anaphylactoid, or severe febrile reactions; must dose adjust for renal insufficiency; total lifetime dose should not exceed 400 units; avoid high FiO₂ as it can exacerbate pulmonary toxicity</p> <p>Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity</p>
Breast Cancer	
Carcinoma of Unknown Primary	
Endocrine Cancer	
Paclitaxel	<p>Paclitaxel 250 mg/M² CIV (over 24 h) day 1</p> <p>REF: Termrungruanglert et al. Anticancer Drugs 1996; 7:503-506</p> <p>PREMEDICATIONS</p> <p>1. Dexamethasone 20 mg IV 30 minutes before chemotherapy</p>
Gastrointestinal Cancer	<p>OR</p> <p>Dexamethasone 20 mg PO 6 and 12 hours prior to chemotherapy</p> <p>2. Cimetidine 300 mg IV 30 minutes before chemotherapy</p>
Genitourinary Cancer	<p>3. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy</p> <p>4. Compazine 10 mg PO/IV 30 minutes before chemotherapy</p>
Gynecologic Cancer	<p>OTHER MEDICATIONS</p> <p>1. Dexamethasone 4 mg PO BID for 6 doses after (for myalgias)</p> <p>2. Requires G-CSF support</p> <p>Repeat every 21 days</p>
Head and Neck Cancer	
Hematologic Malignancies	

Chapter 8

Head and Neck

Head and Neck

Agent	Dosage					
CABO cisplatin/ methotrexate/ bleomycin/ vincristine	Cisplatin	50 mg/M ²	IV	day 4	Brain Cancer	
	Methotrexate	40 mg/M ²	IV	days 1,15	Breast Cancer	
	Bleomycin	10 units	IV	days 1,8,15		
	Vincristine	2 mg	IV	days 1,8,15		
	–after 3 courses, methotrexate is given as weekly maintenance					
	–vincristine is discontinued after 6 doses					
	REF: Clavel et al. Cancer 1987; 60:1173-1177					Carcinoma of Unknown Primary
	PREMEDICATIONS					Endocrine Cancer
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 4					
	2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 4					
3. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 1, 8, and 15						
OTHER MEDICATIONS					Gastrointestinal Cancer	
Repeat every 21 days						
1. Give cisplatin delayed-emesis prophylaxis					Genitourinary Cancer	
Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5						
Bleomycin—give test dose of 1-2 units because of possible acute pulmonary, anaphylactoid, or severe febrile reactions; must dose adjust for renal insufficiency; total lifetime dose should not exceed 400 units; avoid high FiO ₂ as it can exacerbate pulmonary toxicity					Gynecologic Cancer	
Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)						
Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration					Head and Neck Cancer	
Carboplatin/ paclitaxel	Paclitaxel	200 mg/M ²	IV (over 3 h)	day 1	Hematologic Malignancies	
	Carboplatin	AUC 7	IV	day 1		
REF: Fountzilias et al. Ann Oncol 1997; 8:451-455						

Continued

Agent	Dosage								
Brain Cancer	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy 2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy 3. Cimetidine 300 mg IV 30 minutes before chemotherapy 4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias) 2. G-CSF 5 mcg/kg/d SQ is given days 2-12 3. Give cisplatin delayed emesis prophylaxis <p>Repeat every 21 days</p>								
Breast Cancer									
Carcinoma of Unknown Primary									
Endocrine Cancer		<p>CF cisplatin/ fluorouracil (5-FU)</p> <table border="0"> <tr> <td>Cisplatin</td> <td>100 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> <tr> <td>5-FU</td> <td>1000 mg/M²/d</td> <td>CIV</td> <td>days 1-4</td> </tr> </table> <p>REF: Kish et al. Cancer 1984; 53:1819-1824</p>	Cisplatin	100 mg/M ²	IV	day 1	5-FU	1000 mg/M ² /d	CIV
Cisplatin	100 mg/M ²	IV	day 1						
5-FU	1000 mg/M ² /d	CIV	days 1-4						
Gastrointestinal Cancer	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 								
Genitourinary Cancer	<p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Give cisplatin delayed-emesis prophylaxis <p>Repeat every 28 days</p>								
Gynecologic Cancer	<p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p> <table border="0"> <tr> <td>Cisplatin</td> <td>100 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> <tr> <td>5-FU</td> <td>1000 mg/M²/d</td> <td>CIV</td> <td>days 1-5</td> </tr> </table> <p>—followed by XRT to 6600-7600 cGy</p>	Cisplatin	100 mg/M ²	IV	day 1	5-FU	1000 mg/M ² /d	CIV	days 1-5
Cisplatin	100 mg/M ²	IV	day 1						
5-FU	1000 mg/M ² /d	CIV	days 1-5						
Head and Neck Cancer	<p>REF: Veterans Affairs Laryngeal Cancer Study Group. NEJM 1991; 324:1685-1690</p>								
Hematologic Malignancies	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 								

Continued

Agent	Dosage				
	<p>OTHER MEDICATIONS</p> <p>1. Give cisplatin delayed-emesis prophylaxis</p> <p>Repeat every 28 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>				Brain Cancer
<p>PT cisplatin/ paclitaxel</p>	<p>Paclitaxel 200 mg/M² IV (over 3 h) day 1</p> <p>Cisplatin 75 mg/M² IV day 1</p>				Breast Cancer
	<p>REF: Hitt et al. Semin Oncol 1995; 22:50-54</p>				Carcinoma of Unknown Primary
	<p>PREMEDICATIONS</p> <p>1. Dexamethasone 20 mg IV 30 minutes before chemotherapy</p> <p>2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy</p> <p>3. Cimetidine 300 mg IV 30 minutes before chemotherapy</p> <p>4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy</p>				Endocrine Cancer
	<p>OTHER MEDICATIONS</p> <p>1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias)</p> <p>2. Give cisplatin delayed-emesis prophylaxis</p> <p>3. G-CSF 5 mcg/kg/d SQ is given days 4-12</p>				Gastrointestinal Cancer
	<p>Repeat every 21-28 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>				Genitourinary Cancer
<p>TIP paclitaxel/ ifosfamide/ cisplatin</p>	<p>Paclitaxel 175 mg/M² IV (over 3 h) day 1</p> <p>Ifosfamide 1000 mg/M² IV (over 2 h) days 1-3</p> <p>Mesna 600 mg/M² IV days 1-3</p> <p>Cisplatin 60 mg/M² IV day 1</p>				Gynecologic Cancer
	<p>REF: Shin et al. J Clin Oncol 1998; 16:1325-1330</p>				
	<p>PREMEDICATIONS</p> <p>1. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1-3</p> <p>2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy on day 1</p> <p>3. Cimetidine 300 mg IV 30 minutes before chemotherapy on day 1</p> <p>4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-3</p>				Head and Neck Cancer
				Hematologic Malignancies	

Continued

Brain Cancer	Agent	Dosage								
Breast Cancer		<p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias) 2. Give cisplatin delayed-emesis prophylaxis <p>Repeat every 21-28 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p> <p>Ifosfamide—adequate hydration is necessary to prevent nephrotoxicity</p>								
Carcinoma of Unknown Primary		VP vinorelbine/cisplatin	<table border="0"> <tr> <td>Vinorelbine</td> <td>25 mg/M²</td> <td>IV</td> <td>days 1,8</td> </tr> <tr> <td>Cisplatin</td> <td>80 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> </table>	Vinorelbine	25 mg/M ²	IV	days 1,8	Cisplatin	80 mg/M ²	IV
Vinorelbine	25 mg/M ²	IV	days 1,8							
Cisplatin	80 mg/M ²	IV	day 1							
Endocrine Cancer		<p>REF: Gebbia et al. Am J Clin Oncol 1995; 18:293-296</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 								
Gastrointestinal Cancer		<p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 4 mg PO BID for 6 doses after Paclitaxel (for myalgias) 2. Give cisplatin delayed-emesis prophylaxis 								
Genitourinary Cancer		<p>Repeat every 21 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>								
Gynecologic Cancer		<p>Vinorelbine—vesicant; avoid extravasation; can cause peripheral neuropathy</p>								
Head and Neck Cancer		Docetaxel	<table border="0"> <tr> <td>Docetaxel</td> <td>100 mg/M²</td> <td>IV (over 1 h)</td> <td>day 1</td> </tr> </table>	Docetaxel	100 mg/M ²	IV (over 1 h)	day 1			
Docetaxel		100 mg/M ²	IV (over 1 h)	day 1						
Hematologic Malignancies		<p>REF: Dreyfuss et al. J Clin Oncol 1996; 14:1672-1678</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy 2. Cimetidine 300 mg IV 30 minutes before chemotherapy 3. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy 4. Compazine 10 mg PO/IV 30 minutes before chemotherapy 								

Continued

Agent	Dosage	
	<p>OTHER MEDICATIONS</p> <p>1. Dexamethasone 8 mg PO BID for 8 doses—start day prior to chemo (decreases lower extremity edema)</p> <p>Repeat every 21 days</p>	Brain Cancer
Methotrexate	<p>Methotrexate 40 mg/M² IV day 1</p> <p>REF: Forastiere et al. J Clin Oncol 1992; 10:1245-1251</p> <p>PREMEDICATIONS</p> <p>1. Compazine 10 mg PO/IV 30 minutes before chemotherapy</p> <p>Repeat every 7 days</p> <p>Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)</p>	Breast Cancer
	<p>PREMEDICATIONS</p> <p>1. Compazine 10 mg PO/IV 30 minutes before chemotherapy</p> <p>Repeat every 7 days</p> <p>Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)</p>	Carcinoma of Unknown Primary
Paclitaxel	<p>Paclitaxel 250 mg/M² CIV (over 24 h) day 1</p> <p>REF: Forastiere et al. Cancer 1998; 82:2270-2274</p> <p>PREMEDICATIONS</p> <p>1. Dexamethasone 20 mg IV 30 minutes before chemotherapy</p> <p>OR</p> <p>Dexamethasone 20 mg PO 6 and 12 hours prior to chemotherapy</p> <p>2. Cimetidine 300 mg IV 30 minutes before chemotherapy</p> <p>3. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy</p> <p>4. Compazine 10 mg PO/IV 30 minutes before chemotherapy</p> <p>OTHER MEDICATIONS</p> <p>1. Dexamethasone 4 mg PO BID for 6 doses after (for myalgias)</p> <p>2. Requires G-CSF support</p> <p>Repeat every 21 days</p>	Endocrine Cancer
		Gastrointestinal Cancer
		Genitourinary Cancer
		Gynecologic Cancer
		Head and Neck Cancer
		Hematologic Malignancies

Chapter 9

Hematologic Malignancies

- Acute Lymphocytic Leukemia
- Acute Myelogenous Leukemia
- Chronic Lymphocytic Leukemia
- Chronic Myelogenous Leukemia
- Hairy Cell Leukemia
- Hodgkin's Disease
- Multiple Myeloma
 - Waldenstrom's Macroglobulinemia
- Myelodysplastic Syndrome
- Non-Hodgkin's Lymphoma

Hematologic Malignancies

Acute Lymphocytic Leukemia

Hoelzer Regimen (BFM)

INDUCTION—PHASE I

Vincristine	2 mg	IV	days 1,8,15,22
Daunorubicin	25 mg/M ²	IV	days 1,8,15,22
Prednisone	60 mg/M ²	PO	days 1-28
L-asparaginase	5,000 units/M ²	IV	days 1-14

INDUCTION—PHASE II

Cyclophosphamide	650 mg/M ²	IV	days 29,43,57
–maximum dose 1000 mg			
Ara-C	75 mg/M ²	IV	days 31-34,38-41, 45-48, 52-55
6-Mercaptopurine	60 mg/M ²	PO	days 29-57

CNS PROPHYLAXIS—weeks 5 through 8

Methotrexate	10 mg/M ²	IT	days 31,38,45,52
–maximum dose is 15 mg			
Cranial radiotherapy	1800-2400 cGy		given with phase II induction

CONSOLIDATION—PHASE I—begins week 20

Vincristine	2 mg	IV	days 1,8,15,22
Doxorubicin	25 mg/M ²	IV	days 1,8,15,22
Dexamethasone	10 mg/M ²	PO	days 1-28

CONSOLIDATION – PHASE II

Cyclophosphamide	650 mg/M ²	IV	day 29
– maximum dose is 1000 mg			
Ara-C	75 mg/M ²	IV	days 31-34,38-41
6-Thioguanine	60 mg/M ²	PO	days 29-42

MAINTENANCE

6-Mercaptopurine	60 mg/M ²	PO	daily weeks 10-18,29-130
Methotrexate	20 mg/M ²	PO/IV	weekly weeks 10-18,29-130

REF: Hoelzer et al. Blood 1988; 71:123-131

PREMEDICATIONS

1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after: daunorubicin, doxorubicin, and cyclophosphamide
2. Compazine 10 mg PO/IV 30 minutes before: cytarabine and L-asparaginase

Brain Cancer
Breast Cancer
Carcinoma of Unknown Primary
Endocrine Cancer
Gastrointestinal Cancer
Genitourinary Cancer
Gynecologic Cancer
Head and Neck Cancer
Hematologic Malignancies

Brain Cancer	<p>Anthracyclines—monitor cumulative dose for possible cardiac toxicity; vesicant—avoid extravasation</p> <p>Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)</p>
Breast Cancer	<p>Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration</p>
Carcinoma of Unknown Primary	<p>6-Mercaptopurine—reduce dose by 75% when used in conjunction with allopurinol</p> <p>L-asparaginase—be prepared to treat anaphylaxis at each administration; giving with or immediately before Vincristine may increase Vincristine toxicity</p>

Hyper CVAD Regimen

HYPER CVAD ALTERNATING WITH HIGH DOSE METHOTREXATE/ARA-C

Endocrine Cancer	<p>–alternate above for a total of 8 cycles</p> <p>–subsequent cycles given when WBC recovers to > 3.0 and platelet count is > 60,000</p>
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HYPER CVAD—cycles 1, 3, 5, and 7

Gastrointestinal Cancer	<table border="0"> <tr> <td>Cyclophosphamide</td> <td>300 mg/M²</td> <td>IV Q12H</td> <td>days 1-3</td> </tr> <tr> <td></td> <td></td> <td>(over 3 h)</td> <td></td> </tr> <tr> <td>Mesna</td> <td>600 mg/M²/d</td> <td>CIV</td> <td>days 1-3</td> </tr> </table> <p>–start at same time as cyclophosphamide and finish 6 hours after completion of cyclophosphamide</p>	Cyclophosphamide	300 mg/M ²	IV Q12H	days 1-3			(over 3 h)		Mesna	600 mg/M ² /d	CIV	days 1-3
Cyclophosphamide	300 mg/M ²	IV Q12H	days 1-3										
		(over 3 h)											
Mesna	600 mg/M ² /d	CIV	days 1-3										
Genitourinary Cancer	<table border="0"> <tr> <td>Vincristine</td> <td>2 mg</td> <td>IV</td> <td>days 4,11</td> </tr> <tr> <td>Doxorubicin</td> <td>50 mg/M²</td> <td>IV</td> <td>day 4</td> </tr> <tr> <td>Dexamethasone</td> <td>40 mg</td> <td>PO</td> <td>days 1-4, 11-14</td> </tr> </table>	Vincristine	2 mg	IV	days 4,11	Doxorubicin	50 mg/M ²	IV	day 4	Dexamethasone	40 mg	PO	days 1-4, 11-14
Vincristine	2 mg	IV	days 4,11										
Doxorubicin	50 mg/M ²	IV	day 4										
Dexamethasone	40 mg	PO	days 1-4, 11-14										
Gynecologic Cancer	<p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-4</p>												
Head and Neck Cancer	<p>OTHER MEDICATIONS</p> <p>1. Levofloxacin 500 mg PO QD</p> <p>2. Fluconazole 200 mg PO QD</p> <p>3. Valacyclovir 500 mg PO QD</p> <p>4. Neupogen 10 mcg/kg/d SQ divided BID starting day 5</p>												

HIGH DOSE METHOTREXATE AND CYTARABINE (ARA-C)—cycles 2, 4, 6, 8

Hematologic Malignancies	<table border="0"> <tr> <td>Methotrexate</td> <td>200 mg/M²</td> <td>IV (over 2 h)</td> <td>day 1</td> </tr> <tr> <td>–followed by Methotrexate</td> <td>800 mg/M²</td> <td>CIV (over 24 h)</td> <td>day 1</td> </tr> </table>	Methotrexate	200 mg/M ²	IV (over 2 h)	day 1	–followed by Methotrexate	800 mg/M ²	CIV (over 24 h)	day 1
Methotrexate	200 mg/M ²	IV (over 2 h)	day 1						
–followed by Methotrexate	800 mg/M ²	CIV (over 24 h)	day 1						

Continued

<p>Leucovorin 15 mg PO Q6H for 8 doses</p> <p>–increase Leucovorin to 50 mg PO Q6H if methotrexate level is:</p> <p>> 20 µmol/L at end of infusion</p> <p>> 1 µmol/L 24 hr later</p> <p>> 0.1 µmol/L 48 hr after the end of the methotrexate infusion</p> <p>- continue until methotrexate level is < 0.1 µmol/L</p> <p>Ara-C 3 gm/M² IV days 2-3 over 2 hr Q12H for 4 doses</p> <p>Methylprednisolone 50 mg IV BID days 1-3</p> <p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-3</p> <p>OTHER MEDICATIONS</p> <p>1. Levofloxacin 500 mg PO QD</p> <p>2. Fluconazole 200 mg PO QD</p> <p>3. Valacyclovir 500 mg PO QD</p> <p>4. Neupogen 10 mcg/kg/d SQ divided BID starting day 5</p> <p>5. Dexamethasone eye drops 2 drops each eye Q3H during and for 48-72 hours after completion of cytarabine</p>	<p>Brain Cancer</p> <p>Breast Cancer</p> <p>Carcinoma of Unknown Primary</p> <p>Endocrine Cancer</p> <p>Gastrointestinal Cancer</p>
CNS TREATMENT/PROPHYLAXIS	
<p>High Risk—LDH > 600 and/or high proliferative index; mature B-cell ALL</p> <p>Low Risk—neither of above</p> <p>Methotrexate 12 mg IT day 2</p> <p>Ara-C 100 mg IT day 8</p> <p>Known CNS disease—IT therapy twice weekly until CNS negative, then per prophylaxis protocol</p> <p>High risk—above is repeated for each of the 8 cycles of chemotherapy</p> <p>Low risk—above is repeated only during the first 2 cycles of chemotherapy</p> <p>Unknown risk—above is repeated during the first 4 cycles of chemotherapy</p>	<p>Gastrointestinal Cancer</p> <p>Genitourinary Cancer</p> <p>Gynecologic Cancer</p> <p>Head and Neck Cancer</p>
MAINTENANCE PHASE	
<p>A. Mature B-cell ALL—no maintenance</p> <p>B. Ph+ ALL—allogeneic transplant if donor available; otherwise, IFN and Ara-C as below</p> <p>–therapy is continued for 2 years</p>	<p>Hematologic Malignancies</p>

Continued

Brain Cancer
Breast Cancer
Carcinoma of Unknown Primary
Endocrine Cancer
Gastrointestinal Cancer
Genitourinary Cancer
Gynecologic Cancer
Head and Neck Cancer
Hematologic Malignancies

Interferon alfa	5 MIU/M ²	SQ	QD
Ara-C	10 mg	SQ	QD

C. All other patients

–therapy is continued for 2 years

6-Mercaptopurine	50 mg	PO TID	QD
Methotrexate	20 mg/M ²	PO	weekly
Vincristine	2 mg	IV	monthly
Prednisone	200 mg	PO	days 1-5 monthly

OTHER MEDICATIONS

1. Trimethoprim/sulfamethoxazole DS 1 tab PO BID each weekend
2. Valacyclovir 500 mg PO QD or TIW

–above medications are continued for first 6 months of maintenance phase

REF: Kantarjian et al. J Clin Oncol 2000; 18:547-561

Methotrexate—25% dose reduction for creatinine 1.5-2 and 50% reduction for creatinine > 2; do not give if patient has an effusion (“reservoir effect”)

Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration; dose reduced to 1 mg for bilirubin > 2

6-Mercaptopurine—reduce dose by 75% when used in conjunction with allopurinol

Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M² or 450 mg/M² with prior chest Radiotherapy); vesicant—avoid extravasation; dose reduced by 25% if bilirubin 2-3, 50% if bilirubin 3-4, and 75% if bilirubin > 4

Ara-C—high doses can cause CNS toxicity (cerebellar dysfunction); neurotoxicity increases as infusion time increases; dose reduced to 1 gm/M² if age > 60, creatinine > 2, or if Methotrexate level at end of infusion is > 20 μmol/L

Larson Regimen

COURSE I: INDUCTION (4 WEEK)

WEEKS 1-4	Cyclophosphamide	1200 mg/M ²	IV	day 1
	Daunorubicin	45 mg/M ²	IV	days 1-3
	Vincristine	2 mg	IV	days 1,8,15,22
	Prednisone	60 mg/M ²	PO	days 1-21
	L-asparaginase	6000 IU/M ²	SQ	days 5,8,11,15,18,22

Continued

	-for patients > age 60, modify doses as follows:				Brain Cancer	
	Cyclophosphamide	800 mg/M ²		on day 1		
	Daunorubicin	30 mg/M ²		on days 1-3		
	Prednisone	60 mg/M ²		on days 1-7		
COURSE II: EARLY INTENSIFICATION (4 WEEK; REPEAT ONCE)						
WEEKS 5-12	Methotrexate	15 mg	IT	day 1	Breast Cancer	
	Cyclophosphamide	1000 mg/M ²	IV	day 1		
	6-Mercaptopurine	60 mg/M ²	PO	days 1-14		
	Ara-C	75 mg/M ²	SQ	days 1-4, 8-11		
	Vincristine	2 mg	IV	days 15,22		
	L-asparaginase	6,000 IU/M ²	SQ	days 15,18, 22,25	Carcinoma of Unknown Primary	
COURSE III: CNS PROPHYLAXIS AND INTERIM MAINTENANCE (12 WEEK)						
WEEKS 13-25	Cranial Radiotherapy	2400 cGy		over days 1-12	Carcinoma of Unknown Primary	
	Methotrexate	15 mg	IT	days 1,8,15, 22,29		
	6-Mercaptopurine	60 mg/M ²	PO	days 1-70	Endocrine Cancer	
	Methotrexate	20 mg/M ²	PO	days 36,43, 50,57,64		
COURSE IV: LATE INTENSIFICATION (8 WEEK)						
WEEKS 26-33	Doxorubicin	30 mg/M ²	IV	days 1,8,15	Gastrointestinal Cancer	
	Vincristine	2 mg	IV	days 1,8,15		
	Dexamethasone	10 mg/M ²	PO	days 1-14		
	Cyclophosphamide	1000 mg/M ²	IV	day 29		
	6-Thioguanine	60 mg/M ²	PO	days 29-42		
	Ara-C	75 mg/M ²	SQ	days 29,32, 36-39		
COURSE V: PROLONGED MAINTENANCE UNTIL 24 MONTHS FROM DIAGNOSIS						
	Vincristine	2 mg	IV	day 1 every 4 wks	Genitourinary Cancer	
	Prednisone	60 mg/M ²	PO	days 1-5 every 4 wks		
	Methotrexate	20 mg/M ²	PO	days 1,8,15,22 every 4 wks	Gynecologic Cancer	
	6-Mercaptopurine	80 mg/M ²	PO	days 1-28 every 4 wks		
	REF: Larson et al. Blood 1995; 85:2025-2037					Head and Neck Cancer
	PREMEDICATIONS					Hematologic Malignancies
	<ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after: daunorubicin, doxorubicin, and cyclophosphamide 2. Compazine 10 mg PO/IV 30 minutes before: cytarabine and L-asparaginase 					

