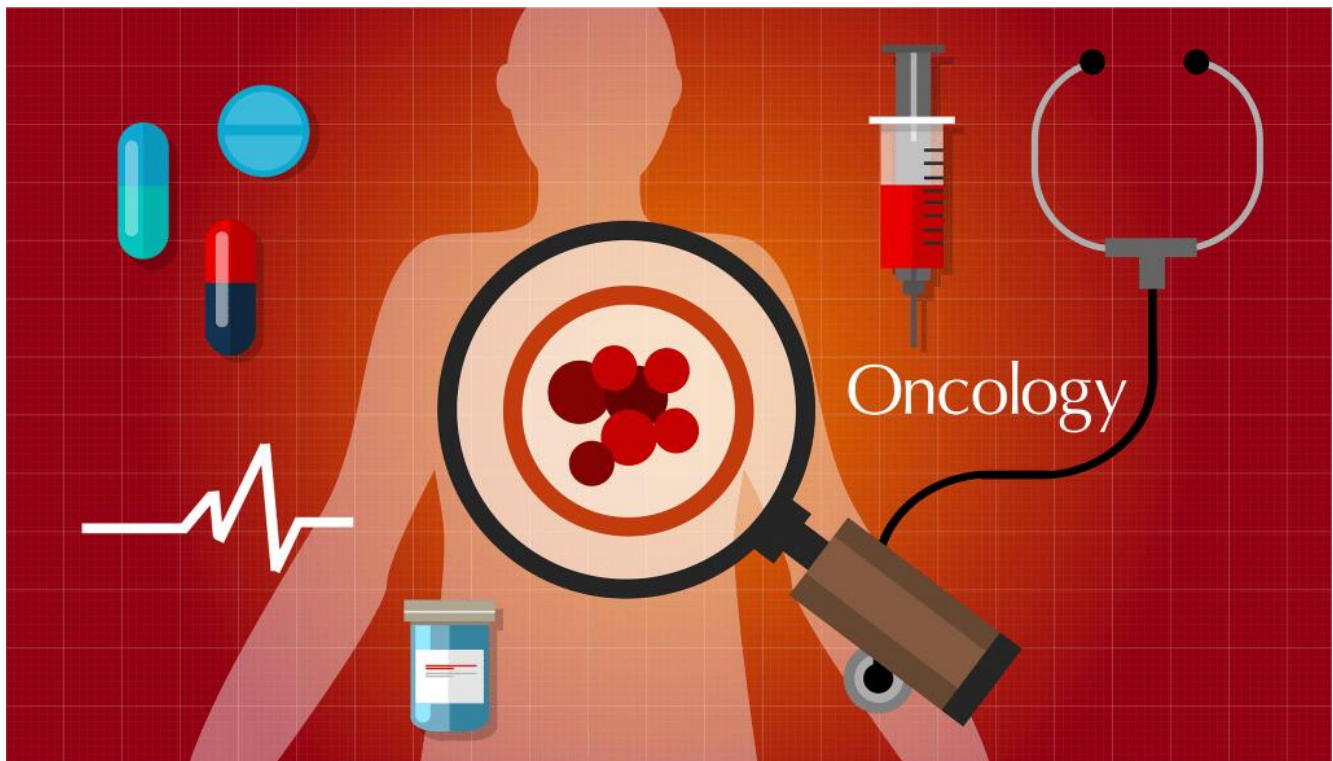


Antineoplastic Therapy and Immunotherapy Course Study Guide



Administration

1. True or False: Chemotherapy consenting is to be performed by the patient's attending physician, a qualified fellow (those who have completed 3-months of fellowship training), or a chemotherapy credentialed APP.
2. A _____ consent is required if a patient is starting chemotherapy, a new drug is added to the regimen, the route of administration is changed, treatment is converted to a biosimilar product, or the consent form is older than one year.
3. True or False: A patient can leave their shoes on when height and weight are obtained ONLY if the patient is suffering from peripheral neuropathy.
4. Who determines if actual, ideal, or adjusted body weight is to be used in chemo dosing?

