

Pharmacy Oncology Competency Exam

1. Which of the following oncology agents is most likely to be effectively removed by hemodialysis?
 - a. Busulfan
 - b. Cisplatin
 - c. Doxorubicin
 - d. Ifosfamide
 - e. Leucovorin

2. When is it recommended to administer mesna along with cyclophosphamide?
 - a. When a patient is getting a high dose of cyclophosphamide (i.e. stem cell transplant mobilization)
 - b. When the cyclophosphamide was prepared in Dextrose 5%
 - c. When the patient has end-stage renal disease
 - d. Only for the initial dose of cyclophosphamide
 - e. Never

3. Which of the following are considered risk factors for tumor lysis syndrome?
 - a. Elevated serum LDH
 - b. Elevated WBC (leukemia)
 - c. Preexisting renal dysfunction
 - d. Bulky tumor burden (> 10 cm)
 - e. All of the above

4. Calculate the BSA for a patient with the following weight and height.

Weight: 150 lbs
Height: 63 inches

 - a. 3.03
 - b. 2.15
 - c. 1.74
 - d. 0.79
 - e. 1.25

5. Which of the following is NOT true concerning risks for toxicity in patients receiving methotrexate?
 - a. Myelosuppression
 - b. Nephrotoxicity from concurrent medications that alter renal blood flow
 - c. A higher risk of toxicity in patients with fluid collections
 - d. Chemical arachnoiditis can be seen with intrathecal administration
 - e. Acidification of the urine is desirable to prevent crystallization in the renal tubules

Questions 6 - 10 refer to the following case discussion:

DG is a 60-year old male diagnosed with a squamous cell carcinoma of the oropharynx. He presents for his first cycle of chemotherapy using Cisplatin 100 mg/m² IV once over one hour on day one.

6. Which of the following must be present on the chemotherapy order for DG before it can be executed? (4)
 - a. The calculated amount of chemotherapy, either ordered as “per day” OR “per dose”
 - b. The brand name of the medication being ordered
 - c. The complete text of the active research protocol being used
 - d. The patient’s known allergies
 - e. The patient’s date of birth

7. DG’s liver panel reveals a T-bili > 5 and an AST of 175. What dose adjustment of the Cisplatin must be made?
 - a. No adjustment is required
 - b. Only 75% of the calculated dose should be given
 - c. Only 50% of the calculated dose should be given
 - d. The original dose should be administered, but over a two-hour interval
 - e. More information is needed

8. Which prophylactic anti-emetic regimen should be given to DG on day one of his first cycle of chemotherapy?
 - a. Lorazepam 0.5-1 mg PO/IV
 - b. Ondansetron 24 mg PO or 8 mg IV plus Dexamethasone 12 mg PO/IV Aprepitant 125 mg PO
 - c. Prochlorperazine 10-25 mg PO or PR q 6 -12 h or Metoclopramide 0.5 mg/kg PO q 6 h
 - d. Dexamethasone 4-8 mg PO q 8 –12 h plus or minus Prochlorperazine 10-25 mg PO or PR q 6 -12 h
 - e. Ondansetron 24 mg PO or 8 mg IV plus Dronabinol 5 - 15 mg/m² PO q 3-6 h

9. Which of the following toxicities is Cisplatin most likely to cause?
 - a. Myelosuppression
 - b. Hypersensitivity/rash
 - c. Alopecia
 - d. Hepatotoxicity
 - e. Electrolyte wasting (hypokalemia and hypomagnesemia)

10. The nurse administering DG's calls the pharmacy asking about the antidote (isotonic sodium thiosulfate) for Cisplatin if extravasation were to occur. Which of the following statements is FALSE?
- a. If 10% sodium thiosulfate is used, prepare 2 ml for every 100 ml of Cisplatin
 - b. The antidote should be injected intramuscularly
 - c. Vesicant protection is required only if more than 20 mL of 0.5 mg/mL extravasates
 - d. The antidote should be prepared as a 1/6 molar solution
 - e. The antidote should be prepared using sterile water for injection
11. Which of the following agents requires REMS enrollment by the patient, prescriber AND the pharmacy?
- a. Suboxone
 - b. Lotronex
 - c. Aranesp
 - d. Ventavis
 - e. Iressa

Questions 12-16 refer to the following case discussion:

JD is a 62 y.o. Viet Nam Veteran with recently diagnosed esophageal cancer with liver mets. After discussion with the oncologist the decision to treat JD with combined cisplatin+5-FU+XRT was made, and the patient is due to start his chemotherapy today before being admitted to the palliative care unit.