Continued

Brain Cancer	Anthracyclines—monitor cumulative dose for possible cardiac toxicity; vesicant—avoid extravasation Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)
Breast Cancer	Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration 6-Mercaptopurine—reduce dose by 75% when used in conjunction with allopurinol
Carcinoma of Unknown Primary	L-asparaginase—be prepared to treat anaphylaxis at each administration; giving with or immediately before Vincristine may increase Vincristine toxicity

Linker Regimen

INDUCTION

Endocrine Cancer	Daunorubicin 50 mg/M ² IV days 1-3 Vincristine 2 mg IV days 1,8,15,22 Prednisone 60 mg/M ² PO days 1-28 divided TID L-asparaginase 6,000 IU/M ² IM days 17-28
Gastrointestinal Cancer	—if day 14 bone marrow shows residual leukemia Daunorubicin 50 mg/M ² IV day 15 —if day 28 bone marrow shows residual leukemia Daunorubicin 50 mg/M ² IV days 29,30 Vincristine 2 mg IV days 29,36 Prednisone 60 mg/M ² PO days 29-42 divided TID L-asparaginase 6,000 IU/M ² IM days 29-35
Genitourinary Cancer	

CNS PROPHYLAXIS

Gynecologic Cancer	—initiate within 1 week of achieving complete remission Cranial XRT 1800 cGy in 10 fractions Methotrexate 12 mg IT weekly X 6 —if CNS is positive at time of diagnosis
Head and Neck Cancer	—begin weekly intrathecal MTX during induction —MTX 12 mg IT weekly X 10 —Cranial XRT to 2800 cGy

CONSOLIDATION—TREATMENT A—CYCLES 1, 3, 5, 7

Hematologic Malignancies	Daunorubicin 50 mg/M ² IV days 1,2 Vincristine 2 mg IV days 1,8 Prednisone 60 mg/M ² PO days 1-14 divided TID L-asparaginase 12,000 IU IM days 2,4,7,9,11,14
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Continued

CONSOLIDATION—TREATMENT B—CYCLES 2, 4, 6, 8				Brain Cancer
	Teniposide	165 mg/M ²	IV days 1,4,8,11	
	Ara-C	300 mg/M ²	IV days 1,4,8,11	
CONSOLIDATION—TREATMENT C—COURSE 9				Breast Cancer
	Methotrexate	690 mg/M ²	IV (over 42 h) day 1	
	Leucovorin	15 mg/M ²	IV Q6H for 12 doses— start at hour 42	
MAINTENANCE THERAPY				Carcinoma of Unknown Primary
	–continued for 30 months of CR			
	Methotrexate	20 mg/M ²	PO weekly	
	6-MP	75 mg/M ²	PO daily	
	REF: Linker et al. Blood 1991; 78:2814-2822			
	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after daunorubicin 2. Compazine 10 mg PO/IV 30 minutes before Ara-C, L-asparaginase, and teniposide <p>Daunorubicin—monitor cumulative dose for possible cardiac toxicity; vesicant—avoid extravasation</p> <p>Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)</p> <p>Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration</p> <p>6-Mercaptopurine—reduce dose by 75% when used in conjunction with allopurinol</p> <p>L-asparaginase—be prepared to treat anaphylaxis at each administration; giving with or immediately before Vincristine may increase Vincristine toxicity</p>			Endocrine Cancer
				Gastrointestinal Cancer
				Genitourinary Cancer
				Gynecologic Cancer
				Head and Neck Cancer
				Hematologic Malignancies

Acute Myelogenous Leukemia

INDUCTION CHEMOTHERAPY

Brain Cancer					
Breast Cancer	Agent	Dosage			
Carcinoma of Unknown Primary	7+3 cytarabine (ara-c)/daunorubicin	Ara-C	100 mg/M ² /d	CIV	days 1-7
		Daunorubicin	45 mg/M ²	IV	days 1-3
Endocrine Cancer		REF: Yates et al. Blood 1982; 60:454-462			
Gastrointestinal Cancer	7+3+7 cytarabine (ara-c)/daunorubicin/etoposide (VP-16)	Ara-C	100 mg/M ² /d	CIV	days 1-7
		Daunorubicin	50 mg/M ²	IV	days 1-3
Genitourinary Cancer		VP-16	75 mg/M ²	IV (over 1 h)	days 1-7
		REF: Bishop et al. Blood 1990; 75:27-32			
Gynecologic Cancer		PREMEDICATIONS			
		<ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and Q12 hours during chemotherapy on days 1-7 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1-3 			
Head and Neck Cancer	Idarubicin/cytarabine (ara-c)	Ara-C	100 mg/M ² /d	CIV	days 1-7
		Idarubicin	13 mg/M ²	IV	days 1-3
Hematologic Malignancies		REF: Wiernick et al. Blood 1992; 79:313-319			
		PREMEDICATIONS			
		<ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and Q12 hours during chemotherapy on days 1-7 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1-3 			

Continued

Agent	Dosage				Brain Cancer
	Idarubicin—monitor cumulative dose for possible cardiac toxicity; vesicant—avoid extravasation CONSOLIDATION—repeat the above drugs for 5 and 2 days respectively				Breast Cancer
Mitoxantrone/ cytarabine (ara-c)	Ara-C Mitoxantrone	100 mg/M ² /d 12 mg/M ²	CIV IV	days 1-7 days 1-3	Carcinoma of Unknown Primary
	REF: Arlin et al. Leukemia 1990; 4:177-183				Endocrine Cancer
	PREMEDICATIONS				
	1. Kytril 1 mg PO/IV 30 minutes before and Q12 hours during chemotherapy on days 1-5				
	2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 2				
	Mitoxantrone—watch cumulative dose—do not exceed 140 mg/M ² ; possible cardiac toxicity				
	CONSOLIDATION—repeat the above drugs for 5 and 2 days respectively				
TAD 9 daunorubicin/ cytarabine (ara-c)/ 6-thioguanine (6-TG)	Ara-C —followed by Ara-C	100 mg/M ² /d 100 mg/M ²	CIV IV Q12H (over 30 min)	days 1-2 days 3-8	Gastrointestinal Cancer
	Daunorubicin 6-TG	60 mg/M ² 100 mg/M ²	IV PO Q12H	days 3-5 days 3-9	Genitourinary Cancer
	REF: Buchner et al. J Clin Oncol 1985; 3:1583-1589				
	—there are several variations of the DAT/TAD regimen				
	PREMEDICATIONS				
	1. Kytril 1 mg PO/IV 30 minutes before and Q12 hours during chemotherapy on days 1-8				
	2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1-5				
	Daunorubicin—monitor cumulative dose for possible cardiac toxicity; vesicant—avoid extravasation				
CONSOLIDATION CHEMOTHERAPY					
HiDAC high-dose cytarabine (ara-c)	—has been used as consolidation chemotherapy or for recurrent disease Ara-C 3000 mg/M ² IVQ12H days 1,3,5 (over 3 h)				Head and Neck Cancer
	—note that this is given with an anthracycline, as in the above regimens				Hematologic Malignancies
	REF: Mayer et al. NEJM 1994; 331:896-903				

Continued

Agent	Dosage								
Brain Cancer	<p>–there are several variations of the HiDAC regimen</p>								
Breast Cancer	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1, 3, and 5 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1, 3, and 5 3. Dexamethasone eye drops 2 drops each eye Q3H during and for 48-72 hours after completion of cytarabine 								
Carcinoma of Unknown Primary	<p>Repeat every 28 days (as consolidation) for 2 or 3 courses</p> <p>Ara-C—high doses can cause CNS toxicity (cerebellar dysfunction); neurotoxicity increases as infusion time increases</p>								
RELAPSED/REFRACTORY DISEASE									
Endocrine Cancer	<table border="0"> <tr> <td>HAM high-dose cytarabine (ara-c)/mitoxantrone</td> <td>Ara-C 3000 mg/M²</td> <td>IVQ12H(over 3 h)</td> <td>days 1-4</td> </tr> <tr> <td></td> <td>Mitoxantrone 10 mg/M²</td> <td>IV(over 30 min)</td> <td>days 2-5 or 6</td> </tr> </table> <p>REF: Hiddemann et al. Blood 1987; 69:744-749</p>	HAM high-dose cytarabine (ara-c)/mitoxantrone	Ara-C 3000 mg/M ²	IVQ12H(over 3 h)	days 1-4		Mitoxantrone 10 mg/M ²	IV(over 30 min)	days 2-5 or 6
HAM high-dose cytarabine (ara-c)/mitoxantrone	Ara-C 3000 mg/M ²	IVQ12H(over 3 h)	days 1-4						
	Mitoxantrone 10 mg/M ²	IV(over 30 min)	days 2-5 or 6						
Gastrointestinal Cancer	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and Q12 hours during chemotherapy on days 1-5 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1-4 3. Dexamethasone eye drops 2 drops each eye Q3H during and for 48-72 hours after completion of cytarabine 								
Genitourinary Cancer	<p>Ara-C—high doses can cause CNS toxicity (cerebellar dysfunction); neurotoxicity increases as infusion time increases</p>								
Gynecologic Cancer	<p>Mitoxantrone—watch cumulative dose—do not exceed 140 mg/M²; possible cardiac toxicity</p>								
Head and Neck Cancer	<table border="0"> <tr> <td>High-dose cytarabine (ara-c)/fludarabine</td> <td>Fludarabine 30 mg/M²</td> <td>IV(over 30 min)</td> <td>days 2-6</td> </tr> <tr> <td></td> <td>–followed 31/2 hours later by Ara-C 1000 mg/M²</td> <td>IV(over 2 h)</td> <td>days 1-6</td> </tr> </table> <p>REF: Estey et al. Leuk Lymphoma 1993; 9:343-350</p>	High-dose cytarabine (ara-c)/fludarabine	Fludarabine 30 mg/M ²	IV(over 30 min)	days 2-6		–followed 31/2 hours later by Ara-C 1000 mg/M ²	IV(over 2 h)	days 1-6
High-dose cytarabine (ara-c)/fludarabine	Fludarabine 30 mg/M ²	IV(over 30 min)	days 2-6						
	–followed 31/2 hours later by Ara-C 1000 mg/M ²	IV(over 2 h)	days 1-6						
Hematologic Malignancies	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and Q12 hours during chemotherapy on days 1-5 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1-5 3. Dexamethasone eye drops 2 drops each eye Q3H during and for 48-72 hours after completion of cytarabine <p>Ara-C—high doses can cause CNS toxicity (cerebellar dysfunction); neurotoxicity increases as infusion time increases</p>								

Continued

Agent	Dosage	
Mitoxantrone/ etoposide (VP-16)	INDUCTION	
	VP-16	100 mg/M ² IV days 1-5
	Mitoxantrone	10 mg/M ² IV days 1-5
	CONSOLIDATION	
VP-16	75 mg/M ² IV days 1-5	
Mitoxantrone	8 mg/M ² IV days 1-5	
Ara-C	75 mg/M ² IV Q12H days 1-5	
	REF: Ho et al. J Clin Oncol 1988; 6:213-217	
	PREMEDICATIONS	
	1. Kytril 1 mg PO/IV 30 minutes before and Q12 hours during chemotherapy on days 1-5	
	2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1-5	
	Mitoxantrone—watch cumulative dose—do not exceed 140 mg/M ² ; possible cardiac toxicity	
Gemtuzumab zogamicin (Mylotarg)	—also called CMA-676	
	Mylotarg	9 mg/M ² IV days 1,15
		REF: Sievers et al. Blood 1999; 94 (Suppl 1):abstract 3079
	PREMEDICATIONS	
	1. Benadryl 25-50 mg PO/IV 30 minutes before	
	2. Tylenol 650 mg PO 30 minutes before	
	Day 15 dose is given regardless of blood counts	
ACUTE PROMYELOCYTIC LEUKEMIA		
ATRA/ daunorubicin/ cytarabine (ara-c)	INDUCTION	
	ATRA	45 mg/M ² PO daily until CR (divided BID) or 90 days
	Daunorubicin	60 mg/M ² IV days 3-5
	Ara-C	200 mg/M ² IV days 3-9
	CONSOLIDATION 1	
	Daunorubicin	60 mg/M ² IV days 1-3
	Ara-C	200 mg/M ² IV days 1-7
	CONSOLIDATION 2	
	Daunorubicin	45 mg/M ² IV days 1-3
	Ara-C	1000 mg/M ² IV Q12H days 1-4
MAINTENANCE		
	—continued to complete 2 years of therapy	
ATRA	45 mg/M ² PO every 3 mos (divided BID for 15 days)	

Brain Cancer

Breast Cancer

Carcinoma of Unknown Primary

Endocrine Cancer

Gastrointestinal Cancer

Genitourinary Cancer

Gynecologic Cancer

Head and Neck Cancer

Hematologic Malignancies

Agent	Dosage
Brain Cancer	6-MP 90 mg/M ² /d PO daily Methotrexate 15 mg/M ² PO weekly REF: Fenaux et al. Blood 1999; 94:1192-1200
Breast Cancer	PREMEDICATIONS 1. Kytril 1 mg PO/IV 30m minutes before and Q12 hours during daunorubicin and ara-c 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy during daunorubicin and ara-c
Carcinoma of Unknown Primary	6-Mercaptopurine—reduce dose by 75% when used in conjunction with allopurinol Daunorubicin—monitor cumulative dose for possible cardiac toxicity; vesicant—avoid extravasation
Endocrine Cancer	Ara-C—high doses can cause CNS toxicity (cerebellar dysfunction); neurotoxicity increases as infusion time increases Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)
Gastrointestinal Cancer	AIDA ATRA/idarubicin INDUCTION ATRA 45 mg/M ² PO (divided BID) daily until CR or 90 days Idarubicin 12 mg/M ² IV days 2,4,6,8
Genitourinary Cancer	CONSOLIDATION 1 Idarubicin 5 mg/M ² IV days 1-4 CONSOLIDATION 2 Mitoxantrone 10 mg/M ² IV days 1-5
Gynecologic Cancer	CONSOLIDATION 3 Idarubicin 12 mg/M ² IV day 1
Head and Neck Cancer	MAINTENANCE —continued to complete 2 years of therapy ATRA 45 mg/M ² PO (divided BID) every 3 mos for 15 days
Hematologic Malignancies	6-MP 90 mg/M ² /d PO daily Methotrexate 15 mg/M ² IM weekly REF: Sanz et al. Blood 1999; 94:3015-3021

Continued

Agent	Dosage	
	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30m minutes before and Q12 hours during anthracycline therapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy during anthracycline therapy <p>6-Mercaptopurine—reduce dose by 75% when used in conjunction with allopurinol</p> <p>Idarubicin—monitor cumulative dose for possible cardiac toxicity; vesicant – avoid extravasation</p> <p>Mitoxantrone—watch cumulative dose—do not exceed 140 mg/M²; possible cardiac toxicity</p> <p>Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)</p>	<p>Brain Cancer</p> <p>Breast Cancer</p> <p>Carcinoma of Unknown Primary</p>
<p>Arsenic trioxide</p>	<p>Arsenic trioxide 0.1 mg/kg/d IV days 1-28 (over 1-2 h)</p> <p>REF: Westervelt et al. Blood 1999; 94 (Suppl 1):abstract 2268</p> <p>Repeat every 42 days for a maximum of 3 cycles (or until cytogenetic remission, followed by 1 consolidation course)</p>	<p>Endocrine Cancer</p> <p>Gastrointestinal Cancer</p> <p>Genitourinary Cancer</p> <p>Gynecologic Cancer</p> <p>Head and Neck Cancer</p> <p>Hematologic Malignancies</p>

Chronic Lymphocytic Leukemia

Brain Cancer	Agent	Dosage			
Breast Cancer	COP cyclophosphamide/vincristine/prednisone	Cyclophosphamide	400 mg/M ²	PO	days 1-5
Carcinoma of Unknown Primary		Vincristine	1.4 mg/M ²	IV	day 1
	Endocrine Cancer	Prednisone	80 mg	PO	days 1-5
Gastrointestinal Cancer	FCR - cyclophosphamide/fludarabine/rituximab	REF: Raphael et al. J Clin Oncol 1991; 9:770-776			
		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5 Repeat every 21 days Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity; may produce severe constipation; maximum 2 mg per administration			
Genitourinary Cancer		Cyclophosphamide	250 mg/M ²	IV	days 1-3
Gynecologic Cancer		Fludarabine	25 mg/M ²	IV	days 1-3
	Head and Neck Cancer	Rituximab	375 mg/M ²	IV	day 1
Hematologic Malignancies	Chlorambucil daily	–for cycles 2-6, dose is increased to 500 mg/M ² –infusion is started at 50 mg/hr (25 mg/hr in patients with circulating tumor cells) and slowly increased to a maximum of 400 mg/hr (300 mg/hr during initial infusion)			
		REF: Keating et al. Proc Am Soc Clin Oncol 2000; abstract 2214 PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Tylenol 650 mg PO 30 minutes before rituximab 3. Benadryl 25 mg PO/IV 30 minutes before rituximab Trimethoprim-sulfamethoxazole DS BID for 2 days each week for patients who require any corticosteroids Repeat every 28 days			
	Chlorambucil pulse	Chlorambucil	0.1 mg/kg	PO	QD
		REF: Dighiero et al. NEJM 1998; 338:1506-1514 Given daily –adjust dose based on CBC			
		Chlorambucil	0.3 mg/kg	PO	days 1-5
		Prednisone	40 mg/M ²	PO	days 1-5
		REF: Dighiero et al. NEJM 1998; 338:1506-1514			

Continued

	Agent	Dosage			
	OR Chlorambucil	30 mg/M ²	PO	day 1	Brain Cancer
	Prednisone	100 mg/M ²	PO	days 1-5	
	REF: Raphael et al. J Clin Oncol 1991; 9:770-776				Breast Cancer
	Repeat every 28 days –adjust dose based on CBC				
Cyclophosphamide—oral	Cyclophosphamide	1-2 mg/kg	PO	daily	Carcinoma of Unknown Primary
	REF: Huguley et al. Cancer Treat Rev 1977; 4:261-273 –there are multiple variations of this regimen Cyclophosphamide—precautions against hemorrhagic cystitis				
Cyclophosphamide—IV	Cyclophosphamide	20 mg/kg	IV	day 1	Endocrine Cancer
	REF: Huguley et al. Cancer Treat Rev 1977; 4:261-273 –there are multiple variations of this regimen PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy Repeat every 14-21 days Cyclophosphamide—precautions against hemorrhagic cystitis				
Fludarabine	Consider prophylactic use of trimethoprin-sulfamethoxazole Fludarabine	25 mg/M ²	IV	days 1-5	Genitourinary Cancer
	REF: Keating et al. J Clin Oncol 1991; 9:44-49 Repeat every 28 days				
					Gastrointestinal Cancer
					Gynecologic Cancer
					Head and Neck Cancer
					Hematologic Malignancies

Chronic Myelogenous Leukemia

Brain Cancer	Agent	Dosage			
Breast Cancer	Interferon-alfa 2a (IFN)/cytarabine (Ara-C)	IFN	5 X 10 ⁶ units/M ²	SQ	daily
Carcinoma of Unknown Primary		Ara-C	10 mg	SQ	daily
Endocrine Cancer	Busulfan	REF: Kantarjian et al. J Clin Oncol 1999; 17:284-292	PREMEDICATIONS 1. Tylenol 650 mg PO before IFN 2. Compazine 10 mg PO before prn		
Gastrointestinal Cancer		Busulfan	4-8 mg	PO	daily
Genitourinary Cancer	Hydroxyurea	REF: Bolin et al. Cancer 1982; 50:1683-1686	Hold for WBC count < 20,000; resume for WBC > 50,000		
Gynecologic Cancer		Hydroxyurea	500-2000 mg	PO	daily
Head and Neck Cancer	Interferon-alfa 2a (IFN)	REF: Bolin et al. Cancer 1982; 50:1683-1686	REF: Alimena et al. Blood 1988; 72:642-647 PREMEDICATIONS 1. Tylenol 650 mg PO before IFN prn Interferon—adjust dose as tolerated to maintain WBC count 3000-5000		
Hematologic Malignancies		Thiotepa	–this agent can be used for persistent thrombocytopenia in CML patients who have adequate WBC count	Thiotepa	75 mg/M ²
	REF: Rodriguez-Monge et al. Cancer 1997; 80:396-400		PREMEDICATIONS 1. Compazine 10 mg PO/IV 30 minutes before chemotherapy Repeat every 14-21 days		

Hairy Cell Leukemia

Agent	Dosage				Brain Cancer	
Cladribine (2-chlorodeoxyadenosine, 2-CdA)	2-CdA	0.1 mg/kg/d	CIV	days 1-7		Breast Cancer
	REF: Piro et al. NEJM 1990; 322:1117-1121 Single 7 day infusion					
Interferon alfa-2a (IFN)	IFN	2 MIU/M ²	SQ	TIW for 1 year	Carcinoma of Unknown Primary	
	REF: Rai et al. Leukemia 1995; 9:1116-1120 PREMEDICATIONS 1. Acetaminophen as needed to alleviate fever or “flu-like” symptoms					
Pentostatin (2-deoxycoformycin)	Pentostatin	4 mg/M ²	IV	day 1	Endocrine Cancer	
	REF: Grever et al. J Clin Oncol 1995; 13:974-982					
	Repeat every 14 days for at least 3 months				Gastrointestinal Cancer	
						Genitourinary Cancer
				Head and Neck Cancer		
					Hematologic Malignancies	

Hodgkin's Disease

Brain Cancer	Agent	Dosage							
Breast Cancer	ABVD doxorubicin/ bleomycin/ vinblastine/ dacarbazine (DTIC)	Doxorubicin	25 mg/M ²	IV	days 1,15				
Carcinoma of Unknown Primary		Bleomycin	10 mg/M ²	IV	days 1,15				
Endocrine Cancer		Vinblastine	6 mg/M ²	IV	days 1,15				
Gastrointestinal Cancer		DTIC	375 mg/M ²	IV	days 1,15				
Genitourinary Cancer		REF: Bonadonna et al. Cancer 1975; 36:252-259 PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 15 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 15 Repeat every 28 days	Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0	Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity Bleomycin—give test dose of 1-2 units because of possible acute pulmonary, anaphylactoid, or severe febrile reactions; must dose adjust for renal insufficiency; total lifetime dose should not exceed 400 units; avoid high FiO ₂ as it can exacerbate pulmonary toxicity Dacarbazine—vesicant—avoid extravasation	ASHAP doxorubicin/ methylprednisolone/ cytarabine/ cisplatin				
Gynecologic Cancer						Doxorubicin	10 mg/M ² /d	CIV (for 96 h)	days 1-4
Head and Neck Cancer						Methylprednisolone	500 mg	IV (over 15 min)	days 1-4
Hematologic Malignancies		Cytarabine	1500 mg/M ²	IV (over 2 h)	day 5				
Head and Neck Cancer		Cisplatin	25 mg/M ² /d	CIV (for 96 h)	days 1-4				
Hematologic Malignancies		REF: Rodriguez et al. Blood 1999; 93:3632-3636 PREMEDICATIONS 1. Kytril 1 mg PO/IV Q12H for 10 doses, starting 30 minutes before chemotherapy on day 1	OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis Repeat every 21–28 days						