5. The Calvert formula is used to calculate the dose of what drug?

6. What does the AUC measure?

7. True or False: Mrs. S. is receiving carboplatin (Paraplatin) dosed with an AUC of 6 and Mrs. H. is receiving carboplatin (Paraplatin) with AUC of 2. The nurse knows Mrs. S. may have more toxicity to the drug since her AUC is higher than Mrs. H.
8. A UPMC fellow cannot write orders independently in the first _____.
9. True or False: The nurse should avoid bruised sites, the use of hand/antecubital veins, and sites distal to veins that have experienced venipuncture in the past 24 hours when assessing where to place a new intravenous site for chemotherapy administration.
10. _____ chemotherapy administered IV push should be administered at a rate of 5ml/minute and blood return should be assessed after every 2-_____ml of drug administered.
11. True or False: When administering an IV push medication the nurse should open the clamp of compatible intravenous solution until increased flow is seen to dilute the agent during administration.
12. During the 2 RN check, the correct patient and dose is to be verified at the _____.
13. Continuous infusion of vesicants must be through a _____.
14. Excretion safety precautions last for _____ or _____ days.
15. True or False: When evaluating a patient prior to chemotherapy, the nurse notes the patient recently had weight loss. The nurse recalculates the dose and discovers a change

in the dose greater than 10%. The next step for the nurse is to notify the attending physician that the patient will need re-consented because of the dose adjustment.

16. The use of a _____ protects the nurse from inadvertent exposure to hazardous antineoplastic agents by prohibiting leakage of hazardous drugs from administration sets.

17. When is personal protective equipment (PPE) required in hazardous drug administration?
_____.

Use the following information from the UPMC Hazardous Drug Chart to answer questions 18 and 19:

[illegible]

18. Ifosfamide (Ifex) is administered IV over 4 hours on June 1st, June 2nd, June 3rd, and June 4th from 12pm-4pm. The last Ifosfamide (Ifex) infusion finishes at 4pm on June 4th. Using the chart above, excretion precautions should start and end at what dates and times?
_____.

19. The nurse should consider that IV Ifosfamide (Ifex) requires _____ administration precautions and requires the following PPE _____.

20. When administering pre-medications that are intended to prevent hypersensitivity reactions, allow a minimum of _____ - minutes between completion of pre-medications and initiation of treatments.

21. A _____ blood return is required for all vascular access devices prior to starting antineoplastic therapy. If a _____ blood return is present do not administer drug and contact the physician.

22. True or False: A port needle used to administer antineoplastic therapy should be discarded in the yellow rigid biohazard bin and not the red rigid biohazard bin upon completion of therapy.

Alkylating Agents

1. Alkylating agents are cell cycle non-specific. They work on _____ and resting cells.
2. List three toxicities common in all alkylating agents:
 -
 -
 -
3. List at least three strategies that can be used to prevent the development of hemorrhagic cystitis due to administration of ifosfamide (Ifex) and cyclophosphamide (Cytosan):
 -
 -
 -
4. _____ is the antidote for ifosfamide-induced encephalopathy.
5. Which class of drugs can cross the blood brain barrier, increasing a patient's risk for CNS toxicities?

6. _____ is the solvent for carmustine (BCNU).
7. True or False: Temozolamide (Temodar) effectively crosses the blood brain barrier.
8. Patients may feel intoxicated during the administration of _____.
9. Patients are prophylactically medicated with anticonvulsants before receiving _____ and for 24 hours after the last dose to prevent seizures.
10. True or False: Oxaliplatin should only be mixed with D5W.
11. Which drug should ALWAYS be given with mesna (Mesnex)?

12. Pulmonary fibrosis is a late complication of patients who receive _____.
13. The platinum alkylating agents include _____, _____, and _____.
14. Cisplatin (Platinol) is a _____ emetogenic drug.
15. Pretreatment hydration is administered to prevent this toxicity of cisplatin (Platinol):

16. True or False: Electrolyte levels need to be closely monitored and often supplemented for cisplatin (Platinol).
17. The more treatments a patient receives _____ the risk for reaction with carboplatin (Paraplatin).
18. A dose limiting adverse event associated with oxaliplatin (Eloxatin) is _____.
19. Patients should avoid cold fluids for 5 days after receiving _____ to help prevent _____.
20. List three toxicities of cisplatin (Platinol)
 -
 -
 -

Antimetabolites

1. List at least two common side effects of antimetabolites:
 -
 -
2. True or False: High doses of methotrexate should not be administered to patients with abnormal renal function.
3. Leucovorin rescue begins _____ after the end of the methotrexate infusion.
4. When receiving pemetrexed (Alimta) patients are pretreated with _____ and _____ to decrease toxicity of the drug.
5. True or False: A patient is scheduled to receive treatment with pemetrexed (Alimta). You notice the patient's platelet count is 75,000 cells/mm³. Your next step is to call the clinic to determine if the current cycle is to be held based on low platelet count.
6. Which pyrimidine analog is indicated for the emergency treatment of adult and pediatric patients following a fluorouracil (5-FU) or capecitabine (Xeloda) overdose?