Weight = 184#	Height = 71 inches			
Baseline labs:	Na= 136	K= 4.1	Cl = 98	HCO ₃ ⁻ = 28
	BUN = 12	SCr = 0.8	Mg = 2.1	PO ₄ ⁻ = 3.5

12. What is JD's calculated BSA?
- a. 2.04
 - b. 1.9
 - c. 1.75
 - d. 2.6
 - e. None of the above
13. Which of the following is NOT a potential complication of this treatment?
- a. Acute nausea and vomiting
 - b. Delayed nausea and vomiting
 - c. Mucositis
 - d. Hyperkalemia

- e. Renal failure
14. The antiemetic aprepitant is indicated for which of the following:
- a. Cisplatin at any dose
 - b. Cisplatin at doses $> 75 \text{ mg/m}^2$
 - c. Carboplatin at any dose
 - d. Cisplatin at a dose $>20 \text{ mg/m}^2$
 - e. For either cisplatin or carboplatin at any dose
15. 5-FU infusions are associated with a cardiac toxicity that presents itself as ischemia +/- EKG changes:
- a. True
 - b. False
16. Which of the following is considered a “prodrug” of 5-FU that in certain situations, may be substituted for 5-FU?
- a. Cetuximab
 - b. Erlotinib
 - c. Sunitinib
 - d. Amifostine
 - e. Capecitabine

Questions 17-21 refer to the following case discussion:

BJ is a 71 y.o. male recently diagnosed with metastatic non-small cell lung cancer who reports to oncology to begin cycle #1 of chemotherapy with carboplatin/paclitaxel administered every 21 days in the outpatient setting. Past medical history is significant for COPD, HTN, and DM which is poorly controlled.

Weight = 165#	Height = 68 inches			
Baseline labs:	Na= 140	K= 3.8	Cl = 100	HCO ₃ ⁻ = 23
	BUN = 31	SCr = 1.6	Mg = 2.1	PO ₄ ⁻ = 3.5

17. Based on a target AUC of 6, what should BJ’s carboplatin dose be?
- a. 600 mg
 - b. 400 mg
 - c. 300 mg
 - d. 425 mg
 - e. Unable to determine from information provided
18. What order should the chemotherapy agents be administered, and why?
- a. Doesn’t matter which is given first
 - b. Paclitaxel prior to carboplatin due to increased myelosuppression
 - c. Carboplatin prior to paclitaxel due to increased myelosuppression
 - d. Give both concurrently

- e. Paclitaxel prior to carboplatin due to decreased effectiveness
19. Which of the following is NOT a recommended treatment for acute management of hypercalcemia?
- a. Zoledronic acid 4mg IVPB
 - b. Pamidronate 90 mg IVPB
 - c. Alendronate 10 mg by mouth daily
 - d. Caclitonin 4 I.U. SQ Q12H
 - e. Normal saline @ 250 ml/hr
20. Given his past history, what toxicity related to treatment should BJ be warned about?
- a. Febrile neutropenia
 - b. Tumor lysis syndrome
 - c. Diarrhea
 - d. Peripheral neuropathies
 - e. Hand-foot syndrome
21. 24 hours of continuous infusion paclitaxel is associated with LESS neutropenia than bolus dosing?
- a. True
 - b. False

Questions 22-26 refer to the following case presentation.

RC is a 51 y.o. male with metastatic colon cancer whose disease has shown radiographic progression after 4 cycles of FOLFOX-6 regimen. His physician plans on beginning treatment with irinotecan-cetuximab for second-line treatment.