Continued

Agent	Dosage	
	<p>Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M² or 450 mg/M² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0</p>	Brain Cancer
	<p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>	Breast Cancer
	<p>Cytarabine—high doses can cause CNS toxicity (cerebellar dysfunction); neurotoxicity increases as infusion time increases</p>	
BEACOPP cyclophosphamide/ vincristine/ etoposide (VP-16)/ procarbazine/ prednisone/ doxorubicin/ bleomycin	<p>Cyclophosphamide 650 mg/M² IV day 1</p>	Carcinoma of Unknown Primary
	<p>Vincristine 1.4 mg/M² IV day 1</p>	
	<p>VP-16 100 mg/M² IV days 1-3</p>	
	<p>Procarbazine 100 mg/M² PO days 1-7</p>	Endocrine Cancer
	<p>Prednisone 40 mg/M² PO days 1-14</p>	
	<p>Doxorubicin 25 mg/M² IV day 1</p>	
	<p>Bleomycin 10 mg/M² IV day 8</p>	
<p>REF: Tesch et al. Blood 1998; 92:4560-4567</p>		
	<p>PREMEDICATIONS</p>	
	<ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 3. Compazine 10 mg PO/IV 30 minutes before chemotherapy on day 8 	Gastrointestinal Cancer
	<p>Repeat every 28 days</p>	Genitourinary Cancer
	<p>Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration</p>	Genitourinary Cancer
	<p>Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M² or 450 mg/M² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0</p>	Gynecologic Cancer
	<p>Bleomycin—give test dose of 1-2 units because of possible acute pulmonary, anaphylactoid, or severe febrile reactions; must dose adjust for renal insufficiency; total lifetime dose should not exceed 400 units; avoid high FiO₂ as it can exacerbate pulmonary toxicity</p>	Head and Neck Cancer
		Hematologic Malignancies

	Agent	Dosage			
Brain Cancer	Dexa-BEAM dexamethasone/ carmustine (BCNU)/ etoposide (VP-16)/ cytarabine (Ara-C)/ melphalan	Dexamethasone	8 mg	PO Q8H	days 1-10
Breast Cancer		BCNU	60 mg/M ²	IV	day 2
Carcinoma of Unknown Primary		VP-16	75 mg/M ²	IV	days 4-7
		Ara-C	100 mg/M ²	IV Q12H	days 4-7
Endocrine Cancer		Melphalan	20 mg/M ²	IV	day 3
		REF: Pfreundschuh et al. J Clin Oncol 1994; 12:580-586			
Gastrointestinal Cancer	Mini-BEAM carmustine (BCNU)/ etoposide (VP-16)/ cytarabine (Ara-C)/ melphalan	PREMEDICATIONS			
		1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 2 and 3			
Genitourinary Cancer		2. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 4-7			
		OTHER MEDICATIONS			
Gynecologic Cancer		1. Give non-cisplatin delayed emesis prophylaxis			
		Repeat every 28 days			
Head and Neck Cancer		Carmustine—maximum total dose is 1440 mg/M ² ; causes delayed myelosuppression			
		BCNU	60 mg/M ²	IV	day 1
Hematologic Malignancies	ChIVPP chlorambucil/ vinblastine/ procarbazine/ prednisone	VP-16	75 mg/M ²	IV	days 2-5
		Ara-C	100 mg/M ²	IV Q12H	days 2-5
		Melphalan	20 mg/M ²	IV	day 6
		REF: Colwill et al. J Clin Oncol 1995; 13:396-402			
		PREMEDICATIONS			
		1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 6			
		2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 6			
		3. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 2-5			
		OTHER MEDICATIONS			
		1. Give non-cisplatin delayed emesis prophylaxis			
		Repeat every 28-42 days			
		Carmustine—maximum total dose is 1440 mg/M ² ; causes delayed myelosuppression			
		Chlorambucil	6 mg/M ²	PO	days 1-14
		Vinblastine	6 mg/M ²	IV	days 1, 8
		—maximum dose is 10 mg			
		Procarbazine	100 mg/M ²	PO	days 1-14
		Prednisone	40 mg/M ²	PO	days 1-14

Continued

Agent	Dosage													
	REF: Selby et al. Br J Cancer 1990; 62:279-285 PREMEDICATIONS 1. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 1 and 8 Repeat every 28 days for 6 cycles Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity	Brain Cancer Breast Cancer												
DHAP dexamethasone/ cytarabine (Ara-C)/cisplatin	<table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Cisplatin</td> <td style="width: 33%;">100 mg/M²</td> <td style="width: 33%;">CIV (X 24 h)</td> <td>day 1</td> </tr> <tr> <td>Ara-C</td> <td>2000 mg/M²</td> <td>IV Q12H</td> <td>day 2</td> </tr> </table> <p style="margin-left: 20px;">X 2 doses, each over 3 h</p> <p>—start at completion of cisplatin infusion</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Dexamethasone</td> <td style="width: 33%;">40 mg</td> <td style="width: 33%;">PO/IV</td> <td>days 1-4</td> </tr> </table> <p>REF: Velasquez et al. Blood 1988; 71:117-122</p> <p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemo on days 1 and 2</p> <p>OTHER MEDICATIONS</p> <p>1. Give cisplatin delayed-emesis prophylaxis</p> <p>Repeat every 21-28 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p> <p>Cytarabine—high doses can cause CNS toxicity (cerebellar dysfunction); neurotoxicity increases as infusion time increases</p>	Cisplatin	100 mg/M ²	CIV (X 24 h)	day 1	Ara-C	2000 mg/M ²	IV Q12H	day 2	Dexamethasone	40 mg	PO/IV	days 1-4	Carcinoma of Unknown Primary Endocrine Cancer Gastrointestinal Cancer Genitourinary Cancer
Cisplatin	100 mg/M ²	CIV (X 24 h)	day 1											
Ara-C	2000 mg/M ²	IV Q12H	day 2											
Dexamethasone	40 mg	PO/IV	days 1-4											
EVA etoposide (VP-16)/ vinblastine/ doxorubicin	<table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">VP-16</td> <td style="width: 33%;">100 mg/M²</td> <td style="width: 33%;">IV</td> <td>days 1-3</td> </tr> <tr> <td>Vinblastine</td> <td>6 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> <tr> <td>Doxorubicin</td> <td>50 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> </table> <p>REF: Canellos et al. J Clin Oncol 1995; 13:2005-2011</p> <p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1</p> <p>2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1</p> <p>3. Compazine 10 mg PO/IV 30 minutes before etoposide on days 2 and 3</p> <p>Repeat every 28 days</p>	VP-16	100 mg/M ²	IV	days 1-3	Vinblastine	6 mg/M ²	IV	day 1	Doxorubicin	50 mg/M ²	IV	day 1	Gynecologic Cancer Head and Neck Cancer Hematologic Malignancies
VP-16	100 mg/M ²	IV	days 1-3											
Vinblastine	6 mg/M ²	IV	day 1											
Doxorubicin	50 mg/M ²	IV	day 1											

Continued

	Agent	Dosage																												
Brain Cancer		Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0																												
Breast Cancer		Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity																												
Carcinoma of Unknown Primary	MOPP nitrogen mustard/vincristine/procarbazine/prednisone	<p>—this regimen is rarely utilized today, and is listed primarily for historical interest</p> <table border="0"> <tr> <td>Nitrogen mustard</td> <td>6 mg/M²</td> <td>IV</td> <td>days 1, 8</td> </tr> <tr> <td>Vincristine</td> <td>1.4 mg/M²</td> <td>IV</td> <td>days 1, 8</td> </tr> <tr> <td>Procarbazine</td> <td>100 mg/M²</td> <td>PO</td> <td>days 1-14</td> </tr> <tr> <td>Prednisone</td> <td>40 mg/M²</td> <td>PO</td> <td>days 1-14</td> </tr> </table> <p>REF: DeVita et al. Ann Intern Med 1970; 73:881-895</p>	Nitrogen mustard	6 mg/M ²	IV	days 1, 8	Vincristine	1.4 mg/M ²	IV	days 1, 8	Procarbazine	100 mg/M ²	PO	days 1-14	Prednisone	40 mg/M ²	PO	days 1-14												
Nitrogen mustard	6 mg/M ²	IV	days 1, 8																											
Vincristine	1.4 mg/M ²	IV	days 1, 8																											
Procarbazine	100 mg/M ²	PO	days 1-14																											
Prednisone	40 mg/M ²	PO	days 1-14																											
Endocrine Cancer		<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 8 Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 8 																												
Gastrointestinal Cancer		<p>Repeat every 28 days</p> <p>Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration</p>																												
Genitourinary Cancer		<p>Nitrogen mustard—potent vesicant—avoid extravasation; decomposes rapidly after mixing; must not be mixed in same syringe with any other drug</p>																												
Gynecologic Cancer	MOPP-ABV Hybrid nitrogen mustard/vincristine/procarbazine/prednisone/doxorubicin/bleomycin/vinblastine	<table border="0"> <tr> <td>Nitrogen mustard</td> <td>6 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> <tr> <td>Vincristine</td> <td>1.4 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> <tr> <td>Procarbazine</td> <td>100 mg/M²</td> <td>PO</td> <td>days 1-7</td> </tr> <tr> <td>Prednisone</td> <td>40 mg/M²</td> <td>PO</td> <td>days 1-14</td> </tr> <tr> <td>Doxorubicin</td> <td>35 mg/M²</td> <td>IV</td> <td>day 8</td> </tr> <tr> <td>Bleomycin</td> <td>10 mg/M²</td> <td>IV</td> <td>day 8</td> </tr> <tr> <td>Vinblastine</td> <td>6 mg/M²</td> <td>IV</td> <td>day 8</td> </tr> </table>	Nitrogen mustard	6 mg/M ²	IV	day 1	Vincristine	1.4 mg/M ²	IV	day 1	Procarbazine	100 mg/M ²	PO	days 1-7	Prednisone	40 mg/M ²	PO	days 1-14	Doxorubicin	35 mg/M ²	IV	day 8	Bleomycin	10 mg/M ²	IV	day 8	Vinblastine	6 mg/M ²	IV	day 8
Nitrogen mustard	6 mg/M ²	IV	day 1																											
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Prednisone	40 mg/M ²	PO	days 1-14																											
Doxorubicin	35 mg/M ²	IV	day 8																											
Bleomycin	10 mg/M ²	IV	day 8																											
Vinblastine	6 mg/M ²	IV	day 8																											
Head and Neck Cancer		<p>REF: Klimo et al. J Clin Oncol 1985; 3:1174-1182</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 8 Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 8 																												
Hematologic Malignancies		<p>Repeat every 28 days</p>																												

Continued

Agent	Dosage				
	Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration			Brain Cancer	
	Nitrogen mustard—potent vesicant—avoid extravasation; decomposes rapidly after mixing; must not be mixed in same syringe with any other drug			Breast Cancer	
	Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant – avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0			Carcinoma of Unknown Primary	
	Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity			Endocrine Cancer	
	Bleomycin—give test dose of 1-2 units because of possible acute pulmonary, anaphylactoid, or severe febrile reactions; must dose adjust for renal insufficiency; total lifetime dose should not exceed 400 units; avoid high FiO ₂ as it can exacerbate pulmonary toxicity				
STANFORD V nitrogen mustard/ doxorubicin/ vinblastine/ vincristine/ bleomycin/ etoposide (VP-16)/ prednisone	Nitrogen mustard	6 mg/M ²	IV	day 1	Brain Cancer
	Doxorubicin	25 mg/M ²	IV	days 1, 15	
	Vinblastine	6 mg/M ²	IV	days 1, 15	Carcinoma of Unknown Primary
	Vincristine	1.4 mg/M ²	IV	days 8, 22	
	Bleomycin	5 units/M ²	IV	days 8, 22	Gastrointestinal Cancer
	Etoposide	60 mg/M ²	IV	days 15, 16	
	Prednisone	40 mg/M ²	PO	every other day; taper by 10 mg QOD starting at week 10	Gynecologic Cancer
		–decrease vinblastine to 4 mg/M ² and vincristine to 1 mg/M ² for cycle 3 for patients age > 50			
		REF: Bartlett et al. J Clin Oncol 1995; 13:1080-1088			Hematologic Malignancies
		PREMEDICATIONS			
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 15			Hematologic Malignancies	
	2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 15				Hematologic Malignancies
	3. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 8, 16, and 22			Hematologic Malignancies	
	OTHER MEDICATIONS				Hematologic Malignancies
	Cotrimoxazole	DS 1 tablet	PO BID until therapy completed	Hematologic Malignancies	
	Acyclovir	200 mg	PO TID until therapy completed		Hematologic Malignancies
	Ketoconazole	200 mg	PO QD until therapy completed	Hematologic Malignancies	
	Stool softener		daily until therapy completed		Hematologic Malignancies
	This is a 12 week regimen (above is repeated every 28 days for 3 cycles)			Hematologic Malignancies	

Continued

Agent	Dosage
Brain Cancer	Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration
Breast Cancer	Nitrogen mustard—potent vesicant—avoid extravasation; decomposes rapidly after mixing; must not be mixed in same syringe with any other drug
Carcinoma of Unknown Primary	Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0
Endocrine Cancer	Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity
Gastrointestinal Cancer	Bleomycin—give test dose of 1-2 units because of possible acute pulmonary, anaphylactoid, or severe febrile reactions; must dose adjust for renal insufficiency; total lifetime dose should not exceed 400 units; avoid high FiO ₂ as it can exacerbate pulmonary toxicity
Gemcitabine	Gemcitabine 1250 mg/M ² IV (over 30 min) days 1,8,15 -20% dose increase permitted if no toxicity after first 4 week cycle
Gastrointestinal Cancer	REF: Santoro et al. J Clin Oncol 2000; 18:2615-2619
GEMCITABINE	PREMEDICATIONS
Genitourinary Cancer	1. Compazine 10 mg PO/IV 30 minutes before
Repeat every 28 days	Repeat every 28 days
Vinblastine	Vinblastine 4-6 mg/M ² IV day 1
Genitourinary Cancer	REF: Little et al. J Clin Oncol 1998; 16:584-588
PREMEDICATIONS	PREMEDICATIONS
Gynecologic Cancer	1. Compazine 10 mg PO/IV 30 minutes before
Repeat every 7-14 days	Repeat every 7-14 days
Vinblastine	Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation; watch for neurotoxicity
Head and Neck Cancer	
Hematologic Malignancies	

Multiple Myeloma

Agent	Dosage					
MP melphalan/ prednisone	Melphalan	10 mg/M ²	PO	days 1-4	Brain Cancer	
	Prednisone	60 mg/M ²	PO	days 1-4		
	REF: Arch Intern Med 1975; 135:147-152					Breast Cancer
	OR					
Melphalan	0.15 mg/kg	PO	days 1-7	Carcinoma of Unknown Primary		
Prednisone	60 mg	PO	days 1-7			
REF: Kyle et al. CRC Crit Rev Oncol/Hematol 1988; 8:93-152					Carcinoma of Unknown Primary	
–there are numerous variations of the MP regimen						
Repeat every 28–42 days						
M2 (VBMCP) vincristine/ carmustine (BCNU)/ cyclophosphamide/ melphalan/ prednisone	Vincristine	0.03 mg/kg	IV	day 1	Endocrine Cancer	
	BCNU	0.50 mg/kg	IV	day 1		
	Cyclophosphamide	10 mg/kg	IV	day 1	Endocrine Cancer	
	Melphalan	0.25 mg/kg	PO	days 1-4		
	Prednisone	1 mg/kg	PO	days 1-7	Gastrointestinal Cancer	
	then	0.50 mg/kg	PO	days 8-14		
	REF: Case et al. Am J Med 1977; 63:897-903					Gastrointestinal Cancer
	PREMEDICATIONS					
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1					Genitourinary Cancer
	OTHER MEDICATIONS					
1. Give non-cisplatin delayed-emesis prophylaxis						
Repeat every 35 days					Gynecologic Cancer	
Carmustine—maximum total dose is 1440 mg/M ² ; causes delayed myelosuppression						
Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration					Gynecologic Cancer	
VAD vincristine/ doxorubicin/ dexamethasone	Vincristine	0.4 mg/d	CIV	days 1-4	Head and Neck Cancer	
	Doxorubicin	9 mg/M ² /d	CIV	days 1-4		
	Dexamethasone	40 mg	PO	days 1-4, 9-12, 17-20		
REF: Barlogie et al. NEJM 1984; 310:1353-1356					Hematologic Malignancies	

Continued

	Agent	Dosage			
Brain Cancer		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and Q12H during chemotherapy on days 1-4 Repeat every 28 days			
Breast Cancer		Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ²); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0			
Carcinoma of Unknown Primary	Dexamethasone	Dexamethasone	40 mg	PO	days 1-4,9-12, 17-20
		REF: Alexanian: Ann Intern Med 1986; 105:8-11 Repeat every 35 days			
Endocrine Cancer	Pamidronate (Aredia)	Pamidronate	90 mg	IV	day 1
		REF: Berenson et al. J Clin Oncol 1998; 16:593-602 Repeat every 28 days			
Gastrointestinal Cancer	Thalidomide	Thalidomide	200 mg	PO QHS	daily
		–dose advanced 200 mg every 2 weeks as tolerated REF: Desikan et al. Blood 1999; 94(Suppl 1):abstract 2685 Thalidomide—providers and pharmacies must be registered with the S.T.E.P.S program; can cause significant somnolence			
Genitourinary Cancer	Waldenstrom's Macroglobulinemia				
Gynecologic Cancer		Initial therapy frequently consists of an alkylating agent in conjunction with corticosteroids; these regimens can be found in the CLL (chlorambucil, cyclophosphamide) and multiple myeloma (melphalan) sections.			
	Cladribine (2-CdA)	2-CdA	0.1 mg/kg/d	CIV	days 1-7
Head and Neck Cancer		REF: Dimopoulos et al. J Clin Oncol 1994; 12:2694-2698 Repeat every 28 days for 2 cycles			
	Fludarabine	Fludarabine	25 mg/M ²	IV	days 1-5
Hematologic Malignancies		REF: Foran et al. J Clin Oncol 1999; 17:546-553 Repeat every 28 days to maximal response plus 2 cycles Consider prophylaxis with trimethoprim-sulfanethoxazole			

Myelodysplastic Syndrome

Agent	Dosage	Brain Cancer
Cytarabine (ara-c)/topotecan	Ara-C 1000 mg/M ² IV (over 2 h) days 1-5 Topotecan 1.25 mg/M ² /d CIV days 1-5	Breast Cancer
	REF: Beran et al. J Clin Oncol 1999; 17:2819-2830 PREMEDICATIONS 1. Kytril 1 mg IV/PO 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 10 mg IV 30 minutes before chemotherapy OTHER MEDICATIONS —these are given during the period of neutropenia 1. Trimethoprim-sulfamethoxazole DS 1 tab PO BID 2. Fluconazole 100-200 mg PO QD 3. Valacyclovir 500 mg PO QD or Acyclovir 200 mg PO BID Ara-C—high doses can cause CNS toxicity (cerebellar dysfunction); neurotoxicity increases as infusion time increases	
7+3 cytarabine/daunorubicin	See regimen listed under AML	Carcinoma of Unknown Primary
Etoposide (VP-16)—oral	—this regimen has been utilized for CMML VP-16 50 mg PO days 1-21 REF: Doll et al. Leuk Res 1998; 22:7-12 Repeat every 28 days	Endocrine Cancer
Thalidomide	Thalidomide 100 mg PO QHS daily REF: Raza et al. Blood 1999; 94(Suppl 1):abstract 2935 Thalidomide—providers and pharmacies must be registered with the S.T.E.P.S program; can cause significant somnolence	Gastrointestinal Cancer
Topotecan	Topotecan 2 mg/M ² /d CIV days 1-5 REF: Beran et al. Semin Hematol 1998; 35:26-31 PREMEDICATIONS 1. Kytril 1 mg IV/PO 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 10 mg IV 30 minutes before chemotherapy Repeat every 4-6 weeks for 2 cycles, then adjust to maximum tolerated dose (1-2 mg/M ² /d CIV X 5 days) every 4-8 weeks to a maximum of 12 cycles	Genitourinary Cancer
		Gynecologic Cancer
		Head and Neck Cancer
		Hematologic Malignancies

Non-Hodgkin's Lymphoma

Brain Cancer	Agent	Dosage				
Breast Cancer	CHOP cyclophosphamide/ doxorubicin/ vincristine/ prednisone	Cyclophosphamide	750 mg/M ²	IV	day 1	
Carcinoma of Unknown Primary		Doxorubicin	50 mg/M ²	IV	day 1	
Endocrine Cancer		Vincristine	1.4 mg/M ²	IV	day 1	
Gastrointestinal Cancer		Prednisone	100 mg	PO	days 1-5	
Genitourinary Cancer		REF: McKelvey et al. Cancer 1976; 38:1484-1493 PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy Repeat every 21 days Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0 Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration	Rituximab	375 mg/M ²	IV	day 1
Gynecologic Cancer			- infusion is started at 50 mg/hr (25 mg/hr in patients with circulating tumor cells) and slowly increased to a maximum of 400 mg/hr (300 mg/hr during initial infusion) Cyclophosphamide 750 mg/M ² IV day 3 Doxorubicin 50 mg/M ² IV day 3 Vincristine 1.4 mg/M ² IV day 3 Prednisone 100 mg PO days 3-7 REF: Vose et al. J. Clin Oncol 2001; 19:389-397. Repeat every 21 days OR Rituximab 375 mg/M ² IV day 1 - infusion is started at 50 mg/hr (25 mg/hr in patients with circulating tumor cells) and slowly increased to a maximum of 400 mg/hr (300 mg/hr during initial infusion)	Cyclophosphamide	750 mg/M ²	IV
Head and Neck Cancer		Doxorubicin		50 mg/M ²	IV	day 3
Hematologic Malignancies		Vincristine		1.4 mg/M ²	IV	day 1
		Prednisone		100 mg	PO	days 3-7
		Cyclophosphamide		750 mg/M ²	IV	day 1
	Doxorubicin	50 mg/M ²	IV	day 1		
Vincristine	1.4 mg/M ²	IV	day 1			
Prednisone	40 mg/M ²	PO	days 1-5			

Continued

Agent	Dosage													
	<p>OTHER MEDICATIONS:</p> <p>1. G-CSF 5 mcg/kg SQ days 5-12</p> <p>REF: Coiffier et al. Blood 2001; 96 (Suppl):abstract 950</p> <p>Repeat every 21 days for 8 cycles</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy 3. Tylenol 650 mg PO 30 minutes before rituximab 4. Benadryl 25 mg PO/IV 30 minutes before rituximab <p>Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M² or 450 mg/M² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin >3.0</p> <p>Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration</p>	<p>Brain Cancer</p> <p>Breast Cancer</p> <p>Carcinoma of Unknown Primary</p> <p>Endocrine Cancer</p>												
<p>CVP (COP) cyclophosphamide/ vincristine/ prednisone</p>	<table border="0"> <tr> <td>Cyclophosphamide</td> <td>400 mg/M²</td> <td>PO</td> <td>days 1-5</td> </tr> <tr> <td>Vincristine</td> <td>1.4 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> <tr> <td>Prednisone</td> <td>100 mg/M²</td> <td>PO</td> <td>days 1-5</td> </tr> </table> <p>REF: Bagley et al. Ann Intern Med 1972; 76:227-234</p> <p>—there are many variations of this regimen</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy days 1-5 <p>Repeat every 21-28 days</p> <p>Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration</p>	Cyclophosphamide	400 mg/M ²	PO	days 1-5	Vincristine	1.4 mg/M ²	IV	day 1	Prednisone	100 mg/M ²	PO	days 1-5	<p>Gastrointestinal Cancer</p> <p>Genitourinary Cancer</p> <p>Gynecologic Cancer</p>
Cyclophosphamide	400 mg/M ²	PO	days 1-5											
Vincristine	1.4 mg/M ²	IV	day 1											
Prednisone	100 mg/M ²	PO	days 1-5											
<p>DHAP dexamethasone/ cytarabine/ cisplatin</p>	<table border="0"> <tr> <td>Cisplatin</td> <td>100 mg/M²</td> <td>CIV X 24 hr</td> <td>day 1</td> </tr> <tr> <td>Cytarabine</td> <td>2000 mg/M²</td> <td>IV Q12H X 2 doses, each over 3 hr</td> <td>day 2</td> </tr> </table> <p>—start at completion of cisplatin infusion</p> <table border="0"> <tr> <td>Dexamethasone</td> <td>40 mg</td> <td>PO/IV</td> <td>days 1-4</td> </tr> </table> <p>REF: Velasquez et al. Blood 1988; 71:117-122</p>	Cisplatin	100 mg/M ²	CIV X 24 hr	day 1	Cytarabine	2000 mg/M ²	IV Q12H X 2 doses, each over 3 hr	day 2	Dexamethasone	40 mg	PO/IV	days 1-4	<p>Head and Neck Cancer</p> <p>Hematologic Malignancies</p>
Cisplatin	100 mg/M ²	CIV X 24 hr	day 1											
Cytarabine	2000 mg/M ²	IV Q12H X 2 doses, each over 3 hr	day 2											
Dexamethasone	40 mg	PO/IV	days 1-4											