7. Leucovorin is administered with fluorouracil (5-FU) to _____ the effects of fluorouracil (5-FU).
8. Administering leucovorin with fluorouracil (5-FU) _____ the cytotoxicity.
9. True or False: Capecitabine (Xeloda) is administered orally.

10. When taking capecitabine (Xeloda) patients should be educated to take the drug _____ of a meal.
11. True or False: When taking capecitabine (Xeloda) patients should be instructed to call the clinic with any changes to general health.
12. List three side effects of capecitabine (Xeloda):
 -
 -
 -
13. True or False: Due to possibility of severe toxic reactions, patients are pre-medicated prior to receiving their first dose of floxuridine (FUDR) outpatient.
14. High dose cytarabine (Ara-C) increases risk for _____, therefore patients will be ordered to have neuro exams completed each shift.
15. When a patient is receiving gemcitabine (Gemzar) a CBC is monitored because _____ is a toxicity of the drug.
16. Gemcitabine (Gemzar) acts as a _____, and patients receiving radiation therapy should not receive gemcitabine (Gemzar) concurrently.
17. Fludarabine (Fludara) causes severe immunosuppression. Patients need monitored for signs and symptoms of _____.

Antitumor Antibiotics

1. Name the two classifications of antitumor antibiotics:
 -
 -
2. Patients receiving anthracyclines are at risk for acute and chronic _____ toxicity.
3. Patients receiving anthracyclines should receive baseline and routine _____ to monitor LVEF.
4. _____ is used for anthracycline extravasation.
5. Doxorubicin (Adriamycin) will turn the patient's urine and sclera _____.
6. Mitoxantrone (Novantrone) will turn the patient's urine _____.
7. If your patient has an extravasation with an anthracycline, the area should be treated with _____ compresses.
8. Large doses of anthracyclines over a lifetime are associated with _____ toxicity.

9. List two signs and symptoms of congestive heart failure (CHF):

-
-

10. What drug may be used to protect the heart with anthracyclines?

11. Not including cardiac, list three toxicities associated with anthracyclines:

-
-
-

12. What is the cumulative lifetime dose of doxorubicin (Adriamycin)?

13. A test dose of _____ should be administered for the first two doses.

14. _____ are required at baseline and with each cycle of bleomycin (Blenoxane) to assess for lung toxicity.

Bispecific T-Cell Engager (BiTE) and Chimeric Antigen Receptor (CAR) T-Cell Therapy

1. True or False? CAR T-cell therapy is made up of two primary components including the chimeric antigen receptor (CAR) and patient specific B-lymphocytes.
2. The mechanism of action of CAR T-cells is to recognize their target antigen which results in _____ cell activation towards the specific target antigen located on malignant cells.
3. _____ is caused by excessive inflammatory cytokine release from high level immune system activation.
4. List two strategies to manage for cytokine release syndrome (CRS):
 -
 -
5. List two major adverse effects of CAR T-cell therapy:
 -
 -
6. _____ therapies utilize the body's own immune system to treat a cancer and rely on _____-cells for targeted lysis of cancer cells.

7. _____ training is required for any provider who administers, dispenses, or prescribes, CAR T-cell therapy and most BiTE therapies due to the risk of _____ and _____ associated with these therapies.
8. Immune effector cell-associated neurotoxicity syndrome (ICANS) is a severe adverse effect of BiTE and CAR T-cell therapies. List three symptoms associated with ICANS:
 -
 -
 -
9. What grading system is used to determine the severity of Immune Effector Cell-Associated Neurotoxicity Syndrome (ICANS)? _____.