22. What is the most common site of metastases in colorectal cancer?
- a. Liver
 - b. Lungs
 - c. Brain
 - d. Bone
 - e. Stomach
23. Acute diarrhea is associated with irinotecan. What is the correct management for a patient who experiences this toxicity acutely while still in the treatment area?
- a. Rectal tube
 - b. Call code brown
 - c. IV atropine
 - d. Oral loperamide
 - e. Oral diphenoxylate/atropine
 - f. Oral atropine

24. Which electrolytes should be assessed with cetuximab administration?
- Calcium
 - Potassium
 - Magnesium
 - All of the above
 - None of the above
25. KRAS testing of tumors should be performed in patients receiving cetuximab because:
- Only “wild-type” KRAS status responds to cetuximab
 - Only “mutant-type” KRAS status responds to cetuximab
 - Doesn’t need to be tested, adds no valuable information
 - It is necessary for insurance reimbursement
 - Toxicity is worse in those who are KRAS “mutant-type”
26. Which of the following toxicities is related to cetuximab administration?
- Acneform rash on face and trunk
 - Acute renal failure
 - Delayed nausea
 - Hypermagnesemia
 - Increased blood pressure
27. Which of the following antineoplastics is NOT associated with increases in blood pressure?
- Bevacizumab
 - Sunitinib
 - Sorafenib
 - Capecitabine
 - All are associated with increases in blood pressure
28. Osteonecrosis of the jaw is associated with what therapies?
- Statins
 - Bisphosphonates
 - LHRH agonists
 - EGFR inhibitors
 - Taxanes
29. Leucovorin increases BOTH the efficacy and the toxicities associated with 5-FU?
- True
 - False
30. Which of the following statements regarding lenalidomide (Revlimid) is NOT true?
- Patients and providers are required to be enrolled in the REVASSIST program.

- b. It is associated with an increased risk of VTE when used in patients with multiple myeloma.
 - c. It does NOT carry the same birth defect warnings as thalidomide.
 - d. Neutropenia and thrombocytopenia are dose-limiting toxicities.
 - e. It is FDA approved for use in both multiple myeloma AND myelodysplastic syndromes with the 5q- deletion.
31. What baseline testing should be performed in a patient with newly diagnosed lymphoma who is to begin treatment with CHOP-R regimen?
- a. Pulmonary function testing
 - b. Cardiac function testing
 - c. Thyroid function testing
 - d. HgA1c
 - e. None of these tests are necessary
32. Aranesp and Procrit require which parties to be registered in the Assisting Providers and Cancer Patients with Risk Information for the Safe use of ESAs (ESA APPRISE) oncology program?
- a. Patient
 - b. Prescriber, Pharmacy
 - c. Patient, Prescriber, Pharmacy
 - d. Patient, Prescriber

Questions required for *NEW HIRES*:

33. Febrile neutropenia orders should be processed as STAT and the antimicrobials should be delivered to the nurse within 15 minutes of receiving the order.
- a. True
 - b. False
34. Which of the following is TRUE about chart set-up?
- a. UNC Chemotherapy Order Forms go on the left inside cover of the folder.
 - b. Miscellaneous medications go the right inside cover opposite of the COF.
 - c. Blue folders are for children, red folders are for adults.
 - d. All of the above are true.
35. Which of these is NOT part of the pharmacists' duties in the chemotherapy order form general process?
- a. Enter the COF.
 - b. Weigh patient.
 - c. Double check the dose(s), schedule, infusion time, fluid type, fluid volume, and route of administration.
 - d. Verify that fluids are appropriately diluted against the hazardous drug BUD chart.

36. Chemotherapy received after the defined “Chemotherapy Cut-off Time”:
- a. The patient will have to wait until the next operating day to receive treatment.
 - b. The physician may directly call any administrator calling in the order.
 - c. If the attending physician deems it an “emergent/life-threatening within the next 12-24 hours” need, the responsible Pharmacist will coordinate with oncology Pharmacist (OncE, OnceW/E) & Pharmacy Administrator-On-Call to assess operational resources to provide dispensation of the product.
 - d. All of the above.
37. _____’s routine responsibilities include being primarily responsible for setting up charts for tech according to when chemo doses are due for inpatients.
- a. Onc4
 - b. Onc2
 - c. Onc7
 - d. Onc1