Continued

Agent	Dosage																
Brain Cancer	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 2 																
Breast Cancer	<p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> Give cisplatin delayed-emesis prophylaxis <p>Repeat every 21-28 days</p>																
Carcinoma of Unknown Primary	<p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p> <p>Cytarabine—high doses can cause CNS toxicity (cerebellar dysfunction); neurotoxicity increases as infusion time increases</p>																
Endocrine Cancer	<p>ESHAP etoposide (VP-16)/ methylprednisolone/ cytarabine/ cisplatin</p> <table border="0"> <tr> <td>VP-16</td> <td>40 mg/M²</td> <td>IV (over 1 h)</td> <td>days 1-4</td> </tr> <tr> <td>Methylprednisolone</td> <td>500 mg</td> <td>IV (over 15 min)</td> <td>days 1-4</td> </tr> <tr> <td>Cytarabine</td> <td>2000 mg/M²</td> <td>IV (over 2 h)</td> <td>day 5</td> </tr> <tr> <td>Cisplatin</td> <td>25 mg/M²</td> <td>CIV (over 96 h)</td> <td>days 1-4</td> </tr> </table> <p>REF: Velasquez et al. J Clin Oncol 1994; 12:1169-1176</p>	VP-16	40 mg/M ²	IV (over 1 h)	days 1-4	Methylprednisolone	500 mg	IV (over 15 min)	days 1-4	Cytarabine	2000 mg/M ²	IV (over 2 h)	day 5	Cisplatin	25 mg/M ²	CIV (over 96 h)	days 1-4
VP-16	40 mg/M ²	IV (over 1 h)	days 1-4														
Methylprednisolone	500 mg	IV (over 15 min)	days 1-4														
Cytarabine	2000 mg/M ²	IV (over 2 h)	day 5														
Cisplatin	25 mg/M ²	CIV (over 96 h)	days 1-4														
Gastrointestinal Cancer	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> Kytril 1 mg PO/IV Q12H for 10 doses, starting 30 minutes before chemotherapy on day 1 <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> Give cisplatin delayed-emesis prophylaxis 																
Genitourinary Cancer	<p>Repeat every 21-28 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>																
Gynecologic Cancer	<p>Cytarabine—high doses can cause CNS toxicity (cerebellar dysfunction); neurotoxicity increases as infusion time increases</p>																
Head and Neck Cancer	<p>ICE ifosfamide/ carboplatin/ etoposide (VP-16)</p> <p>—also used as a stem cell mobilization regimen (with G-CSF at 10 mcg/kg/d)</p> <table border="0"> <tr> <td>Ifosfamide</td> <td>5000 mg/M²</td> <td>CIV X 24 hr</td> <td>day 2</td> </tr> <tr> <td>Mesna</td> <td>5000 mg/M²</td> <td>CIV X 24 hr</td> <td>day 2</td> </tr> <tr> <td>Carboplatin</td> <td>AUC 5</td> <td>IV</td> <td>day 2</td> </tr> <tr> <td>VP-16</td> <td>100 mg/M²</td> <td>IV</td> <td>days 1-3</td> </tr> </table> <p>REF: Moskowitz et al. J Clin Oncol 1999; 17:3776-3785</p>	Ifosfamide	5000 mg/M ²	CIV X 24 hr	day 2	Mesna	5000 mg/M ²	CIV X 24 hr	day 2	Carboplatin	AUC 5	IV	day 2	VP-16	100 mg/M ²	IV	days 1-3
Ifosfamide	5000 mg/M ²	CIV X 24 hr	day 2														
Mesna	5000 mg/M ²	CIV X 24 hr	day 2														
Carboplatin	AUC 5	IV	day 2														
VP-16	100 mg/M ²	IV	days 1-3														
Hematologic Malignancies	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-3 Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 2 																

Continued

Agent	Dosage																													
	<p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. G-CSF 5 mcg/kg/d SQ days 5-12 2. Give non-cisplatin delayed emesis prophylaxis <p>Repeat every 21 days</p> <p>Ifosfamide—adequate hydration is necessary to prevent nephrotoxicity</p>	Brain Cancer																												
<p>MINE mesna/ ifosfamide/ mitoxantrone/ etoposide (VP-16)</p>	<table border="0"> <tr> <td>Mesna</td> <td>1333 mg/M²</td> <td>IV</td> <td>days 1-3</td> </tr> <tr> <td></td> <td></td> <td colspan="2">at same time as ifosfamide</td> </tr> <tr> <td>Mesna</td> <td>500 mg</td> <td>PO 4 hr</td> <td>days 1-3</td> </tr> <tr> <td></td> <td></td> <td colspan="2">after ifosfamide</td> </tr> <tr> <td>Ifosfamide</td> <td>1333 mg/M²</td> <td>IV (over 1 h)</td> <td>days 1-3</td> </tr> <tr> <td>Mitoxantrone</td> <td>8 mg/M²</td> <td>IV (over 15 min)</td> <td>day 1</td> </tr> <tr> <td>VP-16</td> <td>65 mg/M²</td> <td>IV (over 1 h)</td> <td>days 1-3</td> </tr> </table> <p>REF: Rodriguez et al. J Clin Oncol 1995; 13:1734-1741</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-3 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1-3 <p>Repeat every 21-28 days</p> <p>Mitoxantrone—watch cumulative dose—do not exceed 140 mg/M²; possible cardiac toxicity</p> <p>Ifosfamide—adequate hydration is necessary to prevent nephrotoxicity</p>	Mesna	1333 mg/M ²	IV	days 1-3			at same time as ifosfamide		Mesna	500 mg	PO 4 hr	days 1-3			after ifosfamide		Ifosfamide	1333 mg/M ²	IV (over 1 h)	days 1-3	Mitoxantrone	8 mg/M ²	IV (over 15 min)	day 1	VP-16	65 mg/M ²	IV (over 1 h)	days 1-3	<p>Breast Cancer</p> <p>Carcinoma of Unknown Primary</p> <p>Endocrine Cancer</p> <p>Gastrointestinal Cancer</p> <p>Genitourinary Cancer</p>
Mesna	1333 mg/M ²	IV	days 1-3																											
		at same time as ifosfamide																												
Mesna	500 mg	PO 4 hr	days 1-3																											
		after ifosfamide																												
Ifosfamide	1333 mg/M ²	IV (over 1 h)	days 1-3																											
Mitoxantrone	8 mg/M ²	IV (over 15 min)	day 1																											
VP-16	65 mg/M ²	IV (over 1 h)	days 1-3																											
<p>MINE/ESHAP</p>	<p>–MINE regimen as above, to a maximum of 6 cycles; this is followed by ESHAP as above (with exception of increase of VP-16-60 mg/M²/d for 4 days) for 3 cycles if there was a complete response to MINE and 6 cycles if there was a partial response (or no response) to MINE</p> <p>–antiemetics and warnings are as listed with the individual regimens</p> <p>REF: Rodriguez et al. J Clin Oncol 1995; 13:1734-1741</p>	<p>Genitourinary Cancer</p> <p>Gynecologic Cancer</p> <p>Head and Neck Cancer</p> <p>Hematologic Malignancies</p>																												

Brain Cancer	Agent	Dosage				
Breast Cancer	MACOP-B methotrexate/ doxorubicin/ cyclophosphamide/ vincristine/ bleomycin/ prednisone/ folinic acid	Methotrexate	400 mg/M ²	IV	days 8,36,64 (weeks 2,6,10)	
Carcinoma of Unknown Primary		-100 mg/M ² bolus in 20 minutes, then 300 mg/M ² as 2 hr infusion				
Endocrine Cancer		Folinic Acid	15 mg	PO Q6H X 6 doses	starting 24 hours after methotrexate	
Gastrointestinal Cancer		Doxorubicin	50 mg/M ²	IV	days 1,15,29,43,57,71 (weeks 1,3,5,7,9,11)	
Genitourinary Cancer		Cyclophosphamide	350 mg/M ²	IV	days 1,15,29,43,57,71 (weeks 1,3,5,7,9,11)	
Gynecologic Cancer		Vincristine	1.4 mg/M ²	IV	days 8,22,36,50,64,78 (weeks 2,4,6,8,10,12)	
Head and Neck Cancer		Bleomycin	10 mg/M ²	IV	days 22,50,78 (weeks 4,8,12)	
Hematologic Malignancies		Prednisone	75 mg	PO	daily for 12 weeks (tapered over last 14 days)	
		REF: Schneider et al. J Clin Oncol 1990; 8:94-102				
		PREMEDICATIONS				
		1. Hydrocortisone 100 mg IV given prior to each dose of Bleomycin				
		2. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1, 8, 15, 29, 36, 43, 57, 64 and 71				
		3. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1, 8, 15, 29, 36, 43, 57, 64 and 71				
		OTHER MEDICATIONS				
		1. Trimethoprim-sulfamethoxazole 2 DS tablet PO BID daily for 12 weeks				
		2. Ketoconazole 200 mg PO daily for 12 weeks				
		Cycle is given only one time, over a 12 week period				
		Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0				

	Agent	Dosage	
m-BACOD bleomycin/ doxorubicin/ cyclophosphamide/ vincristine/ dexamethasone/ methotrexate/ folic acid	Vincristine	—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration	Brain Cancer
	Bleomycin	—give test dose of 1-2 units because of possible acute pulmonary, anaphylactoid, or severe febrile reactions; must dose adjust for renal insufficiency; total lifetime dose should not exceed 400 units; avoid high FiO ₂ as it can exacerbate pulmonary toxicity	Breast Cancer
	Methotrexate	—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)	Carcinoma of Unknown Primary
	Bleomycin	4 mg/M ² IV	Endocrine Cancer
	Doxorubicin	45 mg/M ² IV	
	Cyclophosphamide	600 mg/M ² IV	Endocrine Cancer
	Vincristine	1 mg/M ² IV	
	Dexamethasone	6 mg/M ² PO	Endocrine Cancer
	Methotrexate	200 mg/M ² IV (over 1 h)	
	Folinic Acid	10 mg/M ² PO Q6H X 8 doses	
	—starting 24 hours after methotrexate		
	REF: Shipp et al. J Clin Oncol 1990; 8:84-93		
	PREMEDICATIONS		
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1, 8, and 15		
	2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1, 8, and 15		
	Repeat every 21 days for up to 10 cycles		
	Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0		
	Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration		
	Bleomycin—give test dose of 1-2 units because of possible acute pulmonary, anaphylactoid, or severe febrile reactions; must dose adjust for renal insufficiency; total lifetime dose should not exceed 400 units; avoid high FiO ₂ as it can exacerbate pulmonary toxicity		
	Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)		
	Hematologic Malignancies		

	Agent	Dosage
Brain Cancer	Low-dose m-BACOD bleomycin/ doxorubicin/ cyclophosphamide/ vincristine/ dexamethasone/ methotrexate/ folinic acid/ cytarabine (ara-C)	–this regimen is utilized in AIDS associated lymphomas Bleomycin 4 mg/M ² IV day 1 Doxorubicin 25 mg/M ² IV day 1 Cyclophosphamide 300 mg/M ² IV day 1 Vincristine 1.4 mg/M ² IV day 1 Dexamethasone 3 mg/M ² PO days 1-5 Methotrexate 200 mg/M ² IV (over 1 h) day 15 Folinic Acid 10 mg/M ² PO Q6H X 8 doses starting 24 hr after methotrexate
Breast Cancer		Ara-C 50 mg IT days 1,8,15,22 (intrathecal)
Carcinoma of Unknown Primary		REF: Kaplan et al. NEJM 1997; 336:1641-1648
Endocrine Cancer		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1, 8, and 15 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1, 8, and 15
Gastrointestinal Cancer		Repeat every 21 days Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0
Genitourinary Cancer		Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration
Gynecologic Cancer		Bleomycin—give test dose of 1-2 units because of possible acute pulmonary, anaphylactoid, or severe febrile reactions; must dose adjust for renal insufficiency; total lifetime dose should not exceed 400 units; avoid high FiO ₂ as it can exacerbate pulmonary toxicity
Head and Neck Cancer		Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)
Hematologic Malignancies		

Agent	Dosage					
ProMACE-CytaBOM prednisone/ doxorubicin/ cyclophosphamide/ etoposide/ cytarabine/ bleomycin/ vincristine/ methotrexate/ folinic acid	Prednisone	60 mg/M ²	PO	days 1-14	Brain Cancer	
	Doxorubicin	25 mg/M ²	IV	day 1		Breast Cancer
	Cyclophosphamide	650 mg/M ²	IV	day 1		
	Etoposide	120 mg/M ²	IV	day 1		
	Cytarabine	300 mg/M ²	IV	day 8		
	Bleomycin	5 mg/M ²	IV	day 8		
	Vincristine	1.4 mg/M ²	IV	day 8		
	Methotrexate	120 mg/M ²	IV	day 8	Carcinoma of Unknown Primary	
	Folinic acid	25 mg/M ²	PO	Q6H for 4 doses starting 24h after methotrexate		
	REF: Longo et al. J Clin Oncol 1991; 9:25-38					Endocrine Cancer
PREMEDICATIONS						
<ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 8 2. Dexamethasone 20 mg IV before chemotherapy on days 1 and 8 						
OTHER MEDICATIONS					Gastrointestinal Cancer	
<ol style="list-style-type: none"> 1. Trimethoprim-sulfamethoxazole DS one tablet BID 						
Repeat every 21 days for at least 6 cycles (2 cycles beyond CR)					Genitourinary Cancer	
Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0						
Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration					Gynecologic Cancer	
Bleomycin—give test dose of 1-2 units because of possible acute pulmonary, anaphylactoid, or severe febrile reactions; must dose adjust for renal insufficiency; total lifetime dose should not exceed 400 units; avoid high FiO ₂ as it can exacerbate pulmonary toxicity						
Methotrexate—use 75% dose for CrCl < 50; 50% dose if CrCl < 25; do not give if patient has an effusion (“reservoir effect”)					Head and Neck Cancer	
Gemcitabine	Gemcitabine	1250 mg/M ²	IV	days 1,8,15		
REF: Fossa et al. J Clin Oncol 1999; 17:3786-3792					Hematologic Malignancies	
PREMEDICATIONS						
<ol style="list-style-type: none"> 1. Compazine 10 mg PO/IV 30 minutes before chemotherapy 						
Repeat every 28 days						

PRIMARY CNS LYMPHOMAS	
Brain Cancer	<p>Agent Methotrexate/ Radiotherapy</p> <p>Dosage Methotrexate 1 gm/M² IV (over 6 h) days 1,8 Leucovorin 15 mgPO Q6H for 72 hr</p> <p>–start 24 hours after start of Methotrexate</p> <p>Ara-C 60 mg IT BIW for 3 wks –then weekly for 3 doses after clearance of CSF</p> <p>REF: O'Brien, et al. J Clin Oncol 2000; 18: 519-526</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 8 2. Dexamethasone 20 mg IV before chemotherapy on days 1 and 8 <p>Radiotherapy—4500 cGy in 25 fractions, followed by 5.4 Gy to isocenter; starts on day 15</p> <p>–spinal Radiotherapy to 36 Gy in 24 fractions if cytology is positive</p>
Breast Cancer	
Carcinoma of Unknown Primary	
Endocrine Cancer	
Gastrointestinal Cancer	<p>CUTANEOUS T-CELL LYMPHOMAS</p> <p>Bexarotene (Targretin)</p> <p>–for use in cutaneous T-cell lymphomas Bexarotene 300 mg/M²/d PO daily</p> <p>REF: Duvic et al. Blood 1999; 94(Suppl 1):abstract 2927</p> <p>Bexarotene—causes severe hyperlipidemia in majority of patients treated; may require concomitant lipid-lowering therapy</p> <p>Denileukin diftitox (Ontak)</p> <p>–for use in refractory CD25 positive cutaneous T-cell lymphomas Ontak 9-18 µg/kg IV(over 15 min) days 1-5</p> <p>REF: PDR/package insert</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Diphenhydramine 25-50 mg PO/IV 30 minutes before treatment 2. Tylenol 650 mg PO 30 minutes before treatment <p>Repeat every 21 days</p> <p>Ontak—watch for high incidence of acute hypersensitivity reactions; be prepared to treat possible anaphylaxis</p>
Genitourinary Cancer	
Gynecologic Cancer	
Head and Neck Cancer	
Hematologic Malignancies	<p>Gemcitabine</p> <p>Gemcitabine 1200 mg/M² IV (over 30 min) days 1,8,15</p> <p>REF: Zinzani et al. J Clin Oncol 2000; 18:2603-2606</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Compazine 10 mg PO/IV 30 minutes before <p>Repeat every 28 days</p>

LOW-GRADE NON-HODGKIN'S LYMPHOMAS

Agent	Dosage	Brain Cancer
Cladribine (2-CdA) mitoxantrone	Please refer to regimens outlined in the CLL section	Breast Cancer
	–as therapy for low-grade or mantle cell lymphoma 2-CdA 5 mg/M ² IV days 1-3 Mitoxantrone 8 mg/M ² IV days 1-2 –mitoxantrone dose is reduced to 12 mg/M ² on day 1 only if previously treated REF: Rummel et al. Blood 1999; 94(Suppl 1):abstract 2931	
	PREMEDICATIONS 1. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 1-3 Repeat every 28 days	Carcinoma of Unknown Primary
	FND fludarabine/ mitoxantrone/ dexamethasone	Fludarabine 25 mg/M ² IV days 1-3 Mitoxantrone 10 mg/M ² IV day 1 Dexamethasone 20 mg PO/IV days 1-5
REF: McLaughlin et al. J Clin Oncol 1996: 14:1262-1268 PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before chemotherapy on day 1 2. Compazine 10 mg PO/IV before chemotherapy on days 2 and 3		Gastrointestinal Cancer
OTHER MEDICATIONS 1. Trimethoprim-sulfamethoxazole DS 1 tablet BID for prophylaxis Repeat every 28 days		Genitourinary Cancer
Mitoxantrone—watch cumulative dose—do not exceed 140 mg/M ² ; possible cardiac toxicity		Gynecologic Cancer
Cladribine (2-CdA)	–as therapy for mantle cell lymphoma 2-CdA 5 mg/M ² IV days 1-5	Head and Neck Cancer
	REF: Inwards et al. Blood 1999; 94(Suppl 1):abstract 2930 PREMEDICATIONS 1. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 1-5 Repeat every 28 days for 2-6 cycles	

Hematologic Malignancies

	Agent	Dosage
Brain Cancer	Fludarabine	Fludarabine 25 mg/M ² IV days 1-5 REF: Redman et al. J Clin Oncol 1992; 10:790-794
Breast Cancer		PREMEDICATIONS 1. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 1-5 Repeat every 21-28 days Consider prophylaxis with trimethoprim-sulfanethoxazole
Carcinoma of Unknown Primary	Rituximab	Rituximab 375 mg/M ² IV days 1,8,15,22 –infusion is started at 50 mg/hr (25 mg/hr in patients with circulating tumor cells) and slowly increased to a maximum of 400 mg/hr (300 mg/hr during initial infusion) REF: McLaughlin et al. J Clin Oncol 1998; 16:2825-2833
Endocrine Cancer		PREMEDICATIONS 1. Tylenol 650 mg PO 30 minutes before 2. Benadryl 25 mg PO/IV 30 minutes before
Gastrointestinal Cancer		
Genitourinary Cancer		
Gynecologic Cancer		
Head and Neck Cancer		
Hematologic Malignancies		

Chapter 10

Lung Cancer

- Mesothelioma
- Non-Small-Cell Lung Cancer
- Small-Cell Lung Cancer

Lung Cancer

Lung Cancer

Mesothelioma

Cisplatin/ gemcitabine	<p>Cisplatin 100 mg/M² IV day 1 Gemcitabine 1000 mg/M² IV days 1,8,15</p> <p>REF: Byrne et al. J Clin Oncol 1999; 17:25-30</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 3. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 8 and 15 <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Give cisplatin delayed-emesis prophylaxis <p>Repeat every 28 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>	Malignant Melanoma
		Sarcoma
		Supportive Care
		Hematology Basics
Cisplatin/ mitomycin C	<p>Cisplatin 75 mg/M² IV day 1 Mitomycin C 10 mg/M² IV day 1</p> <p>REF: Chahinian et al. J Clin Oncol 1993; 11:1559-1565</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Give cisplatin delayed-emesis prophylaxis <p>Repeat every 28 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p> <p>Mitomycin C—myelosuppression occurs late (approximately 4 weeks); limit cumulative dose to 50 mg/M² (vascular toxicity)</p>	Hematology Basics
		Chemo- therapeutic Drug Toxicities
		Drug Costs

Lung Cancer	Agent	Dosage
Malignant Melanoma	Cyclophosphamide/ doxorubicin/ cisplatin	Cyclophosphamide 500 mg/M ² IV day 1 Doxorubicin 50 mg/M ² IV day 1 Cisplatin 80 mg/M ² IV day 1 –cisplatin dose reduced to 50 mg/M ² after 1 st cycle
Sarcoma		REF: Shin et al. Cancer 1995; 76:2230-2236 PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy
Supportive Care		OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis Repeat every 21 days
Hematology Basics		Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5 Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0
Chemo-therapeutic Drug Toxicities		
Drug Costs		

Non-Small-Cell Lung Cancer

CP carboplatin/ paclitaxel	Paclitaxel 225 mg/M ² IV (over 3 h) day 1 –followed by Carboplatin AUC 6 IV (over 1 h) day 1	Lung Cancer
	REF: Kelly et al. Proc Amer Soc Clin Onc 1999; abstract 1777 OR Paclitaxel 175 mg/M ² IV (over 3 h) day 1 –followed by Carboplatin AUC 7 IV (over 1 h) day 1 REF: Kosmidis et al. Ann Oncol 1997; 8:697-699	
Cisplatin/ vinblastine	PREMEDICATIONS 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy OR Dexamethasone 20 mg PO 6 and 12 hours prior 2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy 3. Cimetidine 300 mg IV 30 minutes before chemotherapy 4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy	Sarcoma
	OTHER MEDICATIONS 1. Give cisplatin delayed–emesis prophylaxis 2. Dexamethasone 4 mg PO BID for 6 doses after chemotherapy (for myalgias)	Supportive Care
	Repeat every 21 days	Hematology Basics
	–followed by XRT Vinblastine 5 mg/M ² IV days 1,8,15,22,29 Cisplatin 100 mg/M ² IV days 1,29	Chemo-therapeutic Drug Toxicities
	–radiotherapy is started on day 50, to 60 Gy over a 6 week period REF: Dillman et al. NEJM 1990; 323:940-945	Drug Costs
PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1 and 29 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1 and 29 3. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 8, 15, and 22		

Continued

Lung Cancer		<p>OTHER MEDICATIONS</p> <p>1. Give cisplatin delayed-emesis prophylaxis</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>								
Malignant Melanoma	Docetaxel/cisplatin	<p>Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation</p> <table border="1"> <tr> <td>Docetaxel</td> <td>75 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> <tr> <td>cisplatin</td> <td>75 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> </table>	Docetaxel	75 mg/M ²	IV	day 1	cisplatin	75 mg/M ²	IV	day 1
Docetaxel	75 mg/M ²	IV	day 1							
cisplatin	75 mg/M ²	IV	day 1							
Sarcoma		<p>REF: Schiller et al. Proc ASCO 2000:abstract 2</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 3. Cemitidine 300 mg IV 30 minutes before chemotherapy 4. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy 								
Supportive Care		<p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Give cisplatin delayed-emesis prophylaxis 2. Dexamethasone 8 mg PO BID for 8 doses—start day prior to chemo (decreases lower extremity edema) <p>Repeat every 21 days</p>								
Hematology Basics		<p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>								
Chemo-therapeutic Drug Toxicities	EP (PE) cisplatin/etoposide	<table border="1"> <tr> <td>Etoposide</td> <td>100 mg/M²</td> <td>IV</td> <td>days 1-3</td> </tr> <tr> <td>Cisplatin</td> <td>100 mg/M²</td> <td>IV</td> <td>day 1</td> </tr> </table>	Etoposide	100 mg/M ²	IV	days 1-3	Cisplatin	100 mg/M ²	IV	day 1
Etoposide	100 mg/M ²	IV	days 1-3							
Cisplatin	100 mg/M ²	IV	day 1							
Drug Costs		<p>REF: Cardenal et al. J Clin Oncol 1999; 17:12-18</p> <p>—there are multiple variants of this regimen</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 3. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 2 and 3 								
		<p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Give cisplatin delayed-emesis prophylaxis <p>Repeat every 21-28 days</p>								