Chemotherapy Error Prevention

1. Nurses _____ obtain a verbal order for chemotherapy.
2. List two factors that contribute to errors:
 -
 -
3. True or False: Patients are allowed to crush or split their oral chemotherapy medications to make it easier to swallow.
4. Following a chemotherapy spill the nurse should first make sure the _____ is safe.
5. After obtaining the spill kit, the nurse dons the personal protective equipment (PPE) in the kit. She cleans up the spill using all the supplies in the spill kit. After washing her hands, the final step is to _____.
6. True or False: It is acceptable to use abbreviations for units of measurements with chemotherapy medications.
7. True or False: Trailing zeros are acceptable to use.
8. Two _____ trained nurses should independently validate drug calculations prior to drug preparation.

Extravasation

1. List three signs and symptoms of an extravasation:
 -
 -
 -
2. All or some (circle answer) extravasations will have visible signs and symptoms.
3. True or False: The nurse should take photos of a suspected extravasation even if there are no signs and symptoms.
4. List at least 3 symptoms of a flare reaction:
 -
 -
 -
5. How often should you check blood return when administering a vesicant IV push?
_____.
6. When a patient complains of pain at the injection site while receiving a vesicant chemotherapy, the nurse should take the following steps:

7. A _____ is an agent that can cause blistering or tissue necrosis when extravasated.
8. Vesicants should only be infused through a central line that _____ easily and has positive _____.
9. True or False: Warm compresses are used to treat extravasations with Vinca alkaloids and etoposide (VP-16, Vepesid).
10. Cool compresses are used to promote vasoconstriction to localize the extent of the absorption. List three drugs where cool compresses are indicated following extravasation:
 -
 -
 -
11. True or False: Nurses are permitted to inject antidotes into a port and/or chest wall of a patient following an extravasation of a drug.

12. Match the drug to its corresponding extravasation antidote:

<u>Drug</u>	<u>Class</u>
Doxorubicin (Adriamycin)	Sodium Thiosulfate
Vincristine (Oncovin)	Hyaluronidase
Cisplatin (Platinol)	Dexrazoxane (Totect)

Genetics and Genomics

- _____ is the study of a person's genes including interactions of the genes with each other and with the person's environment.
- True or False? Examples of hereditary cancer predisposition included BRCA-1, BRCA-2 and Lynch Syndrome.
- List two risk factors for hereditary cancer
 -
 -
- A _____ mutation variant can be passed to offspring.

Growth Factors

- _____ is the most common dose limiting toxicity of chemotherapy.
- Myelosuppression results in _____, _____, and _____.
- True or False: Infection is the most common cause of death in a patient with cancer.
- List the severity of neutropenia:
 - < 2,000 _____
 - < 1,500 _____
 - < 1,000 _____
 - < 500 _____
- What growth factor is used to decrease the length or severity of neutropenia?

- True or False: Neupogen should be initiated prior to the start of chemotherapy.
- Granulocyte-macrophage colony-stimulating factors (GM-CSFs) stimulate the proliferation and differentiation of _____ and _____ lines.
- What blood values would you monitor in a patient receiving growth factors?

9. Erythropoiesis-stimulating agents (ESAs) are indicated in patients with non-_____ malignancies.
10. Romiplostim (Nplate) is used when a patient is _____.
11. _____ is a common side effect of filgrastim (Neupogen).

Hormonal Agents

1. True or False: Hormonal therapies can be used on tumors that are hormone receptor negative.
2. True or False: Breast cancer that is Estrogen Receptor (ER) and Progesterone Receptor (PR) positive is a hormone positive breast cancer.
3. List the three types of hormonal therapy classes used in the treatment of breast cancer:
 -
 -
 -
4. Match the drug to its corresponding hormonal therapy class:

Drug

Class

Fulvestrant (Faslodex)

Aromatase Inhibitor (AIs)

Tamoxifen (Nolvadex)

Selective Estrogen Receptor Modulator (SERMs)

Anastrozole (Arimidex)

Selective Estrogen Receptor Downregulator (SERDs)

5. List three side effects of tamoxifen (Nolvadex):
 -
 -
 -
6. True or False: Patients receiving treatment with an aromatase inhibitor (AI) require Vitamin D supplements and/or bisphosphonates, exercise, and screening every 2 years for monitoring of drug-induced osteoporosis.
7. True or False: Hormonal treatment for breast cancer can vary depending on if the woman is pre- or post-menopausal.
8. True or False: First-line therapy for prostate cancer includes luteinizing hormone releasing hormone (LHRH) agonists.