Continued

Agent	Dosage				Lung Cancer	
	Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5					Malignant Melanoma
Gemcitabine/ cisplatin	Gemcitabine	1000 mg/M ²	IV	days 1,8,15	Sarcoma	
	Cisplatin	100 mg/M ²	IV	day 1		Supportive Care
	REF: Sandler et al. J Clin Oncol 2000; 18:122-130					
	PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 3. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 8 and 15 OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis Repeat every 28 days Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5 Gemcitabine—dosage modifications are based on degree of thrombocytopenia or neutropenia					
Gemcitabine/ vinorelbine	Gemcitabine	1200 mg/M ²	IV	days 1, 8	Chemo-therapeutic Drug Toxicities	
	Vinorelbine	30 mg/M ²	IV	days 1, 8		Drug Costs
	REF: Lorusso et al. J Clin Oncol 2000; 405-411					
PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy Repeat every 21 days Vinorelbine—vesicant; avoid extravasation; can cause peripheral neuropathy						
MVP mitomycin C/ vinblastine/ cisplatin	Mitomycin C	8 mg/M ²	IV	day 1 (of every other course)		
	Vinblastine —maximum dose is 10 mg	6 mg/M ²	IV	day 1		
Cisplatin 50 mg/M ² IV day 1						
REF: Ellis et al. Br J Cancer 1995; 71:366-370						

Continued

Lung Cancer	Agent	Dosage			
Malignant Melanoma		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy			
Sarcoma		OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis Repeat every 21 days			
Supportive Care		Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5 Vinblastine—use 50% of dose for bilirubin > 3.0; vesicant—avoid extravasation			
Hematology Basics		Mitomycin C—myelosuppression occurs late (approximately 4 weeks); limit cumulative dose to 50 mg/M ² (vascular toxicity)			
Chemo-therapeutic Drug Toxicities	VC vinorelbine/ cisplatin	Vinorelbine	25 mg/M ²	IV	days 1,8,15,22
Drug Costs		Cisplatin	100 mg/M ²	IV	day 1
		REF: Kelly et al. Proc Amer Soc Clin Onc 1999; abstract 1777			
		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 3. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 8, 15, and 22			
		OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis Repeat every 28 days			
		Vinorelbine—vesicant; avoid extravasation; can cause peripheral neuropathy Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5			
	Docetaxel	Docetaxel	100 mg/M ²	IV(over 1 h)	day 1
		REF: Gandara et al. J Clin Oncol 2000; 18:131-135			
	Docetaxel	OR Docetaxel	75 mg/M ²	IV(over 1 h)	day 1
		REF: Fossella et al. J Clin Oncol 2000; 18:2354-2362			

Agent	Dosage				Lung Cancer
	PREMEDICATIONS 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy 2. Cimetidine 300 mg IV 30 minutes before chemotherapy 3. Diphenhydramine 25-50 mg IV 30 minutes before chemotherapy 4. Compazine 10 mg PO/IV 30 minutes before chemotherapy OTHER MEDICATIONS 1. Dexamethasone 8 mg PO BID for 8 doses—start day prior to chemo (decreases lower extremity edema) Repeat every 21 days				Malignant Melanoma
Etoposide (VP-16)–oral	Etoposide	100 mg	PO	days 1-7	Sarcoma
	Etoposide	100 mg	PO QOD	days 8-14	Supportive Care
Gemcitabine	Gemcitabine	1000 mg/M ²	IV	days 1,8,15	Hematology Basics
Topotecan	Topotecan	1.5 mg/M ² /d	IV (over 30 min)	days 1-5	Chemo-therapeutic Drug Toxicities
	REF: Perez-Soler et al. J Clin Oncol 1996; 14:503-13 PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1-5 Repeat every 21 days Topotecan—hold for ANC < 1500 or platelets < 100,000; decrease dose by 0.25 mg/M ² /d for prior episode of severe neutropenia or administer G-CSF starting on day 6				Drug Costs
Vinorelbine	Vinorelbine	30 mg/M ²	IV	every 7 days	
	–decrease dose to 15 mg/M ² when ANC 1000-1499 REF: Crawford et al. J Clin Oncol 1996; 14:2774-2784 PREMEDICATIONS 1. Compazine 10 mg PO/IV 30 minutes before chemotherapy Repeat every 7 days Vinorelbine—vesicant; avoid extravasation; can cause peripheral neuropathy				

Small-Cell Lung Cancer

	Agent	Dosage				
Malignant Melanoma	Carboplatin/ paclitaxel	Paclitaxel	175 mg/M ²	IV (over 3 h)	day 1	
Sarcoma		-followed by Carboplatin	AUC 7	IV (over 3 h)	day 1	
Supportive Care		REF: Groen et al. J Clin Oncol 1999; 17:927-932				
Hematology Basics		PREMEDICATIONS				
Chemo-therapeutic Drug Toxicities		1. Dexamethasone 20 mg IV 30 minutes before chemotherapy OR Dexamethasone 20 mg PO 6 and 12 hours prior				
Drug Costs		2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy				
		3. Cimetidine 300 mg IV 30 minutes before chemotherapy 4. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy				
	OTHER MEDICATIONS					
Hematology Basics	1. Give non-cisplatin delayed-emesis prophylaxis					
	2. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias)					
Chemo-therapeutic Drug Toxicities	Repeat every 21 days					
	CAE (ACE) cyclophosphamide/ doxorubicin/ etoposide	Cyclophosphamide	1000 mg/M ²	IV	day 1	
Doxorubicin		45 mg/M ²	IV	day 1		
Drug Costs	CAE (ACE) cyclophosphamide/ doxorubicin/ etoposide	Etoposide (VP-16)	50 mg/M ²	IV	days 1-5	
		REF: Aisner et al. Semin Oncol 1986; 13:54-62				
	PREMEDICATIONS					
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1					
Drug Costs	2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1					
	3. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 2-5					
	OTHER MEDICATIONS					
	1. May need to give non-cisplatin delayed-emesis prophylaxis					
	Repeat every 21 days					
	Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.					

Agent	Dosage				Lung Cancer
CAV cyclophosphamide/ doxorubicin/ vincristine	Cyclophosphamide	1000 mg/M ²	IV	day 1	Malignant Melanoma
	Doxorubicin	40 mg/M ²	IV	day 1	
	Vincristine	1 mg/M ²	IV	day 1	Sarcoma
	REF: Roth et al. J Clin Oncol 1992; 10:282-291				
	PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy OTHER MEDICATIONS 1. May need to give non-cisplatin delayed-emesis prophylaxis				
Repeat every 21 days Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0					
Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration					Hematology Basics
EC etoposide/ carboplatin	Etoposide	120 mg/M ²	IV	days 1-3	
	Carboplatin	AUC 6	IV	day 1	
	REF: Birch et al. Semin Oncol 1997; 24(4 Suppl 12):135-137				
PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 3. Compazine 10 mg PO/IV 30 minutes before chemotherapy on days 2 and 3 OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis					Chemo-therapeutic Drug Toxicities
Repeat every 28-35 days					
EP (PE) cisplatin/ etoposide	Etoposide	100 mg/M ²	IV	days 1-3	
	Cisplatin	25 mg/M ²	IV	days 1-3	
REF: Loehrer et al. Semin Oncol 1988; 15:2-8 –multiple variants of this regimen have been published					Drug Costs

Continued

Lung Cancer	Agent	Dosage			
Malignant Melanoma		PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-3 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1-3 OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis Repeat every 21 days			
Sarcoma		Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5			
		Irinotecan/ cisplatin	Irinotecan	60 mg/M ²	IV
Supportive Care	Cisplatin		60 mg/M ²	IV	day 1
Hematology Basics	REF: Kudoh et al. J Clin Oncol 1998; 1068-1074				
Chemo-therapeutic Drug Toxicities	PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1, 8, 15 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on days 1, 8, 15 OTHER MEDICATIONS 1. Give cisplatin delayed-emesis prophylaxis 2. Lomotil 4 mg PO at first sign of any loose stool and 2 mg every 2 hours until formed stool				
Drug Costs	Repeat every 28 days for 4 (with XRT in limited disease) or 6 (extensive disease) cycles				
	Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5				
	PCE cyclophosphamide/ doxorubicin/ etoposide (VP-16)	Paclitaxel	200 mg/M ²	IV (over 1 h)	day 1
		Carboplatin	AUC 6	IV	day 1
		VP-16	50 mg	PO QOD	days 1-10
	–alternating with				
	VP-16 100 mg PO QOD days 1-10 –if limited stage, concurrent XRT to 45 Gy is given with cycles 3 and 4				
	REF: Hainsworth et al. J Clin Oncol 1997; 15:3464-3470				
	PREMEDICATIONS 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy OR				

Continued

Agent	Dosage	Lung Cancer
	<p>Dexamethasone 20 mg PO 6 and 12 hours prior</p> <ol style="list-style-type: none"> Diphenhydramine 50 mg IV 30 minutes before chemotherapy Cimetidine 300 mg IV 30 minutes before chemotherapy Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> Give cisplatin delayed-emesis prophylaxis Dexamethasone 4 mg PO BID for 6 doses after chemotherapy (for myalgias) <p>Repeat every 21 days</p>	Malignant Melanoma
<p>PE/XRT cisplatin/ etoposide (VP-16)/ concurrent radiotherapy</p>	<p>Cisplatin 60 mg/M² IV day 1 VP-16 120 mg/M² IV days 1-3</p> <p>–radiotherapy to 45 Gy is given, starting concurrently with cycle 1 of chemotherapy –a total of 4 cycles of chemotherapy are given, 2 during radiotherapy and 2 after</p> <p>REF: Turrisi et al. NEJM 1999; 340:265-271</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> Kytril 1 mg PO/IV 30 minutes before and 12 hours after cisplatin Dexamethasone 20 mg IV 30 minutes before cisplatin Compazine 10 mg PO/IV 30 minutes before etoposide <p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> Give cisplatin delayed-emesis prophylaxis <p>Repeat every 21 days</p> <p>Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; Can cause peripheral neuropathy; hold or reduce for creatinine > 1.5</p>	Sarcoma
		Supportive Care
		Hematology Basics
<p>Etoposide (VP-16)–oral</p>	<p>Etoposide 100 mg PO days 1-21</p> <p>REF: Sessa et al. Ann Oncol 1993; 4:553-558</p> <p>Repeat every 28 days</p>	Chemo-therapeutic Drug Toxicities
<p>Gemcitabine</p>	<p>Gemcitabine 1000-1250 mg/M² IV days 1,8,15</p> <p>REF: Cormier et al. Ann Oncol 1994; 5:283-285</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> Compazine 10 mg PO/IV 30 minutes before chemotherapy <p>Repeat every 28 days</p>	Drug Costs

Lung Cancer	Agent	Dosage
Malignant Melanoma	Topotecan	<p>Topotecan 1.5 mg/M²/d IV (over 30 min) days 1-5</p> <p>REF: Ardizonni et al. J Clin Oncol 1997; 15:2090-2096</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on day 1 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy on day 1 <p>Repeat every 21 days</p> <p>Topotecan—hold for ANC < 1500 or platelets < 100,000; decrease dose by 0.25 mg/M²/d for prior episode of severe neutropenia or administer G-CSF starting on day 6</p>
Sarcoma		
Supportive Care		
Hematology Basics		
Chemo-therapeutic Drug Toxicities		
Drug Costs		

Chapter 11

Malignant Melanoma

Malignant Melanoma

Agent	Dosage				Lung Cancer
Dartmouth Regimen—dacarbazine (DTIC)/carmustine (BCNU)/cisplatin/tamoxifen	DTIC	220 mg/M ²	IV	days 1-3	Malignant Melanoma
	BCNU	150 mg/M ²	IV	day 1 of every other cycle	
	Cisplatin	25 mg/M ²	IV	days 1-3	
	Tamoxifen	20 mg	PO	daily	
	REF: Chapman et al. J Clin Oncol 1999; 17:2745-2751				
PREMEDICATIONS					Sarcoma
<ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after cisplatin 2. Dexamethasone 20 mg IV 30 minutes before cisplatin 					
OTHER MEDICATIONS					Supportive Care
<ol style="list-style-type: none"> 1. Give cisplatin delayed emesis prophylaxis 					
Repeat every 21 days					Hematology Basics
Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5					
Dacarbazine—vesicant—avoid extravasation					
Carmustine—maximum total dose is 1,440 mg/M ² ; causes delayed myelosuppression					Chemo-therapeutic Drug Toxicities
CDB dacarbazine (DTIC)/carmustine (BCNU)/cisplatin	–this regimen is the same as the above Dartmouth regimen, with the exception that tamoxifen is not used in CDB –antiemetic regimens and warnings are the same as for the Dartmouth regimen				
REF: Creagan et al. J Clin Oncol 1999; 17:1884-1890					Drug Costs
Paclitaxel/tamoxifen	Paclitaxel	225 mg/M ²	IV (over 3 h)	day 1	
Tamoxifen					
40 mg PO daily					
REF: Nathan et al. Cancer 2000; 88:79-87					
PREMEDICATIONS					
<ol style="list-style-type: none"> 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy 					
OR					
<ol style="list-style-type: none"> 1. Dexamethasone 20 mg PO 6 and 12 hours prior 2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy 3. Cimetidine 300 mg IV 30 minutes before chemotherapy 					

Continued

Lung Cancer	Agent	Dosage
Malignant Melanoma		<p>OTHER MEDICATIONS</p> <p>1. Dexamethasone 4 mg PO BID for 6 doses after paclitaxel (for myalgias)</p> <p>Repeat every 21 days</p>
	Vinorelbine/tamoxifen	<p>Vinorelbine 30 mg/M² IV weekly for 13 wks –after 13 weeks, vinorelbine is given every 2 weeks</p> <p>Tamoxifen 10 mg PO BID daily</p> <p>REF: Feun et al. Cancer 2000; 88:584-588</p> <p>PREMEDICATIONS</p> <p>1. Compazine 10 mg PO/IV 30 minutes before chemotherapy</p> <p>Vinorelbine—vesicant; avoid extravasation; can cause peripheral neuropathy</p>
Sarcoma		<p>PREMEDICATIONS</p> <p>1. Compazine 10 mg PO/IV 30 minutes before chemotherapy</p> <p>Vinorelbine—vesicant; avoid extravasation; can cause peripheral neuropathy</p>
Supportive Care	Dacarbazine (DTIC)	<p>DTIC 1000 mg/M² IV day 1</p> <p>REF: Chapman et al. J Clin Oncol 1999; 17:2745-2751</p> <p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy</p> <p>2. Dexamethasone 20 mg IV 30 minutes before chemotherapy</p> <p>Repeat every 21 days</p> <p>Dacarbazine—vesicant-avoid extravasation</p>
Hematology Basics		<p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy</p> <p>2. Dexamethasone 20 mg IV 30 minutes before chemotherapy</p> <p>Repeat every 21 days</p> <p>Dacarbazine—vesicant-avoid extravasation</p>
Chemotherapeutic Drug Toxicities	Interferon alfa-2b (IFN)	<p>IFN 20 million units/M² IV days 1-5 weekly X 4 wks</p> <p>–followed by IFN 10 million units/M² SC 3 times weekly X 48 wks</p> <p>REF: Kirkwood et al. J Clin Oncol 1996; 14:7-17</p> <p>PREMEDICATIONS</p> <p>1. Tylenol 650 mg PO before each dose</p> <p>This regimen is a one year adjuvant course</p>
Drug Costs		<p>REF: Kirkwood et al. J Clin Oncol 1996; 14:7-17</p> <p>PREMEDICATIONS</p> <p>1. Tylenol 650 mg PO before each dose</p> <p>This regimen is a one year adjuvant course</p>
	High-dose Interleukin-2 (IL-2)	<p>IL-2 600,000-720,000 IU/kg IV Q8H X 14 doses (over 15 min)</p> <p>–repeat above in 6-9 days</p> <p>REF: Atkins et al. J Clin Oncol 1999; 17:2105-2116</p> <p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before therapy and Q12H during therapy</p> <p>2. Tylenol 650 mg PO 30 minutes before each dose of IL-2, and Q4H prn</p>
		<p>REF: Atkins et al. J Clin Oncol 1999; 17:2105-2116</p> <p>PREMEDICATIONS</p> <p>1. Kytril 1 mg PO/IV 30 minutes before therapy and Q12H during therapy</p> <p>2. Tylenol 650 mg PO 30 minutes before each dose of IL-2, and Q4H prn</p>

Continued

Agent	Dosage	Lung Cancer
	<p>3. Cimetidine 800 mg PO/IV daily during IL-2 therapy (given in single or divided doses)</p> <p>Repeat every 6-12 weeks</p> <p>IL-2—may cause capillary leak syndrome with profound hypotension and patients may require vasopressor support and aggressive fluid management. Patients should be cared for in an intensive care setting</p>	Malignant Melanoma
<p>Temozolomide</p>	<p>Temozolomide 200 mg/M² PO days 1-5</p> <p>REF: Middleton et al. J Clin Oncol 2000; 18:158-166</p> <p>Repeat every 28 days</p> <p>Temozolomide—start at 150 mg/M² and advance dose up to 200 mg/M² as tolerated, based on myelosuppression (adjust dose per package insert); taken for a maximum of 2 years, or until disease progression occurs</p>	<p>Sarcoma</p> <p>Supportive Care</p> <p>Hematology Basics</p> <p>Chemo-therapeutic Drug Toxicities</p> <p>Drug Costs</p>

Non-Melanoma Skin Cancer

Lung Cancer	Agent	Dosage			
Malignant Melanoma	Cisplatin/ doxorubicin	Doxorubicin	50 mg/M ²	IV	day 1
Sarcoma		Cisplatin	75 mg/M ²	IV	day 1
Supportive Care	REF: Guthrie et al. J Clin Oncol 1990; 8:342-346				
Hematology Basics	PREMEDICATIONS				
Chemo-therapeutic Drug Toxicities	<ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy 				
Drug Costs	OTHER MEDICATIONS				
	<ol style="list-style-type: none"> 1. Give cisplatin delayed emesis prophylaxis 				
	Repeat every 21 days				
	Cisplatin—vigorous hydration is required; can be nephrotoxic and ototoxic; can cause peripheral neuropathy; hold or reduce for creatinine > 1.5				
	Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0				

Chapter 12

Sarcoma

- Kaposi's Sarcoma

Sarcoma

Agent	Dosage				Lung Cancer
ADIC doxorubicin/ dacarbazine (DTIC)	Doxorubicin	60 mg/M ²	IV	day 1	Malignant Melanoma
	Dacarbazine	250 mg/M ²	IV (over 1 h)	days 1-5	
CyVADIC cyclophos- phamide/ vincristine/ doxorubicin/ dacarbazine (DTIC)	REF: Baker et al. J Clin Oncol 1987; 5:851-861				Sarcoma
	PREMEDICATIONS				
	1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-5				
	2. Dexamethasone 10-20 mg IV 30 minutes before chemotherapy on days 1-5				
Repeat every 21 days				Supportive Care	
Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant – avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0					
Dacarbazine—vesicant—avoid extravasation				Hematology Basics	
Cyclophosphamide	500 mg/M ²	IV	day 1		
Vincristine	1.4 mg/M ²	IV	day 1	Chemo- therapeutic Drug Toxicities	
Doxorubicin	50 mg/M ²	IV	day 1		
Dacarbazine	400 mg/M ²	IV	days 1-3	Drug Costs	
REF: Bramwell et al. J Clin Oncol 1994; 12:1137-1149					
PREMEDICATIONS					
1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy on days 1-3					
2. Dexamethasone 10-20 mg IV 30 minutes before chemotherapy on days 1-3					
Repeat every 28 days					
Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant – avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0					
Dacarbazine—vesicant—avoid extravasation					
Vincristine—vesicant—avoid extravasation; cumulative neurotoxicity—may produce severe constipation; maximum 2 mg per administration					

	Agent	Dosage			
Lung Cancer	DI doxorubicin/ ifosfamide/ mesna	Doxorubicin	50 mg/M ²	IV	day 1
Malignant Melanoma		Ifosfamide	5000 mg/M ²	CIV (over 24 h)	day 1
		–start after doxorubicin			
		Mesna	600 mg/M ²	IV	day 1
				bolus before ifosfamide	
		–followed by			
		Mesna	2500 mg/M ²	CIV (over 24 h)	day 1
		Mesna	1250 mg/M ²	CIV (over 12 h)	day 2
Sarcoma		REF: Schutte et al. Eur J Cancer 1990; 26:558-561			
		–there are multiple variations of this regimen			
		PREMEDICATIONS			
		1. Kytril 1 mg PO/IV 30 minutes before chemotherapy and Q12H for 3 additional doses			
		2. Dexamethasone 20 mg IV on days 1 and 2			
Supportive Care		Repeat every 21 days			
		Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M ² or 450 mg/M ² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0			
Hematology Basics		Ifosfamide—adequate hydration is necessary to prevent nephrotoxicity			
Chemo-therapeutic Drug Toxicities	MAID mesna/ doxorubicin/ ifosfamide/ dacarbazine (DTIC)	Mesna	2500 mg/M ² /d	CIV (X 96 h)	days 1-4
		Doxorubicin	20 mg/M ² /d	CIV (X 72 h)	days 1-3
		Ifosfamide	2500 mg/M ² /d	CIV (X 72 h)	days 1-3
		Dacarbazine	300 mg/M ² /d	CIV (X 72 h)	days 1-3
		REF: Elias et al. J Clin Oncol 1989; 7:1208-1216			
		PREMEDICATIONS			
Drug Costs		1. Kytril 1 mg PO/IV 30 minutes before chemotherapy on day 1 then Q12H for 6 additional doses			
		2. Dexamethasone 20 mg IV days 1-3			
		Repeat every 21-28 days			
		Doxorubicin—monitor cumulative dose for cardiac toxicity; vesicant—avoid extravasation; can give larger cumulative doses than “standard” because less cardiotoxic by continuous infusion; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0			
		Dacarbazine—vesicant—avoid extravasation			
		Ifosfamide—adequate hydration is necessary to prevent nephrotoxicity			

Agent	Dosage	Lung Cancer
Doxorubicin	<p>Doxorubicin 75 mg/M² IV day 1</p> <p>REF: Santoro, et al. J Clin Oncol 1995; 13:1537-1545</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy <p>Repeat every 21 days</p> <p>Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M² or 450 mg/M² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0</p>	Malignant Melanoma
Ifosfamide/ mesna	<p>Ifosfamide 5000 mg/M² CIV (X 24 h) day 1</p> <p>Mesna 400 mg/M² IV Q4H X 9 doses</p> <p>REF: Bramwell et al. Eur J Cancer Clin Oncol 1987; 23:311-321</p> <p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy <p>Repeat every 21 days</p> <p>Ifosfamide—adequate hydration is necessary to prevent nephrotoxicity</p>	Sarcoma
		Supportive Care
		Hematology Basics
		Chemo-therapeutic Drug Toxicities
		Drug Costs

Kaposi's Sarcoma

Lung Cancer	Agent		Dosage		
Malignant Melanoma	ABV doxorubicin/ bleomycin/ vincristine	Doxorubicin	10 mg/M ²	IV	day 1
Sarcoma		Bleomycin	15 units	IV	day 1
Supportive Care		Vincristine	1 mg	IV	day 1
Hematology Basics		REF: Gill et al. J Clin Oncol 1996; 14:2353-2364	PREMEDICATIONS 1. Compazine 10 mg PO/IV 30 minutes before chemotherapy 2. Dexamethasone 10 mg IV 30 minutes before chemotherapy Repeat every 14 days		
Chemo-therapeutic Drug Toxicities	Liposomal daunorubicin (DaunoXome)	Doxorubicin	40 mg/M ²	IV	day 1
Drug Costs		REF: Gill et al. J Clin Oncol 1996; 14:2353-2364	PREMEDICATIONS 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy Repeat every 14 days		
	Liposomal doxorubicin (Doxil)	Daunorubicin	40 mg/M ²	IV	day 1
		REF: Northfelt et al. J Clin Oncol 1997; 15:653-659	Daunorubicin—monitor cumulative dose for possible cardiac toxicity; vesicant—avoid extravasation		

Continued

Agent	Dosage	Lung Cancer
	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Kytril 1 mg PO/IV 30 minutes before and 12 hours after chemotherapy 2. Dexamethasone 20 mg IV 30 minutes before chemotherapy <p>Repeat every 21 days</p> <p>Doxorubicin—monitor cumulative dose for cardiac toxicity (not to exceed 550 mg/M² or 450 mg/M² with prior chest radiotherapy); vesicant—avoid extravasation; use 50% for bilirubin 1.5-3.0; use 25% for bilirubin > 3.0</p>	Malignant Melanoma
Paclitaxel	<p>Paclitaxel 100 mg/M² IV (over 3 h) day 1</p> <p>REF: Gill et al. J Clin Oncol 1999; 17:1876-1883</p>	Sarcoma
	<p>PREMEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 20 mg IV 30 minutes before chemotherapy OR Dexamethasone 20 mg PO 6 and 12 hours prior to chemotherapy 	Supportive Care
	<ol style="list-style-type: none"> 2. Diphenhydramine 50 mg IV 30 minutes before chemotherapy 3. Cimetidine 300 mg IV 30 minutes before chemotherapy 	Hematology Basics
	<p>OTHER MEDICATIONS</p> <ol style="list-style-type: none"> 1. Dexamethasone 4 mg PO BID for 8 doses after chemotherapy <p>Repeat every 14 days</p>	Chemo-therapeutic Drug Toxicities
		Drug Costs

Chapter 13

Supportive Care

- Antiemetics and Guidelines
 - Emetogenic Potential
 - Antiemetics
 - Acute Emesis Guidelines
- Management of Neutropenic Fevers
- Side Effect Management
 - Appetite Stimulants
 - Constipation
 - Diarrhea
 - Extravasation
 - Hiccups
 - Hot Flashes
 - Stomatitis/Oral Care
- Pain Control

Supportive Care

Antiemetics and Guidelines

Agent	Emetogenic Potential	Need for Delayed-Emesis Prophylaxis	Lung Cancer
Emetogenic potential of chemotherapeutic agents			Malignant Melanoma
Asparaginase	low		Sarcoma
Bleomycin	low		
Carboplatin	high	YES	
Carmustine (BCNU)	high	YES	Sarcoma
Cisplatin	very high	YES	
Cladribine	very low		Supportive Care
Cyclophosphamide			
high dose	high	YES	
standard dose	moderate	NO	
Cytarabine			Supportive Care
high dose	high		
standard dose	moderate		
Dacarbazine (DTIC)	very high		Hematology Basics
Dactinomycin	high		
Daunorubicin	moderate		Hematology Basics
Docetaxel	very low		
Doxorubicin	moderate	OCCASIONAL	Hematology Basics
Epirubicin	moderate		
Etoposide			Chemo-therapeutic Drug Toxicities
high dose	high		
standard dose	low		
Fludarabine	very low		Drug Costs
Fluorouracil			
high dose	moderate		
standard dose	low		
Gemcitabine	low		Drug Costs
Idarubicin	moderate		
Ifosfamide			Drug Costs
high dose	high		
standard dose	moderate		
Irinotecan	low		Drug Costs
Mechlorethamine	very high		
Melphalan			Drug Costs
high dose	very high		
standard dose	low		

Continued

	Agent	Emetogenic Potential	Need for Delayed-Emesis Prophylaxis
Lung Cancer	Methotrexate high dose standard dose	high low	
Malignant Melanoma	Mitomycin C Mitoxantrone Paclitaxel Pentostatin	moderate moderate very low very low	
Sarcoma	Rituximab Streptozocin Thiotepa Topotecan Trastuzumab	very low very high low moderate very low	YES
Supportive Care	Vinblastine Vincristine Vinorelbine	low very low low	
Hematology Basics		Very high → > 90% likelihood of nausea and/or vomiting High → 60-90% likelihood of nausea and/or vomiting Moderate → 30-60% likelihood of nausea and/or vomiting Low → 10-30% likelihood of nausea and/or vomiting Very low → < 10% likelihood of nausea and/or vomiting	
Chemo-therapeutic Drug Toxicities			
Drug Costs			

Antiemetics		Lung Cancer
5-HT3 Antagonists		
– these agents are typically used only for acute nausea prophylaxis, and not for delayed emesis prophylaxis; they are usually administered only during the period of chemotherapy administration		Malignant Melanoma
Agent	Dosage	Sarcoma
Dolasetron (Anzemet)	100 mg PO 30 min before chemotherapy OR 100 mg IV 30 min before chemotherapy	
Granisetron (Kytril)	1 mg PO 30 min before and 12 hr after chemotherapy OR 2 mg PO 30 min before chemotherapy OR 0.01 mg/kg IV 30 min before chemotherapy (typical dose is 1 mg)	Supportive Care
Ondansetron (Zofran)	8 mg PO 30-60 min before and 8 hr after chemotherapy OR 8-24 mg IV 30 min before chemotherapy	
Phenothiazines		Hematology Basics
Prochlorperazine (Compazine)	10 mg PO Q4-6H 15 mg spansule PO Q8-12H 25 mg rectal suppository Q4-6H	
Thiethylperazine (Torecan)	10 mg IV Q4-6H 10 mg PO Q4-6H 2 mg IM Q4-6H	Chemo-therapeutic Drug Toxicities
Trimethobenzamide (Tigan)	250 mg PO Q4-6H 200 mg rectal suppository Q4-6H 200 mg IM Q4-6H	
Butyrophenones		Drug Costs
Haloperidol (Haldol)	1-3 mg PO/IV Q4-6H	
Droperidol	0.5-2 mg IV Q4H	
Benzamide		
Metoclopramide (Reglan)	0.5 mg/kg PO Q6H 1-2 mg/kg IV over 20 min Q3-4H	
Benzodiazepines		
Lorazepam (Ativan)	1-2 mg PO/IV/IM Q4-6H	

Continued

	Agent	Dosage
Lung Cancer	Cannabinoids Dronabinol (Marinol)	2.5-10 mg PO Q6H
Malignant Melanoma	Corticosteroids Acute emesis Dexamethasone	10-20 mg IV prior to chemotherapy for up to 5 days 4-8 mg PO Q4H (for up to 4 doses)
Sarcoma	Delayed emesis Dexamethasone	8 mg PO BID for 2 days, then 4 mg PO BID for 2 days
Supportive Care	Other antiemetics Promethazine (Phenergan) Hydroxyzine (Vistaril)	25 mg PO/IV/rectal suppository Q4H 25 mg PO Q6H
	Acute emesis guidelines	
Hematology Basics	Moderate, high, and very high likelihood of nausea/vomiting—5-HT3 antagonist (as above) and dexamethasone (as above) ± benzodiazepine Low likelihood of nausea/vomiting—Compazine Very low likelihood of nausea/vomiting—Compazine only if needed	
	Delayed emesis guidelines	
Chemo-therapeutic Drug Toxicities	Regimen A	1. Dexamethasone 8 mg PO BID for 2 days, then 4 mg PO BID for 2 days 2. Metoclopramide 0.5 mg/kg QID for 4 days
	Regimen B	1. Dexamethasone 8 mg PO BID for 2 days, then 4 mg PO BID for 2 days 2. Prochlorperazine spansules 15 mg PO TID or prochlorperazine 10 mg PO Q4-6H for 4 days
Drug Costs	May add diphenhydramine (Benadryl) 50 mg PO Q6H if needed May add lorazepam 0.5-2 mg PO Q6H if needed	

Management of Neutropenic Fever

High Risk Patients

Risk Factors

1. Neutropenia expected to last > 7 days
2. Hematologic malignancies
3. Significant comorbid conditions
4. Clinically evident source of infection
5. Unstable patient (hypoxia, hypotension, etc.)
6. Lack of control of underlying malignancy
7. Transplant patients
8. Elderly
9. Failure of outpatient antibiotics

Treatment protocols

A. No Site of Infection Evident

–use monotherapy or combination therapy as indicated by clinical scenario

1. Monotherapy (one of the following)

- | | |
|----------------------------|-----------------|
| a. Ceftazidime | 1-2 gm IV Q8H |
| b. Cefepime | 1-2 gm IV Q12H |
| c. Imipenem/cilastatin | 500 mg IV Q6H |
| d. Levofloxacin | 500 mg IV Q24H |
| e. Piperacillin/tazobactam | 3.375 gm IV Q6H |
| f. Ticarcillin/clavulanate | 3.1 gm IV Q6H |

2. Combination therapy (one of the following combinations)

a. Antipseudomonal beta-lactam (a, b, c, e, or f above) + aminoglycoside

–gentamicin 5-6 mg/kg/d IV Q24H

–tobramycin 5-6 mg/kg/d IV Q24H

–amikacin 15 mg/kg/d IV Q24H

b. Antipseudomonal beta-lactam (a, b, c, e, or f above) + fluoroquinolone

B. Site of Infection Evident

–therapy should be broad-based, but individualized to the most likely organisms causing infection at that site

Lung Cancer

Malignant
Melanoma

Sarcoma

Supportive
Care

Hematology
Basics

Chemo-
therapeutic
Drug Toxicities

Drug Costs

Lung Cancer	C. Indications for the Use of Vancomycin 1. Catheter infection 2. Severe mucositis 3. Blood culture positive for gram positive organism 4. Known colonization with MRSA or other resistant organism
Malignant Melanoma	D. Empiric Antifungal and Antiviral Therapies as Indicated 1. Antifungal
Sarcoma	a. Fluconazole 400 mg IV/PO Q24H b. Itraconazole 200-600 mg PO Q24H or in divided doses c. Amphotericin B 0.5-1.5 mg/kg IV Q24H –total dose 1-1.5 gm for Yeast, and 2-2.5 gm for Mold
Supportive Care	d. ABLC* (Ablecet) 5 mg/kg IV Q24H over 2 hr e. ABCD* (Amphocil) 2-4 mg/kg IV Q24H f. L-AMB* 3-5 mg/kg IV Q24H over 1-2 hr (AmBisome)
Hematology Basics	*ABLC = Amphotericin B Lipid Complex *ABCD = Amphotericin B Colloidal Dispersion *L-AMB = Liposomal Amphotericin B
Chemo-therapeutic Drug Toxicities	2. Antiviral a. Acyclovir 5-10 mg/kg IV Q8H over 1 hr 800 mg PO 5X daily for 7-10 days (herpes zoster)
Drug Costs	400 mg PO BID (prophylaxis for herpes) 400 mg PO TID for 5 days (recurrent genital herpes)
	b. Famciclovir 500 mg PO TID for 7 days (herpes zoster) 250 mg PO BID (prophylaxis for herpes) 125 mg PO BID for 5 days (recurrent genital herpes)

	c. Valacyclovir	1000 mg PO TID for 7 days (herpes zoster) 500-1000 mg PO QD (prophylaxis for herpes) 500 mg PO BID for 5 days (recurrent genital herpes)	Lung Cancer
Low Risk Patients			Malignant Melanoma
Risk Factors	<ol style="list-style-type: none"> 1. Neutropenia expected to last < 7 days 2. Solid tumors 3. No significant comorbid conditions 4. No clinically evident source of infection 5. No significant electrolyte abnormalities 6. Liver tests less than 2-3 times upper limit of normal 		Sarcoma
Treatment protocols		<ol style="list-style-type: none"> 1. Outpatient IV antibiotics with or without oral antibiotics after appropriate period of observation <ol style="list-style-type: none"> A. Monotherapy or Combination therapy as listed above. B. IV antibiotics followed by oral therapy 2. Oral therapy <ol style="list-style-type: none"> A. Ciprofloxacin 500-750 mg PO Q12H +/- Amoxicillin/ clavulanate 875 mg PO Q12H B. Ciprofloxacin +/- Clindamycin 150-450 mg PO Q6H in penicillin-allergic patients 	Supportive Care
			Hematology Basics
		REF: Rolston. Clin Infect Dis 1999; 29:515-521 Ramphal. Clin Infect Dis 1999; 29:508-514 Feld. Clin Infect Dis 1999; 29:503-507	Chemo-therapeutic Drug Toxicities
			Drug Costs

Side Effect Management

APPETITE STIMULANTS

Lung Cancer	Dexamethasone	0.75 mg	PO	QID
Malignant Melanoma	OR			
	Megestrol acetate	800 mg	PO	QD
Sarcoma	- many start at 160 mg QD			
	REF: Loprinzi et al. J Clin Oncol 1999; 17:3299-3306			

CONSTIPATION

Supportive Care	Bisacodyl (Dulcolax)	10-15 mg PO prn
		10 mg supp PR prn
Hematology Basics	Castor oil	10-15 cc PO prn
	Docusate calcium (Surfak)	240 mg PO QD
Chemo-therapeutic Drug Toxicities	Docusate/casanthranol (Pericolace)	1-2 capsules PO QHS prn
		15-30 cc PO QHS prn
Drug Costs	Docusate sodium (Colace)	100-200 mg PO BID
	Glycerin	1 supp PR prn
	Lactulose	15-30 cc PO QHS
	Magnesium citrate	150-300 cc PO BID prn
	Magnesium hydroxide (MOM)	30-60 cc PO BID prn
	Methylcellulose (Citrucel)	1 heaping tablespoon in 8 oz. H ₂ O TID prn
	Mineral oil	15-45 cc PO prn
		120 cc enema PR prn
	Polycarbophil (FiberCon)	1 gram PO QID prn
	Polyethylene glycol (MiraLax)	17 gms (1 heaping tbs) in 8 oz. H ₂ O QD
	Psyllium (Metamucil)	1 teaspoon in liquid, 1 packet in liquid, or 1-2 wafers PO TID prn

Continued

Senna (Senokot)	2 tabs or 1 teaspoon of granules or 10-15 cc syrup PO QHS prn	Lung Cancer
	1 supp PR QHS prn	
Sodium bisphosphate (Fleet)	1 enema PR prn	Malignant Melanoma
Sorbitol	30-150 cc PO prn	
DIARRHEA		Sarcoma
Kaolin and pectin (Kaopectate)	15-30 cc PO Q4H prn	
Loperamide (Imodium)	4 mg PO after first loose BM, then 2 mg PO after each loose BM	Supportive Care
	–should not to exceed 6 doses per 24 hours	
Diphenoxylate/atropine (Lomotil)	1-2 tabs PO Q4H prn	
Octreotide	0.05-0.1 mg SQ TID	
	–may be helpful for 5-FU induced diarrhea	
EXTRAVASATION		Hematology Basics
ANTHRACYCLINES		
	–dactinomycin, daunorubicin, doxorubicin, epirubicin, idarubicin, ± mitoxantrone	
Treatment	1. Application of cold – apply without pressure on and off for 24 hours 2. Topical DMSO – 1.5 cc topically Q6H for 14 days; allow to air dry	Chemo-therapeutic Drug Toxicities
NITROGEN MUSTARD AND MITOMYCIN C		Drug Costs
Treatment	1. Mix 4 cc 10% sodium thiosulfate with 6 cc of sterile H ₂ O –inject 2 cc into site for each mg of drug extravasated 2. Topical DMSO – 1.5 cc topically Q6H for 7-14 days; allow to air dry * cisplatin—large extravasations can also be treated in the above manner	
VINCA ALKALOIDS		
	–vinblastine, vincristine, vinorelbine	
Treatment	1. 150 units hyaluronidase reconstituted in 1-3 cc sterile saline –inject into site using original needle if possible 2. Warm pack—apply to site without pressure after above injection	

Lung Cancer	Epipodophyllotoxins	
	–etoposide (VP-16), teniposide (VM-26)	
Malignant Melanoma	Treatment	
	1. treat for large volume extravasations 2. 150 units hyaluronidase reconstituted in 1-3 cc sterile saline –inject into site using original needle if possible 3. Warm pack—apply to site without pressure after above injection	
Sarcoma	HICCUPS	
		Amitriptyline 25 mg PO BID Baclofen 10 mg PO Q6-8H Carbamazepine 200 mg PO QID prn Chlorpromazine (Thorazine) 25-50 mg IM Lorazepam (Ativan) 0.5-1 mg PO/IV Q6H prn Metoclopramide 10-20 mg PO QID prn Prochlorperazine (Compazine) 10mg PO Q6-8H Simethicone 40-160 mg PO QID prn
Supportive Care		
Hematology Basics		
Chemo-therapeutic Drug Toxicities	HOT FLASHES	
		Bellergal-S 1 PO QD-BID (start QHS) Clonidine 0.1 mg patch weekly Megestrol (Megace) 20-40 mg PO BID-QID Methyldopa 250 mg PO BID Venlafaxine 75 mg PO QD Vitamin B6 200 mg PO QD Vitamin E 800 IU PO QD
Drug Costs		
	HYPERURICEMIA	
	Allopurinol	300-600 mg PO QD 200-400 mg/M ² IV QD (not to exceed 600 mg QD)

STOMATITIS/ORAL CARE

Chlorhexidine (Peridex)	15 cc swish & spit QID	Lung Cancer
Sodium bicarbonate	1 tsp baking soda in 500 cc water	Lung Cancer
Clotrimazole (Mycelex) troche	15 cc swish & spit QID 1 troche dissolved in mouth 5X daily	Malignant Melanoma
“Miracle” mouthwash	Diphenhydramine (12.5 mg/5 cc) 420 cc Dexamethasone (500 mcg/ml) 90 cc Nystatin suspension (100,000 units/cc) 120cc Sterile water 330 cc –5 cc swish and swallow QID	Sarcoma
–there are many variations of this “recipe”		Supportive Care
Viscous lidocaine	5-10 cc swish & spit	Hematology Basics
Vitamin E	puncture capsule and apply to oral lesions	Hematology Basics
Zilactin gel	Apply to lesions QID	Chemo- therapeutic Drug Toxicities
Kaopectate	10 cc swish & swallow prn	Chemo- therapeutic Drug Toxicities
Magnesium hydroxide (MOM)	10 cc swish & swallow prn	Chemo- therapeutic Drug Toxicities
Maalox	10 cc swish & swallow prn	Drug Costs

PAIN CONTROL

NARCOTICS FOR SEVERE PAIN

	Lung Cancer					
		Name	Starting Dose	Route	Frequency	Dosage Forms
Malignant Melanoma		Morphine sulfate	1-2 mg	IV/SQ/IM	Q2-4H prn	0.5, 1 mg/ml
		SR	15-30 mg	PO	Q8-12H	15,30,60,100 mg
		IR	15-30 mg	PO	Q2-4H prn	15,30 mg
Sarcoma		IR-solution	15-30 mg	PO	Q2-4H prn	10,20 mg/5 ml 20 mg/ml
		CR	15-30 mg	PO	Q8-12H	15,30,60,
Supportive Care		Suppository	10-30 mg	Rectally	Q4-6H prn	5,10,20,30 mg
		Oxycodone	5 mg	PO	Q4-6H prn	5 mg
		Solution	5 mg		PO Q4-6H prn	5 mg/5 ml, 20 mg/ml
		SR	10-20 mg	PO	Q8-12H	10,20,40,80 mg
Hematology Basics		with APAP	1-2 tabs	PO	Q4-6H prn	5 mg/325 mg (Percocet)
						5 mg/500 mg (Tylox)
Chemo-therapeutic Drug Toxicities		Hydromorphone	2 mg	PO	Q4-6H prn	2,4,8 mg
		Oral Liquid	2.5 mg	PO	Q3-6H prn	5 mg/5 ml
		Suppository	3 mg	Rectally	Q6-8H prn	3 mg
		Injectable	1-2 mg	IV/SQ/IM	Q4-6H prn	1,2,4 mg/ml
Drug Costs		Methadone	2.5-5 mg	PO	Q4-6H prn	5,10 mg
		Injectable	2.5-5 mg	SQ/IM	Q4-6H prn	10 mg/ml
		Meperidine	50 mg	PO	Q3-4H prn	50, 100 mg
		Syrup	50 mg	PO	Q3-4H prn	50 mg/5 ml
		Injectable	50 mg	IV/SQ/IM	Q3-4H prn	25,50,75, 100 mg/ml
		Fentanyl	25 mcg/hr	Transdermal	Q72H	25,50,75, 100 mcg/hr
		Lozenge	200 mcg	PO	Q4-6H prn	200,300,400 mcg

Narcotics for mild-moderate pain					Lung Cancer
Name	Starting Dose	Route	Frequency	Dosage Forms	
Codeine	15-30 mg	PO	Q4-6H prn	15, 30, 60 mg	Lung Cancer
Injectable	15-30 mg	IV/SQ/IM	Q4-6H prn	30, 60 mg/ml	
with APAP	1-2 tabs	PO	Q4-6H prn	15 mg/300 mg (Tylenol #2)	
with APAP	1-2 tabs	PO	Q4-6H prn	30 mg/300 mg (Tylenol #3)	Malignant Melanoma
with APAP	1-2 tabs	PO	Q4-6H prn	60 mg/300 mg (Tylenol #4)	
Hydrocodone					Sarcoma
with APAP	1-2 tabs	PO	Q4-6H prn	2.5 mg/500 mg (Lortab)	
with APAP	1-2 tabs	PO	Q4-6H prn	5 mg/500 mg (Vicodin)	Supportive Care
				5 mg/500 mg (Lortab)	
with APAP	1 tab	PO	Q4-6H prn	7.5 mg/500 mg (Lortab)	Hematology Basics
				7.5 mg/750 mg (Vicodin ES)	
Propoxyphene	1 tab	PO	Q4-6H prn	65,100 mg (Darvon)	Chemo-therapeutic Drug Toxicities
with APAP	1 tab	PO	Q4-6H prn	100 mg/650 mg (Darvocet N-100)	
NSAIDS					Drug Costs
Ibuprofen	400 mg	PO	Q6-8H prn	200,300,400, 600,800 mg	
Suspension	400 mg	PO	Q6-8H prn	100 mg/5 ml	
Naproxen	220-500 mg	PO	Q12H prn	220,250,275, 375,500,550 mg	
Suspension	250 mg	PO	Q12H prn	125 mg/5 ml	
Salsalate	750-1000 mg	PO	Q12H prn	500,750 mg	
Oxaprozin	600 mg	PO	Q24H prn	600 mg (Daypro)	
Sulindac	150 mg	PO	Q12H prn	150,200 mg (Clinoril)	