9. Acute side effects of luteinizing hormone releasing hormone (LHRH) analogs include:

-
-
-

10. What is the mechanism of action for antiandrogens?

11. True or False: Other agents used to treat prostate cancer include female hormones.

12. Aromatase Inhibitors (AI) work best in _____ menopausal women.

13. Luteinizing hormone releasing hormone (LHRH) analogs such as leuprolide (Lupron) can cause a temporary increase in _____ that leads to an initial _____ reaction and temporary worsening of prostate cancer symptoms.

Hypersensitivity Reactions

1. True or False: A hypersensitivity reaction is an immune-mediated response.

2. Which class of drugs has a higher risk of reaction with a larger number of treatment cycles? _____

3. List interventions that would be appropriate if you suspect an infusion reaction in your patient:

4. Which of the monoclonal antibodies are known to cause infusion reactions?

5. During which cycle is a patient receiving paclitaxel (Taxol) most likely to react?

Interferons, Interleukin 2, L-asparaginase, and Vaccine Therapy

1. Biological response modifiers such as Interleukin- 2 (IL-2), modify the relationship between the immune system and the _____.

2. Three side effects of Interleukin-2 (IL-2) include:

-
-
-

3. Capillary leak syndrome (CLS) is a potential side effect of Interleukin (IL-2). The earliest manifestations of CLS are _____, _____, _____, and _____ can begin 2 hours after the first dose.
4. For patients receiving Interleukin-2 (IL-2), daily monitoring includes _____.
5. True or False: A patient with severe side effects from Interleukin-2 (IL-2) may have a dose reduction to allow continuation of treatment.
6. List two side effects of L-asparaginase:
 - _____
 - _____
7. Why are reactions less common with peg-asparaginase?

8. What level needs checked before each dose of L-asparaginase?

9. Sipuleucel-T (Provenge) is a _____ treatment, requiring patients to undergo autologous leukapheresis where the CD54+ cells are activated with _____ creating an autologous vaccine.
10. Talimogene laherparepvec (TVEC) is a live herpes simplex virus type 1 (HSV-1) vaccine used in the treatment of _____.

Miscellaneous Drugs

1. True or False: Thalidomide (Thalomid) is safely used in pregnancy.
2. Patients receiving arsenic trioxide (Trisenox) require _____ monitoring before and during therapy for prolonged QT interval.
3. Serum electrolytes including _____, _____, and _____ need monitored in patients receiving arsenic trioxide (Trisenox).
4. True or False: Patients and prescribers must complete a Risk Evaluation and Mitigation Strategy (REMS) monthly survey prior to the dispensing of thalidomide (Thalomid) and/or lenalidomide (Revlimid).
5. Tretinoin (ATRA) and arsenic trioxide (Trioxide) can result in what unique syndrome?

6. How is this syndrome treated?

7. Patients receiving bortezomib (Velcade) require _____ and _____ lab level monitoring.
 8. Why would you be concerned about a patient having emergency surgery while on temsirolimus (Torisel) or everolimus (Afinitor)?
-

9. How would you assess for neurotoxicity of bortezomib (Velcade)?
 - a. Ask the patient to repeat three unrelated words immediately, one minute later, then five minutes later
 - b. Watch the patient pick up a coin
 - c. Watch your patient ambulate

Monoclonal Antibodies

1. Match the suffix with the type of monoclonal antibody the suffix describes:

<u>Suffix</u>	<u>Monoclonal Antibody</u>
_____ximab	A. Chimeric
_____omab	B. Human
_____umab	C. Humanized
_____zumab	D. Murine

2. True or False: Monoclonal antibodies can be associated with hypersensitivity/infusion reactions.
3. Rituximab (Rituxan) is directed against _____ positive B-lymphocytes in patients diagnosed with _____.
4. True or False: Bevacizumab (Avastin) blocks angiogenesis and is therefore associated with quicker wound healing.
5. List the types of monoclonal antibodies in decreasing risk (from most reactable to least reactable) of infusion reaction (humanized, chimeric, fully human, murine):

6. True or False: You have a patient receiving bevacizumab (Avastin), a vascular endothelial growth factor (VEGF) inhibitor. Your patient mentions an elective surgery they scheduled to have completed five days following their infusion. Your next step would be to educate

the patient about delaying any elective procedures for at least 28 days following their last dose of bevacizumab (Avastin) due to associated surgical risks.