Continued

Lung Cancer	Nabumetone	1000 mg	PO	Q24H prn	500,750 mg (Relafen)
	Piroxicam	10 mg	PO	Q24H prn	10,20 mg (Feldene)
Malignant Melanoma	Celecoxib	100 mg	PO	Q12H	100,200 mg (Celebrex)
	Rofecoxib	12.5 mg	PO	Q24H	12.5,25 mg (Vioxx)
OTHER ANALGESICS					
Sarcoma	A. Antidepressants				
	Amitriptyline	10-25 mg	PO	QHS	10,25,50,75, 100 mg (Elavil)
Supportive Care	Desipramine	10-25 mg	PO	QHS	10,25, 50 mg (Norpramin)
	Paroxetine	20 mg	PO	QD	20,40 mg (Paxil)
	Sertraline	25 mg	PO	QD	50,100 mg (Zoloft)
	Citalopram	20 mg	PO	QD	20,40 mg (Celexa)
Hematology Basics	B. Anticonvulsants				
	Gabapentin	100 mg	PO	Q8H	100,300,400 mg (Neurontin)
Chemo-therapeutic Drug Toxicities	Carbamazepine	100 mg	PO	BID	100,200,400 mg (Tegretol) 100 mg/5cc suspension
	C. Miscellaneous				
Drug Costs	Corticosteroids				
	Dexamethasone	4 mg	PO	Q6H	0.75,1,2,4 mg (Decadron)
-taper dose to lowest dose which is effective					
	Stimulants				
	Methylphenidate	5 mg	PO	BID	5,10,20 mg (Ritalin)
	Dextroamphetamine	5 mg	PO	BID	5,10,15 mg (Dexedrine)

Chapter 14

Hematology Drugs

- Anticoagulation
- Aplastic Anemia
- Coagulation Factor Replacement Therapy
- Hematopoietic Growth Factors
- Immune Thrombocytopenic Purpura
- Iron Replacement
- Thrombocytosis

Hematology Drugs

Anticoagulation

Warfarin					Lung Cancer
–adjust dosage to maintain INR of 2-3 (3-4.5 for prosthetic valves)					
Unfractionated Heparin					Malignant Melanoma
–loading dose of 80 mg/kg, followed by 18 mg/kg/hr; adjust dose to maintain a therapeutic PTT REF: Raschke et al. Ann Intern Med 1993; 119:874-881					
Low-Molecular Weight Heparin					Sarcoma
Prophylaxis	Enoxaparin (Lovenox)	30-60 mg	SQ	BID	
	Dalteparin (Fragmin)	2500-5000 units	SQ	QD	
	Ardeparin (Normiflo)	50 units/kg	SQ	BID	
Treatment	Enoxaparin (Lovenox)	1 mg/kg	SQ	Q12H	Supportive Care
	Dalteparin (Fragmin)	100 units/kg	SQ	Q12H	
Heparin Reversal					Hematology Basics
Unfractionated Heparin	Protamine sulfate	1 mg per 100 units (if PTT prolonged 2-4 hours later, give 1/2 of initial dose)			
Dalteparin	Protamine sulfate	1 mg per 100 units			
Enoxaparin	Protamine sulfate	1 mg per mg of enoxaparin			
Heparanoids	–can be used in heparin-induced thrombocytopenia				
	Danaparoid (Orgaran)	1250 units IV load, followed by 1250 units	SQ	Q12H	
REF: de Valk et al. Ann Intern Med 1995; 123:1-9					Chemo-therapeutic Drug Toxicities
Direct Thrombin Inhibitors					
Prophylaxis	–can be used in heparin-induced thrombocytopenia				
	Lepirudin (Refludan)	0.1 mg/kg/hr			
					Drug Costs

Continued

Lung Cancer	Treatment	Lepirudin (Refludan)	0.4 mg/kg IV bolus, followed by 0.15 mg/kg/hr IV infusion to maintain a PTT of 1.5-3 times normal		
			REF: Greinacher et al. Circulation 1999; 100:587-593		
Malignant Melanoma	Antiplatelet Agents				
		Ticlopidine	250 mg	PO	TID
		Clopidogrel	75 mg	PO	QD
	Thrombolytics				
Sarcoma		Streptokinase	1.5 million units	IV over 1 hour	
		Alteplase	100 mg IV: give 60 mg IV during first hour (6-10 mg IV bolus over 1-2 minutes), followed by 20 mg IV during 2 nd hour and 20 mg IV during 3 rd hour		
Supportive Care		Anistreplase	30 units IV over 2-5 minutes		
		Reteplase	10 unit IV bolus, followed by 10 units IV bolus 30 minutes later		
Hematology Basics	Antifibrinolytics				
		Aminocaproic Acid (Amicar)	IV	5 gram bolus, followed by 500-1000 mg/hr	
Chemo-therapeutic Drug Toxicities			PO	5 gram bolus, followed by 1-2 grams PO Q1-2HPRN	
		Tranexamic Acid	IV	10 mg/kg	Q6-8H
			PO	25 mg/kg	Q6-8H
Drug Costs					

Aplastic Anemia

ATG Protocol

ATG Test Dose

ATG 1:1000 dilution in normal saline 0.1 cc intradermally
Control saline 0.1 cc intradermally

Premedication for ATG

Tylenol 650 mg PO 30 minutes before ATG
Benadryl 50 mg PO/IV 30 minutes before ATG
Hydrocortisone 50 mg IV 30 minutes before ATG

ATG Dosing

ATG 40 mg/kg in 1 liter normal saline IV over 8-12 hours QD
days 1-4

Concomitant Medications

Prednisone 100 mg/M2 PO QD X 7 days; start with
ATG → taper over 7 days if no serum sickness
Cyclosporine 5 mg/kg/d divided BID; taper by 1 mg/kg/month,
as tolerated
–start at 4 mg/kg/d if age > 50

Other Therapies to Consider

Hematopoietic growth factors
Cyclosporine alone → fewer remissions than combination with ATG
Androgens (such as Danazol—see dosing in ITP section)—can take 3 or more
months to show effect
Other immunosuppressants, such as azathioprine or cyclophosphamide

Lung Cancer
Malignant Melanoma
Sarcoma
Supportive Care
Hematology Basics
Chemo-therapeutic Drug Toxicities
Drug Costs

Coagulation Factor Replacement Therapy

Lung Cancer
Malignant Melanoma
Sarcoma
Supportive Care
Hematology Basics
Chemo-therapeutic Drug Toxicities
Drug Costs

Fresh frozen plasma (FFP)

- used in the absence of a specific factor concentrate, for massive transfusion, to correct warfarin effect, and in TTP with plasma exchange
- FFP dosage is 8-10 ml/kg of body weight (each unit of FFP is approximately 200-280 cc)

Cryoprecipitate

- can be used to replace Factor VIII, Factor XIII, fibrinogen, and von Willebrand factor
- typical dosing is 2-4 units/kg of body weight

Factor VIII

- 1 unit/kg will raise plasma factor VIII level by 2%
- purity is based on number of factor VIII units per mg of contaminating protein)

Replacement dose for Factor VIII =

$$\frac{(\text{desired concentration} - \text{current level}) \times \text{wt (kg)}}{2}$$

2

Low purity (< 50 factor VIII units/mg protein)

- Cryoprecipitate

Intermediate purity (1-10 factor VIII units/mg protein)

- Humate-P (also contains high molecular weight multimers of von Willebrand factor)

–vials contain average of 500, 1000, or 2000 Ristocetin cofactor units per vial

High purity (50-1000 factor VIII units/mg protein)

- Alphanate
- Koate-HP

Very high purity (3000 factor VIII units/mg protein)

- Monoclate-P—average of 250, 500, or 1000 factor VIII units/vial
- Hemofil-M

Recombinant

- Helixate—average of 250, 500, or 1000 factor VIII units/vial
- Bioclate—average of 250, 500, or 1000 factor VIII units/vial
- Kogenate—average of 250, 500, or 1000 factor VIII units/vial
- Recombinate—average of 250, 500, or 1000 factor VIII units/vial

<p>For patients with factor VIII inhibitors –FEIBA VH IMMUNO –give 50-100 “IMMUNO” units/kg body weight; repeated at 6-12 hour intervals</p>	Lung Cancer
<p>–Proplex T (Factor IX Complex)—used for factor VIII inhibitors, and factor VII or IX deficiency</p> <p> –Factor VIII inhibitor dose = 75 factor IX units/kg</p>	Malignant Melanoma
<p>Factor IX</p> <p>Replacement dose for Factor IX = (desired concentration – current level) X wt (kg)</p> <p> –multiply this value by 1.2 when using recombinant factor IX</p>	Sarcoma
<p>Low purity (< 50 factor IX units/mg protein) –Proplex T (Factor IX Complex)—used for factor VIII inhibitors, and factor VII or IX deficiency –Factor IX replacement dose = desired increase X wt (kg) –Factor VII replacement dose = desired increase in factor VII level X wt (kg) X 0.5</p>	Supportive Care
<p>High purity (> 160 factor IX units/mg protein) –Mononine—average of 250, 500, or 1000 factor IX units/vial Recombinant –BeneFix—average of 250, 500, or 1000 factor IX units/vial</p>	Hematology Basics
<p>DDAVP</p> <p>IV dose = 0.3 µg/kg over 30 minutes Nasal dose less than 50 kg → 1 spray (150 µg) more than 50 kg → 1 spray to each nostril (150 µg each)</p>	Chemo-therapeutic Drug Toxicities
	Drug Costs

Hematopoietic Growth Factors

Lung Cancer
Malignant Melanoma
Sarcoma
Supportive Care
Hematology Basics
Chemo-therapeutic Drug Toxicities
Drug Costs

Erythropoietin (Procrit)

- starting dose is 150 units/kg SQ TIW; can increase dose to 300 units/kg SQ TIW if no response
- many recommend once weekly dosing, using 20-40,000 units SQ once weekly

Filgrastim (Neupogen)—G-CSF

- 5 µg/kg/d IV or SQ

Sargramostim (Leukine)—GM-CSF

- 250 µg/M²/d IV or SQ

Oprelvekin (Neumega)

- 50 µg/kg/d SQ

Immune Thrombocytopenic Purpura (ITP)

Prednisone

dosed at 1-2 mg/kg by mouth daily; dose is slowly tapered over several weeks to prevent recurrence of thrombocytopenia

REF: Thompson et al. Arch Intern Med 1972; 130:730-734

Dexamethasone

40 mg PO QD days 1-4 every 28 days

REF: Andersen: NEJM 1994; 330:1560-1564

IVIg

1 gm/kg/d IV for 2 days (if thrombocytopenia is less severe, can spread total 2 gm/kg dose over 5 days)

REF: Blanchette et al. Semin Hematol 1992; 29(Suppl 2):72-82

WinRho

25-50 µg/kg IV as initial dosage; some clinicians have given as much as 80 µg/kg (typical adult dose is approximately 2 mg)

REF: Scaradavou et al. Blood 1997; 89:2689-2700

Danazol

200 mg PO QID; responses can take 3-6 months

REF: Ahn et al. NEJM 1983; 308:1396-1399

Vincristine

1-2 mg IV weekly; no more than 4 to 6 doses because of neuropathy; occasional complete responses

REF: Ahn et al. NEJM 1974; 291:376-380

Cyclophosphamide

2 mg/kg PO QD; taper dose as tolerated (increased risk of second malignancies; increased fluid intake to prevent hemorrhagic cystitis)

REF: Pizzuto et al. Blood 1984; 64:1179-1183

Lung Cancer

Malignant Melanoma

Sarcoma

Supportive Care

Hematology Basics

Chemotherapeutic Drug Toxicities

Drug Costs

Iron Replacement and Chelation

Oral formulations

Ferrous gluconate	(Fergon)	320-640 mg TID
Ferrous sulfate		325 mg tablet TID
	(Feosol)	220 mg/5 cc 5-10 cc TID
Ferrous polysaccharide	(Niferex)	150 mg capsule BID 100 mg/5cc BID-TID

Intravenous iron

Formula to calculate amount of IV iron

Iron dose (mg) = [(Normal Hb – Patient Hb) X weight (lbs)] + 1000 mg (males) or 600 mg (females)

Iron dextran (InFed) comes as 50 mg/ml
 Premedicate with Diphenhydramine 50 mg PO/IV 30 minutes before iron
 Premedicate with Tylenol 650 mg PO 30 minutes before iron
 Administer test dose of iron 25 mg IV; wait at least 30 minutes; if no reaction →
 Administer remainder of total iron dose in 1 liter normal saline over 4-5 hours
 Tylenol 650 mg PO Q6H for 2 doses after conclusion of iron infusion

Iron chelation therapy

Desferrioxamine 40-50 mg/kg SQ over 8-12 hours daily for 5 days weekly
 –continue until ferritin is < 50

Lung Cancer
Malignant Melanoma
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Chemo-therapeutic Drug Toxicities
Drug Costs

Thrombocytosis

Hydroxyurea

500-2000 mg by mouth daily (in divided doses) to control platelet count

REF: Lofvenberg et al. Eur J Haematol 1988; 41:375-381

Anagrelide

starting dose is 0.5-1 mg by mouth QID to control platelet count

REF: Anagrelide Study Group: Am J Med 1992; 92:69-76

Lung Cancer

Malignant
Melanoma

Sarcoma

Supportive
Care

Hematology
Basics

Chemo-
therapeutic
Drug Toxicities

Drug Costs

Chapter 15

Chemotherapeutic Drug Toxicities and Mechanisms of Action

Chemotherapeutic Drug Toxicities

Mechanisms of Action

The following is a list of the most common side effects of each chemotherapeutic agent, along with the proposed mechanism of action for that drug. Please refer to the PDR for a complete toxicity profile. The generally recognized dose-limiting toxicity (DLT) of each drug is underlined.

Aldesleukin (IL-2) –biologic agent – capillary leak syndrome (pulmonary edema) —DLT for high-dose administration – malaise, myalgias, fatigue —DLT for low-dose administration –bone marrow suppression –nausea and vomiting –mucocutaneous effects (stomatitis, mucositis) –cardiovascular effects (arrhythmias, hypotension) –anorexia –mental status changes (confusion, lethargy, psychosis) –renal impairment –fever	Lung Cancer Malignant Melanoma Sarcoma Supportive Care
Altretamine (hexamethylmelamine) –alkylating agent – nausea and vomiting –bone marrow suppression –diarrhea, abdominal cramps –mucocutaneous effects (stomatitis, mucositis) –neuropathies –mental status changes	Supportive Care Hematology Basics
Amifostine –cytoprotectant; free radical scavenger –nausea and vomiting –somnolence –transient hypotension	Chemo-therapeutic Drug Toxicities
Aminoglutethimide –aromatase inhibitor – adrenal insufficiency –mucocutaneous effects—morbilliform rash –lethargy	Drug Costs
Anagrelide –inhibitor of platelet aggregation which causes thrombocytopenia – cardiovascular effects (CHF, edema, palpitations) –anemia –nausea and vomiting –headache	
Anastrozole –nonsteroidal aromatase inhibitor –nausea and vomiting –bowel changes (diarrhea or constipation) –headache –peripheral edema –hot flashes	

Lung Cancer	Arsenic trioxide	<ul style="list-style-type: none"> -believed to induce apoptosis -LFT elevations -renal insufficiency -fatigue -hyperglycemia -skin rash -hypokalemia -peripheral neuropathy -high frequency hearing loss
Malignant Melanoma	Asparaginase	<ul style="list-style-type: none"> -enzyme that inhibits protein synthesis -anaphylaxis -hepatotoxicity -CNS effects (lethargy, confusion, somnolence, depression) -coagulopathy -pancreatitis
Sarcoma	Bicalutamide	<ul style="list-style-type: none"> -nonsteroidal antiandrogen -endocrine effects <ul style="list-style-type: none"> -hot flashes -decreased libido -depression -weight gain -constipation
Supportive Care	Bleomycin	<ul style="list-style-type: none"> -antitumor antibiotic that causes DNA strand breakage -dose-related pneumonitis -mucocutaneous effects (stomatitis, mucositis) -acute pulmonary edema -fever in 50% -hyperpigmentation (can rarely be DLT)
Hematology Basics	Busulfan	<ul style="list-style-type: none"> -alkylating agent -bone marrow suppression—can have prolonged nadir -ovarian suppression -seizures -hepatic veno-occlusive disease (VOD), particularly at BMT doses -interstitial pulmonary fibrosis -hyperpigmentation (particularly skin creases and nail beds)
Chemo-therapeutic Drug Toxicities	Capecitabine	<ul style="list-style-type: none"> -converted to 5-FU preferentially by tumor cells; pyrimidine analogue; antimetabolite; inhibits thymidylate synthase -mucocutaneous effects (stomatitis, mucositis) -diarrhea -bone marrow suppression -nausea and vomiting -palmar-plantar erythrodysethesias (hand-foot syndrome) -fatigue
Drug Costs		

Carboplatin	<ul style="list-style-type: none"> -atypical alkylating agent leading to DNA strand breakage during replication -bone marrow suppression—particularly thrombocytopenia -nausea and vomiting -liver function test abnormalities -uncommon neurotoxicity, ototoxicity 	Lung Cancer
Carmustine (BCNU)	<ul style="list-style-type: none"> -alkylating agent (cell cycle-independent mechanism) -bone marrow suppression—delayed with a nadir of 3-5 weeks -nausea and vomiting—can be severe and prolonged -facial flushing -interstitial lung disease (dose independent) 	Malignant Melanoma
Chlorambucil	<ul style="list-style-type: none"> -alkylating agent (cell cycle-independent) -bone marrow suppression -nausea and vomiting -CNS stimulation (uncommon) 	Sarcoma
Cisplatin	<ul style="list-style-type: none"> -atypical alkylating agent leading to DNA strand breakage during replication -nephrotoxicity—DLT for single dose -peripheral neuropathy—DLT for multiple doses -bone marrow suppression -nausea and vomiting—can be severe and prolonged -ototoxicity -hypomagnesemia 	Supportive Care
Cladribine (2-CdA)	<ul style="list-style-type: none"> -purine analogue; antimetabolite -bone marrow suppression -fever in 50% (probably due to tumor lysis) -rash in 50% -immunosuppression (with profound T-cell lymphopenia) 	Hematology Basics
Cyclophosphamide	<ul style="list-style-type: none"> -alkylating agent (cell cycle independent) -bone marrow suppression -anorexia, nausea and vomiting -alopecia -hemorrhagic cystitis 	Chemo-therapeutic Drug Toxicities
Cyclosporine	<ul style="list-style-type: none"> -immunosuppressant -nephrotoxicity -hirsutism -hepatotoxicity -tremor -anxiety -hypertension 	Drug Costs

Lung Cancer	Cytarabine (Ara-C)	<ul style="list-style-type: none"> -antimetabolite which is S-phase specific during DNA replication -bone marrow suppression -nausea and vomiting -cerebellar toxicity (particularly at high doses) -conjunctivitis (at high doses) -hepatotoxicity -mucocutaneous effects (stomatitis, mucositis, diarrhea)
Malignant Melanoma	Dacarbazine (DTIC)	<ul style="list-style-type: none"> -atypical alkylating agent, noncell cycle dependent -bone marrow suppression -nausea and vomiting -vesicant if extravasated -flu-like syndrome -fever
Sarcoma	Dactinomycin	<ul style="list-style-type: none"> - antitumor antibiotic; inhibits transcription by complexing with DNA -bone marrow suppression -nausea and vomiting -erythema -hyperpigmentation -mucocutaneous effects (mucositis, stomatitis, diarrhea) -vesicant if extravasated -immunosuppression
Supportive Care	Daunorubicin	<ul style="list-style-type: none"> -anthracycline antitumor antibiotic; DNA intercalating agent -bone marrow suppression -nausea and vomiting—mild to moderate -mucocutaneous effects (mucositis, stomatitis, diarrhea) -vesicant if extravasated -cardiotoxicity (550 mg/M²) -Liposomal daunorubicin: there is significantly less bone marrow suppression, nausea and vomiting, stomatitis, and cardiotoxicity
Hematology Basics	Dexamethasone	<ul style="list-style-type: none"> -corticosteroid -leukocytosis -nausea and vomiting -anorexia or increased appetite -CNS effects (psychosis, confusion) -fluid retention -hyperglycemia -osteoporosis
Chemo-therapeutic Drug Toxicities	Dexrazoxane	<ul style="list-style-type: none"> -iron chelating agent (cardioprotectant) -leukopenia and thrombocytopenia -nausea and vomiting -elevated liver function tests -hypotension
Drug Costs		

Diethylstilbestrol (DES)	<ul style="list-style-type: none"> -synthetic steroidal pro-estrogen hormone -nausea and vomiting -cramps -elevated liver function tests -headache -thromboembolic events -weight gain -rash 	Lung Cancer
Docetaxel	<ul style="list-style-type: none"> -semisynthetic taxane; stabilizes tubulin polymers leading to death of mitotic cells -bone marrow suppression -nausea and vomiting -mucocutaneous effects (mucositis, stomatitis, diarrhea) -hypersensitivity reactions -fluid retention syndrome -fatigue -myalgias -alopecia (universal) 	Malignant Melanoma
Doxorubicin	<ul style="list-style-type: none"> - anthracycline antitumor antibiotic – DNA intercalating agent -bone marrow suppression -nausea and vomiting -mucocutaneous effects (mucositis, stomatitis) -cardiotoxicity (550 mg/M²) -vesicant if extravasated -rash and hyperpigmentation -alopecia (universal) 	Sarcoma
Liposomal doxorubicin —bone marrow suppression; significantly less stomatitis, extravasation necrosis, and cardiotoxicity		Supportive Care
Epirubicin	<ul style="list-style-type: none"> -anthracycline antitumor antibiotic—DNA intercalating agent -bone marrow suppression -nausea and vomiting -mucocutaneous effects (mucositis, stomatitis) -cardiotoxicity (1000 mg/M²) -vesicant if extravasated -rash and hyperpigmentation -alopecia 	Hematology Basics
Erythropoietin	<ul style="list-style-type: none"> -hormonal stimulant of red blood cell production -erythrocytosis (with excessive dosage) -flushing 	Chemo-therapeutic Drug Toxicities
Estramustine	<ul style="list-style-type: none"> -inhibitor of microtubules -nausea and vomiting -headache -edema -impotence -gynecomastia -increases thromboembolic risk 	Drug Costs

Lung Cancer	Etoposide (VP-16)	<ul style="list-style-type: none"> -plant alkaloid, topoisomerase II inhibitor -bone marrow suppression -nausea and vomiting -mucocutaneous effects (mucositis, stomatitis)—increased at higher doses
Malignant Melanoma		<ul style="list-style-type: none"> -chemical phlebitis common -hypotension with rapid administration -hypersensitivity reactions -secondary leukemia
Sarcoma	Exemestane	<ul style="list-style-type: none"> -aromatase inhibitor -nausea and vomiting -headache -peripheral edema -hot flashes
Supportive Care	Filgrastim (G-CSF)	<ul style="list-style-type: none"> -hematopoietic growth factor -bone pain -low-grade fever -myalgias, arthralgias -leukocytosis (with excessive dosing) -capillary leak syndrome
Hematology Basics	Fludarabine	<ul style="list-style-type: none"> -purine analogue; antimetabolite; partially cell cycle specific -bone marrow suppression -nausea and vomiting -mucocutaneous effects (mucositis, stomatitis)—increased at higher doses -CNS toxicity—cortical blindness, confusion, coma, somnolence -interstitial pneumonitis -immunosuppression
Chemo-therapeutic Drug Toxicities	5-Fluorouracil (5-FU)	<ul style="list-style-type: none"> -pyrimidine analogue; antimetabolite; inhibits thymidylate synthase -mucocutaneous effects (diarrhea, mucositis, stomatitis) -bone marrow suppression -nausea and vomiting -palmar-plantar erythrodysesthesias (hand-foot syndrome) -cardiotoxicity (ischemia, arrhythmias) -acute cerebellar syndrome
Drug Costs		
	Fluoxymesterone	<ul style="list-style-type: none"> -synthetic steroidal androgen -androgenic effects predominate -hirsutism -amenorrhea -hoarseness -acne -increased libido -gynecomastia -cholestatic jaundice -polycythemia

Flutamide	<ul style="list-style-type: none"> -nonsteroidal antiandrogen -endocrine effects <ul style="list-style-type: none"> -hot flashes -decreased libido -gynecomastia -impotence -galactorrhea -diarrhea -nausea and vomiting -myalgias -elevated liver function tests 	Lung Cancer
Gemcitabine	<ul style="list-style-type: none"> - nucleoside analogue; antimetabolite; S-phase specific cytotoxicity -bone marrow suppression—most commonly thrombocytopenia -nausea and vomiting -fever during administration -elevated transaminases -rash 	Malignant Melanoma
Gemtuzumab zoqamicin	<ul style="list-style-type: none"> - monoclonal antibody against CD33 with calicheamicin (antitumor antibiotic) -fevers and chills -hypotension -grade IV neutropenia and thrombocytopenia -LFT elevations 	Sarcoma
Goserelin	<ul style="list-style-type: none"> - LHRH agonist -endocrine effects <ul style="list-style-type: none"> -hot flashes -decreased libido -gynecomastia -impotence -nausea and vomiting (uncommon) -transient increase in bone pain 	Supportive Care
Hydroxyurea	<ul style="list-style-type: none"> -antimetabolite; inhibits ribonucleotide reductase; cell cycle specific -bone marrow suppression -nausea and vomiting (uncommon at standard doses) -maculopapular rash -skin ulceration -megaloblastosis (elevated MCV) 	Hematology Basics
Idarubicin	<ul style="list-style-type: none"> -anthracycline antitumor antibiotic; DNA intercalating agent -bone marrow suppression -nausea and vomiting—mild to moderate -mucocutaneous effects (mucositis, stomatitis, diarrhea) -vesicant if extravasated -cardiotoxicity (150 mg/M²) -elevated liver function tests 	Chemo-therapeutic Drug Toxicities
		Drug Costs

Lung Cancer	Ifosfamide	<ul style="list-style-type: none"> - alkylating agent; noncell cycle specific -bone marrow suppression -hemorrhagic cystitis (need Mesna uroprotection) -nausea and vomiting—mild to moderate -mucocutaneous effects (mucositis, stomatitis, diarrhea) -CNS toxicity—lethargy, stupor, coma, seizures
Malignant Melanoma	Interferon	<ul style="list-style-type: none"> -biologic agent -flu-like symptoms—malaise, myalgias, fatigue, fever -nausea and vomiting—mild -anorexia
Sarcoma		<ul style="list-style-type: none"> -bone marrow suppression -mucocutaneous effects (stomatitis, mucositis) -cardiovascular effects (arrhythmias, hypotension) -mental status changes (confusion, lethargy, psychosis) -renal impairment (proteinuria) -elevation in transaminase levels
Supportive Care	Irinotecan	<ul style="list-style-type: none"> -semisynthetic camptothecin; topoisomerase I inhibitor -bone marrow suppression -diarrhea -nausea and vomiting -flushing -rash -alopecia
Hematology Basics		<ul style="list-style-type: none"> - enzyme cofactor for thymidylate synthase; rescues from methotrexate toxicity; potentiates cytotoxicity of fluoro-pyrimidines -occasional nausea -skin rash -headache -rare allergic reactions
Chemo-therapeutic Drug Toxicities	Leuprolide	<ul style="list-style-type: none"> -LHRH agonist -endocrine effects <ul style="list-style-type: none"> -hot flashes -decreased libido -gynecomastia (3%) -breast tenderness -impotence (2%) -nausea and vomiting (uncommon) -transient increase in bone pain -peripheral edema -dizziness, headache
Drug Costs		
	Levamisole	<ul style="list-style-type: none"> -immune potentiating effects -nausea and vomiting -diarrhea -anorexia -rash (23%) -alopecia (22%) -rare agranulocytosis (more often in women)

Lomustine (CCNU)	<ul style="list-style-type: none"> -nitrosourea alkylating agent; cell cycle independent -bone marrow suppression (delayed, prolonged, and cumulative) -nausea and vomiting -pulmonary fibrosis -neurologic toxicity – confusion, lethargy, ataxia 	Lung Cancer
Mechlorethamine (nitrogen mustard)	<ul style="list-style-type: none"> -alkylating agent; cell cycle independent -bone marrow suppression -vesicant if extravasated -severe nausea and vomiting -impaired spermatogenesis and amenorrhea -maculopapular skin rash -secondary leukemias 	
Megestrol acetate	<ul style="list-style-type: none"> -steroidal progestational agent -nausea and vomiting -headache -peripheral edema -hot flashes -thrombophlebitis -increased appetite with weight gain -hypercalcemia 	Sarcoma
Melphalan	<ul style="list-style-type: none"> -alkylating agent; cell cycle independent -bone marrow suppression -nausea and vomiting (more frequent with large, single oral doses) -pulmonary fibrosis -vasculitis -secondary leukemia 	Supportive Care
6-Mercaptopurine (6-MP)	<ul style="list-style-type: none"> - purine analogue antimetabolite; predominantly S-phase specific -bone marrow suppression -nausea and vomiting—mild to moderate -mucocutaneous effects (mucositis, stomatitis, diarrhea) -hepatotoxicity -dry scaling rash -fever -eosinophilia 	Hematology Basics
Mesna	<ul style="list-style-type: none"> -thiol uroprotectant (binds and inactivates toxic metabolite acrolein) -nausea and vomiting -rash -headache -fatigue and lethargy 	Chemo-therapeutic Drug Toxicities
		Drug Costs

Lung Cancer	Methotrexate	<ul style="list-style-type: none"> –antifolate antimetabolite; cell cycle dependent –bone marrow suppression –nausea and vomiting—mild to moderate –mucocutaneous effects (mucositis, stomatitis, diarrhea) –hepatotoxicity—more common in high-dose therapy –CNS toxicity—dizziness, malaise, blurred vision, encephalopathy –nephrotoxicity—including acute renal failure, particularly at high doses
Malignant Melanoma	Mitomycin C	<ul style="list-style-type: none"> –antitumor antibiotic; inhibits RNA and DNA synthesis –bone marrow suppression –nausea and vomiting—mild to moderate –mucocutaneous effects (mucositis, stomatitis, diarrhea) –vesicant if extravasated –nephrotoxicity –veno-occlusive disease (VOD) of the liver –hemolytic-uremic syndrome
Sarcoma		
Supportive Care		
Hematology Basics	Mitotane (o,p-DDD)	<ul style="list-style-type: none"> –adrenocortical cytotoxin –nausea and vomiting –CNS toxicity—lethargy, vertigo, sedation, dizziness –adrenal insufficiency—must use replacement doses of mineralocorticoids and glucocorticoids –diarrhea –fever –wheezing –flushing
Chemo-therapeutic Drug Toxicities	Mitoxantrone	<ul style="list-style-type: none"> –anthracycline antitumor antibiotic; DNA intercalating agent –bone marrow suppression –nausea and vomiting—mild to moderate –mucocutaneous effects (mucositis, stomatitis, diarrhea) –cardiotoxicity (160 mg/M²) –elevated liver function tests
Drug Costs	Octreotide	<ul style="list-style-type: none"> –synthetic peptide analogue of somatostatin –abdominal pain, nausea, vomiting, diarrhea –local injection site reactions –cholelithiasis –sweating, flushing –hyperglycemia (many patients will require insulin therapy)
	Oprelvekin (IL-11, Neumega)	<ul style="list-style-type: none"> –stimulation of megakaryocyte proliferation –fluid retention –constitutional symptoms—headache, fever, malaise –dyspnea –rash –diarrhea –pleural effusions –anemia

Oxaliplatin	<ul style="list-style-type: none"> - alkylating agent; causes DNA cross-linking -peripheral neuropathy (cumulative)—often reversible with cessation of therapy -mild bone marrow suppression -nausea and vomiting (which may be severe) 	Lung Cancer
Paclitaxel	<ul style="list-style-type: none"> -natural taxane; inhibits depolymerization of tubulin in mitotic spindle apparatus -bone marrow suppression -nausea and vomiting—mild -mucocutaneous effects (mucositis, stomatitis, diarrhea) -hypersensitivity reactions -peripheral neuropathy -myalgias, arthralgias -mild vesicant 	Malignant Melanoma
Pamidronate	<ul style="list-style-type: none"> -organic bisphosphonate; inhibits bone resorption by osteoclasts -hypotension -syncope -tachycardia -hypocalcemia, hypokalemia, hypomagnesemia -nausea and vomiting rarely 	Sarcoma
Pentostatin	<ul style="list-style-type: none"> -purine analogue; antimetabolite; inhibits adenosine deaminase -nephrotoxicity (including acute renal failure) -bone marrow suppression -neurotoxicity—lethargy, fatigue, seizures, coma -immunosuppression (lymphopenia) -nausea and vomiting -fever -anorexia -hepatotoxicity 	Supportive Care
Prednisone	<ul style="list-style-type: none"> -corticosteroid -leukocytosis -nausea and vomiting; indigestion -anorexia or increased appetite -CNS effects (depression, anxiety, euphoria, insomnia, psychosis, confusion) -fluid retention -hyperglycemia -osteoporosis -acne -adrenal insufficiency with prolonged use 	Hematology Basics
		Chemo-therapeutic Drug Toxicities
		Drug Costs

Lung Cancer	Procarbazine	<ul style="list-style-type: none"> -alkylating agent; cell cycle independent -bone marrow suppression—prolonged -nausea and vomiting—severe; tolerance often develops with repeated dosing -mucocutaneous effects (mucositis, stomatitis, diarrhea)
Malignant Melanoma		<ul style="list-style-type: none"> -rash, hives, photosensitivity -interstitial pneumonitis -CNS toxicity—seizures, lethargy, headache, ataxia -flu-like syndrome -azoospermia and amenorrhea almost universal
Sarcoma	Rituximab	<ul style="list-style-type: none"> -monoclonal antibody to CD20 (B-cell surface antigen) -fever, chills, malaise -nausea, vomiting -flushing -bronchospasm, angioedema, urticaria -rhinitis -pain at disease sites -tumor lysis syndrome may occur in patients with high peripheral lymphocyte count
Supportive Care		
Hematology Basics	Sargramostim (GM-CSF)	<ul style="list-style-type: none"> -hematopoietic growth factor -nausea and vomiting -flushing -capillary leak syndrome -fevers and chills -headache -bone pain -myalgias, arthralgias -leukocytosis
Chemo-therapeutic Drug Toxicities		
Drug Costs	Streptozocin	<ul style="list-style-type: none"> -alkylating agent; cell cycle independent -nephrotoxicity—can be dose-limiting -nausea and vomiting—may get progressively worse with continued administration -mucocutaneous effects (mucositis, stomatitis, diarrhea) -bone marrow suppression -irritant if extravasated (not vesicant) -delirium or depression -risk of secondary leukemias
	Tamoxifen	<ul style="list-style-type: none"> -nonsteroidal antiestrogen -nausea and vomiting -bowel changes (diarrhea or constipation) -headache -peripheral edema -hot flashes -endometrial carcinoma -vaginal bleeding -venous thrombosis

Temozolomide	<ul style="list-style-type: none"> -alkylating agent; -bone marrow suppression—delayed -nausea and vomiting—mild to moderate -constipation -rash -headache -elevated transaminases 	Lung Cancer
Teniposide (VM-26)	<ul style="list-style-type: none"> -topoisomerase II inhibitor -bone marrow suppression -nausea and vomiting -mucocutaneous effects (mucositis, stomatitis) -chemical phlebitis common -hypotension with rapid administration -hypersensitivity reactions -secondary leukemia 	Malignant Melanoma
6-Thioguanine (6-TG)	<ul style="list-style-type: none"> -purine analogue antimetabolite; cell cycle dependent -bone marrow suppression -nausea and vomiting -mucocutaneous effects (mucositis, stomatitis) -rash -hepatotoxicity -hyperuricemia 	Sarcoma
Thiotepa	<ul style="list-style-type: none"> -alkylating agent; cell cycle independent -bone marrow suppression -nausea and vomiting—uncommon -mucocutaneous effects (mucositis, stomatitis)—uncommon -fever -angioedema -urticaria -secondary leukemia 	Supportive Care
Topotecan	<ul style="list-style-type: none"> -semisynthetic camptothecin; topoisomerase I inhibitor -bone marrow suppression -nausea and vomiting -mucocutaneous effects (mucositis, stomatitis) -constitutional symptoms—fatigue, anorexia, malaise -hematuria -renal insufficiency -hypertension -hepatotoxicity 	Hematology Basics
Toremifene	<ul style="list-style-type: none"> - nonsteroidal antiestrogen -nausea and vomiting -bowel changes (diarrhea or constipation) -headache -peripheral edema -hot flashes -vaginal bleeding or discharge -venous thrombosis 	Chemo-therapeutic Drug Toxicities
		Drug Costs

Lung Cancer	Trastuzumab (Herceptin)	<ul style="list-style-type: none"> -humanized mouse monoclonal antibody directed against HER-2/<i>neu</i> receptor -fevers, chills, nausea, vomiting, headache during administration -cardiotoxicity (the FDA has not approved concurrent use with doxorubicin)
Malignant Melanoma	Tretinoin	<ul style="list-style-type: none"> -naturally occurring retinoid -retinoic acid syndrome <ul style="list-style-type: none"> -fever -chest pain -hypoxia -pulmonary infiltrates -pleural/pericardial effusions -nausea and vomiting -mucocutaneous effects -arthralgias -headaches -increased triglycerides -xerostomia, exfoliation, cheilitis
Sarcoma		
Supportive Care		
Hematology Basics	Trimetrexate	<ul style="list-style-type: none"> -antifolate antimetabolite -bone marrow suppression -mucocutaneous effects (mucositis, stomatitis) -nausea and vomiting -fever -maculopapular rash—usually self-limited -anorexia, malaise -above toxicities increased in patient with hypoalbuminemia (<3.5)
Chemo-therapeutic Drug Toxicities	Vinblastine	<ul style="list-style-type: none"> -vinca alkaloid; inhibits tubulin polymerization; G2 phase specific -bone marrow suppression -vesicant if extravasated -nausea and vomiting -constipation (often secondary to neuropathy induced ileus) -neuropathy (jaw pain, peripheral neuropathy, autonomic neuropathy) -SIADH -tumor pain
Drug Costs		
	Vincristine	<ul style="list-style-type: none"> -vinca alkaloid; inhibits tubulin polymerization; G2 phase specific -neurotoxicity—peripheral neuropathy -vesicant if extravasated -nausea and vomiting -bone marrow suppression—mild -transient transaminase elevation -constipation (often secondary to neuropathy induced ileus) **-intrathecal injection is ALWAYS FATAL

Vinorelbine

-vinca alkaloid; inhibits tubulin polymerization; G2 phase specific

-bone marrow suppression

-vesicant if extravasated

-neurotoxicity

-nausea and vomiting

-acute reaction during administration—wheezing, chest pain, dyspnea

-can be prevented on future administration with corticosteroids

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Drug Costs

Chapter 16

Hematology/Oncology Drug Costs

Hematology/Oncology Drug Costs

Below is a listing of commonly used drugs in the practice of Hematology and Oncology and their costs. This is not meant to be all-inclusive; it is meant to be a guide to the costs of the various drugs used in this field. If more than one dosage formulation is available for a specific agent, only the 1 or 2 most common forms are listed. In addition, even though common brand names are listed for recognition purposes, the cost reflects that of the lowest-priced generic (if one is available). Prices are those as of 11/99.

Oral Agents

AGENT NAMES	STRENGTH	FORM	COST (\$)	COMMON BRAND	
Altretamine	50 mg	capsule	6.62	Hexalen	Lung Cancer
Aminoglutethimide	250 mg	tablet	1.35	Cytadren	
Anagrelide	0.5 mg	tablet	4.72	Agrelin	Sarcoma
Anastrozole	1 mg	tablet	6.48	Arimidex	
Bicalutamide	50 mg	tablet	11.53	Casodex	Hematology Basics
Busulfan	2 mg	tablet	1.82	Myleran	
Capecitabine	500 mg	tablet	6.80	Xeloda	Drug Costs
Chlorambucil	2 mg	tablet	1.58	Leukeran	
Cyclophosphamide	50 mg	tablet	3.93	Cytoxan	
Danazol	200 mg	tablet	2.50	Danacrine	
Dexamethasone	2 mg	tablet	0.55	Decadron	
	4 mg	tablet	0.37		
Dolasetron	100 mg	tablet	68.64	Anzemet	
Estramustine	140 mg	capsule	3.83	Emcyt	
Etoposide	50 mg	capsule	46.43	VePesid	
Fluoxymesterone	5 mg	tablet	1.69	Halotestin	
Flutamide	125 mg	capsule	2.02	Eulexin	
Granisetron	1 mg	tablet	47.05	Kytril	
Hydroxyurea	500 mg	capsule	1.03	Hydrea	
Leucovorin	5 mg	tablet	2.35	Wellcovorin	
Levamisole	50 mg	tablet	6.36	Ergamisol	
Lomustine (CCNU)	100 mg	capsule	31.76	CeeNU	
Medroxyprogesterone	10 mg	tablet	0.20	Provera	
Megestrol	40 mg	tablet	0.85	Megace	
	40 mg/ml	240 cc bottle	139.20		
Melphalan	2 mg	tablet	2.18	Alkeran	
Mercaptopurine (6-MP)	50 mg	tablet	3.00	Purinethol	
Methotrexate	2.5 mg	tablet	1.66		
Mitotane (o,p'DDD)	500 mg	tablet	2.69	Lysodren	
Nilutamide	50 mg	tablet	2.81	Nilandron	
Ondansetron	8 mg	tablet	26.47	Zofran	
	24 mg	tablet	79.42		
Procarbazine	50 mg	capsule	0.69	Matulane	
Tamoxifen	20 mg	tablet	3.53	Nolvadex	

Continued

		Oral Agents				
		AGENT NAMES	STRENGTH	FORM	COST	COMMON BRAND
Lung Cancer		Temozolomide	100 mg	capsule	120.00	Temodar
		Thalidomide	50 mg	capsule	7.84	Thalomid
Malignant Melanoma		Thioguanine (6-TG)	40 mg	tablet	4.04	
		Toremifene	60 mg	tablet	2.85	Fareston
		Tretinoin (ATRA)	10 mg	capsule	11.88	Vesanoid
Sarcoma						
Supportive Care						
Hematology Basics						
Chemo-therapeutic Drug Toxicities						
Drug Costs						

Injectable Agents				Lung Cancer
AGENT NAMES	AMOUNT IN VIAL	COST PER VIAL	COMMON BRAND	
Aldesleukin (IL-2)	22 million IU	599.75	Proleukin	Lung Cancer
Amifostine	500 mg	1106.25	Ethiol	
Antithymocyte globulin	25 mg	265.00	Thymoglobulin	Malignant Melanoma
Asparaginase	10,000 IU	60.43	Elspar	
PEG-Asparaginase	3,750 IU	1391.20	Oncaspar	
Bleomycin	15 unit	292.42	Blenoxane	
Carboplatin	450 mg	899.42	Paraplatin	Sarcoma
Carmustine (BCNU)	100 mg	104.36	BiCNU	
Cisplatin	100 mg	454.90	Platinol	
Cladribine	10 mg	562.80	Leustatin	
Cyclophosphamide	1000 mg	49.36	Cytosan	Sarcoma
Cytarabine	500 mg	21.02	Cytosar-U	
	2000 mg	98.90		
Dacarbazine (DTIC)	200 mg	23.14	DTIC-dome	
Dactinomycin	0.5 mg	13.40	Cosmegen	Supportive Care
Daunorubicin	20 mg	162.79	Cerubidine	
Liposomal daunorubicin	50 mg	268.75	DaunoXome	
Denileukin diftitox	300 mcg	992.50	Ontak	
Dexamethasone	20 mg/ml	4.98	Decadron	Hematology Basics
Dexrazoxane	500 mg	296.30	Zinecard	
Docetaxel	80 mg	1137.43	Taxotere	
Dolasetron	100 mg	155.85	Anzemet	
Doxorubicin	50 mg	225.40	Adriamycin	Hematology Basics
	100 mg	378.52		
Liposomal doxorubicin	20 mg	656.25	Doxil	
Enoxaparin	30 mg	56.00	Lovenox	
Epirubicin	50 mg	656.25	Ellence	Chemo-therapeutic Drug Toxicities
Erythropoietin	40,000 units	480.00	Procrit	
Etoposide	100 mg	44.00	VePesid	
Etoposide phosphate	100 mg	119.19	EtopoPhos	
Filgrastim	300 mcg	172.30	Neupogen	Drug Costs
Fludarabine	50 mg	242.25	Fludara	
Fluorouracil	1000 mg	3.00	Efudex	
Gemcitabine	1000 mg	465.59	Gemzar	
Goserelin	3.6 mg	469.99	Zoladex	Drug Costs
	10.8 mg	1409.98		
Granisetron	1 mg	195.20	Kytril	
Idarubicin	20 mg	1437.41	Idamycin	
Ifosfamide	3000 mg	428.69	Ifex	Drug Costs
Interferon alfa-2a	18 million IU	209.58	Roferon-A	
Interferon alfa-2b	18 million IU	218.04	Intron-A	
Irinotecan	100 mg	620.05	Camptosar	
Lepirudin	50 mg	126.00	Refludan	Drug Costs
Leucovorin	50 mg	56.25	Wellcovorin	
	350 mg	85.75		

Continued

Injectable Agents				
	AGENT NAMES	AMOUNT IN VIAL	COST PER VIAL	COMMON BRAND
Lung Cancer	Leuprolide	7.5 mg	623.79	Lupron
		22.5 mg	1783.95	
Malignant Melanoma	Mechlorethamine	10 mg	11.59	Mustargen
	Medroxyprogesterone	150 mg	48.10	Depo-Provera
	Melphalan	50 mg	367.31	Alkeran IV
	Mesna	2000 mg	368.80	Mesnex
	Methotrexate	50 mg	4.36	
Sarcoma		250 mg	21.80	
	Mitomycin C	20 mg	434.80	Mutamycin
	Mitoxantrone	25 mg	1173.75	Novantrone
	Octreotide	0.5 mg	56.80	Sandostatin
	Octreotide long acting	20 mg	1368.75	Sandostatin LAR Depot
Supportive Care	Ondansetron	40 mg	256.40	Zofran
	Oprelvekin	5 mg	248.75	Neumega
	Paclitaxel	300 mg	1826.25	Taxol
	Pamidronate	90 mg	678.31	Aredia
	Pentostatin	10 mg	1440.00	Nipent
Hematology Basics	Rh ₀ (D) Immune Globulin	300 mcg(1500 IU)	306.00	WinRho
	Rituximab	500 mg	2212.08	Rituxan
	Sargramostim (GM-CSF)	250 mcg	134.85	Leukine
	Streptozocin	1000 mg	114.65	Zanosar
	Teniposide	100 mg	394.68	Vumon
	Thiotepa	15 mg	105.58	Thioplex
Chemo-therapeutic Drug Toxicities	Topotecan	4 mg	603.95	Hycamtin
	Trastuzumab	440 mg	2262.50	Herceptin
	Trimetrexate	25 mg	73.50	Neutrexin
	Vinblastine	10 mg	21.25	Velban
	Vincristine	2 mg	29.24	Oncovin
	Vinorelbine	50 mg	381.45	Navelbine
Drug Costs				

Appendix—Miscellaneous Formulas

Calvert Formula

–used for AUC dosing of Carboplatin

$$\frac{(140 - \text{age}) \times \text{weight in kg} \times (0.85 \text{ in females, } 1.0 \text{ in males})}{72 \times \text{serum creatinine}} = \text{estimated creatinine clearance}$$

estimated CrCl + 25 = GFR

GFR X target AUC = Carboplatin dose

Performance Status

Karnofsky

100	normal
90	minor signs/symptoms of disease
80	some signs/symptoms of disease
70	cares for self; unable to carry on normal activity or actively work
60	requires occasional assistance
50	requires considerable assistance
40	disabled; requires special care
30	severely disabled; hospitalization is indicated; death is not imminent
20	very sick; hospitalization necessary
10	moribund
0	dead

ECOG

0	fully active (90-100)
1	restricted to light activities (70-80)
2	capable of self-care (50-60)
3	limited self-care; confined to bed or chair >50% of waking hours (30-40)
4	completely disabled (10-20)
5	dead (0)

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