7. In addition to bevacizumab (Avastin), what is another vascular endothelial growth factor (VEGF) inhibitor? _____
8. Your patient is receiving an endothelial growth factor receptor (EGFR) inhibitor. You conduct patient education regarding the development of a(n) _____ rash.
9. True or False: You know your patient receiving blinatumomab (Blincyto) has a higher risk of infusion reaction than your patient receiving rituximab (Rituxan) because blinatumomab (Blincyto) is a murine monoclonal antibody.
10. Trastuzumab (Herceptin) is indicated for _____ cancer patients who have tumors that express _____.
11. Checkpoint inhibitors are *immunomodulatory* antibodies that are used to enhance the immune system. Primary targets for checkpoint inhibition include PD-1, PD-L1, and CTLA-4. Drugs that target these sites include:

Hints:

- It is important to understand the type of monoclonal antibody – murine, chimeric, humanized, fully human – when thinking about the infusion risks to the patient.
- It is important to understand the target of the monoclonal antibody to guide the side effect profile and nurse to patient education.
- New monoclonal antibodies are added frequently. Be sure to stay alert for new drugs and where they fit in!

Target	Monoclonal Antibody
CD3	Blinatumomab
CD19	Blinatumomab
CD20	Obinutuzumab, Ofatumumab, Rituximab
CD22	Inotuzumab Ozogamicin
CD30	Brentuximab
CD33	Gemtuzumab
CD38	Daratumumab
CTLA-4	Ipilimumab
EGFR	Cetuximab, Necitumumab, Panitumumab
HER2 Neu	Ado-trastuzumab, Pertuzumab, Trastuzumab
PD-1	Nivolumab, Pembrolizumab
PD-L1	Atezolizumab, Avelumab, Durvalumab
PDGFR - α	Olaratumab
RANKL	Denosumab
SLAMF7	Elotuzumab
VEGF	Bevacizumab, Ramucirumab, Ziv-Aflibercept

12. True or False: Common immune-mediated adverse events such as colitis, stomatitis, and pneumonitis are associated with checkpoint inhibitors.
13. True or False: Checkpoint inhibitors are known for causing severe anemia, neutropenia, thrombocytopenia.

Organ Toxicities

1. What are the three ways that nausea and vomiting can be categorized?

2. List three strategies used to treat mucositis:

-
-
-

3. List three risk factors for cardiac toxicity:

-
-
-

4. _____ is used as a protectant for the heart.

5. _____ is the class of drugs that most commonly causes cardiac toxicity.

6. The cumulative dose of doxorubicin (Adriamycin) is recommended not to exceed _____ - 550mg/m² in adults. Healthcare professionals should verify cumulative doses of this drug when performing chemotherapy checks.
7. True or False: Patients should have a MUGA or ECHO ordered following their first dose of doxorubicin (Adriamycin).
8. What is the most common dose limiting toxicity in cancer treatments?

9. What is the most feared side effect of chemotherapy?

10. What drug is used with high-dose cyclophosphamide (Cytosan) to prevent hemorrhagic cystitis? _____.
11. True or False: Capillary leak syndrome (CLS) is a toxicity in which intravascular fluids leak into the tissue space causing generalized edema and can lead to organ failure.
12. True or False: Cytokine release and hyper-proliferation of lymphocytes is a toxicity arising from the immune system.

Plant Alkaloids

1. _____ is the most neurotoxic of all vinca alkaloid drugs.
2. List three ways neurotoxicity manifests:
 -
 -
 -
3. When a patient is receiving vincristine (Oncovin), the nurse knows the drug is excreted through the _____; therefore, dose reduction based on _____ function may be required.
4. True or False: Plant Alkaloids can be safely administered intrathecally.
5. True or False: Constipation is a frequent side effect in patients receiving vincristine (Oncovin).
6. True or False: Your patient receiving vincristine (Oncovin) mentions feeling of numbness and tingling in his fingers and toes. You know neurotoxicity is a major side effect of vincristine (Oncovin). Your first action is to call the physician to report neurotoxicity signs and symptoms PRIOR to administering the ordered medication.

7. What is the treatment for early and late diarrhea that results from irinotecan (Camptosar) administration?
- Early - _____
 - Late - _____
8. Etoposide (VP-16, Vepesid) can cause _____ with rapid infusion.
9. When administering etoposide (VP-16, Vepesid), patients should be monitored for signs and symptoms of anaphylactic reactions including:
- -
 -
10. True or False: Your patient is starting treatment with etoposide (VP-16, Vepesid) and asks about the need to purchase a wig due to her hair falling out. You educate the patient that a wig will not be necessary since most patients do not lose their hair when receiving etoposide.
11. Circle the drugs where non-PVC tubing is needed for administration:
- a. Etoposide (VP-16, Vepesid)
 - b. Paclitaxel (Taxol)
 - c. Docetaxel (Taxotere)
 - d. Vincristine (Oncovin)
 - e. Nab-paclitaxel (Abraxane)
12. Premedication for cabazitaxel (Jevtana) includes _____, _____, _____, and _____.
13. Your patient is receiving docetaxel (Taxotere) infusion. You prepare to administer pre-medications because of the risk of hypersensitivity reaction and anticipate seeing what drugs ordered? (Select all that apply)
- a. Antiemetics
 - b. Histamine 1 – Blockers
 - c. Histamine 2 – Blockers
 - d. Steroids
14. True or False: Despite pre-medication with atropine (Lomotil), patients may still experience diarrhea when receiving Irinotecan (Camptosar).

Principles of Cancer Drug Therapy

1. Single-agent chemotherapy is called _____ and multiple-agent chemotherapy is called _____ chemotherapy.
2. _____ chemotherapy kills the cells.
3. Why is combination therapy given to patients?

4. By using multiple agents, the chance of _____ to chemotherapy decreases.
5. True or False: Administering drugs as a continuous infusion helps to increase cytotoxicity of cancer chemotherapies that are cell cycle-specific.
6. An agent that works by inhibiting angiogenesis works by _____ the formation of blood vessels
7. Which classifications of agents are cell cycle nonspecific?
 -
 -

Protectants

1. List the five drugs used as protectants:
 -
 -
 -
 -
 -
2. _____ rescues the bone marrow and mucosa from high dose methotrexate (MTX).
3. Methotrexate blocks the pathways of folic acid into the cell. _____ restores the folate stores required for DNA/RNA synthesis.
4. Dexrazoxane (Zinecard) is used to protect the _____ from doxorubicin (Adriamycin) administration.
5. True or False: Dexrazoxane (Zinecard) may decrease the antitumor activity of anthracyclines.
6. Mesna (Mesnex) is a _____ protectant given with ifosfamide (Ifex) and cyclophosphamide (Cytosan).
7. Mesna (Mesnex) is ALWAYS used with _____ treatments.

8. Which chemotherapy protectant acts as a protectant for one agent and an accelerator for a second agent? _____

Tyrosine Kinase Inhibitors (TKIs)

1. True or False: Tyrosine Kinase Inhibitors (TKIs) are all oral agents.
2. Nearly all TKIs are _____ substrates, so you must consider drug-drug interactions with strong inducers and inhibitors of _____.
3. True or False: Oral agents are generally administered at home by the patient. Patients should be thoroughly assessed for adherence and compliance to the prescribed treatment regimen and educated on proper medication handling and dosing.
4. When taking sorafenib (Nexavar) patients are required to have their _____ monitored weekly for the first 6 weeks then periodically afterwards.
5. True or False: You are starting your patient on a TKI. The patient reports they eat a grapefruit every day for breakfast. You should perform teaching related to the interactions between grapefruits and certain medications.
6. True or False: Melanoma patients treated with a BRAF inhibitor are at risk for development of new squamous cell carcinomas (SCC) of the skin. Patients who develop a new SCC of the skin should go to their dermatologist to have the SCC excised.
7. Which of the following is not an appropriate educational topic for a patient receiving a TKI?
 - a. Food and drug interactions
 - b. Oral adherence
 - c. Organ toxicities
 - d. Signs and symptoms of extravasation
8. Which TKIs must be administered with food?

9. Which TKIs must be administered on an empty stomach or 1-2 hours before or after a meal?
