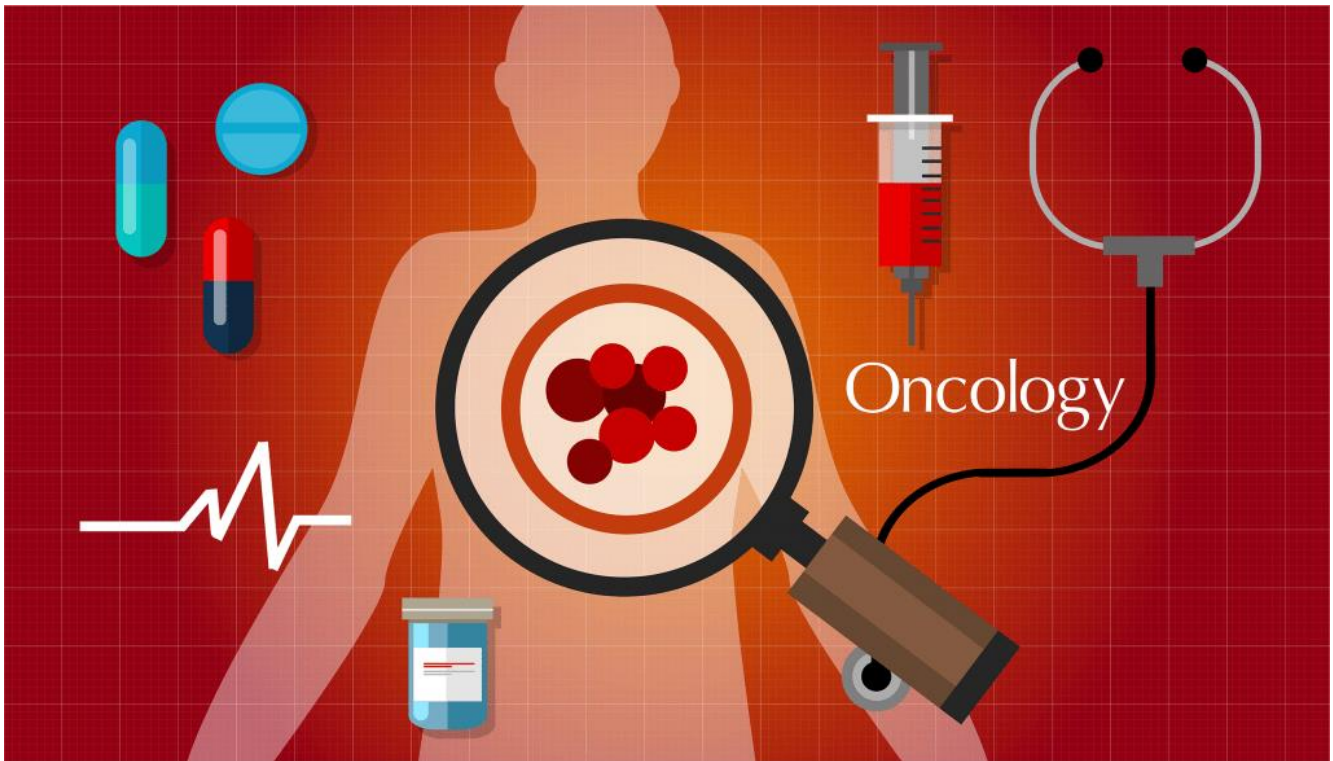


Antineoplastic Therapy and Immunotherapy Course

Study Guide

Answer Sheet



Administration

1. True
2. New
3. False
4. The physician
5. Carboplatin (Paraplatin)
6. Area Under the Curve / Drug Exposure
7. True
8. Three Months
9. True
10. Vesicant; 5
11. True
12. Bedside / Chairside
13. Central Line
14. 3; 7
15. False
16. Closed-system transfer device (CSTD)
17. When administering (i.e., hanging, pushing, etc.) hazardous drugs and discontinuing (i.e., taking down) hazardous drugs
18. Start July 1st at 10am, End July 11th at 10am
19. High; 2 pairs of gloves, gown, and face shield if splash risk

Alkylating Agents

1. Dividing
2. Dividing
3. Nausea, Vomiting, Myelosuppression, Infertility, Hypersensitivity Reactions, Alopecia, Secondary Malignancies, Tumor Lysis Syndrome, Pregnancy Category D
4. Administer mesna (Mesnex) as ordered, increase oral fluids, administer IV fluids, educate patient about signs and symptoms of hemorrhagic cystitis, check urine output, void frequently
5. Methylene Blue
6. Nitrosureas
7. Sterile Alcohol
8. True
9. Carmustine (BCNU)
10. Busulfan (Busulfex)
11. True
12. Ifosfamide (Ifex)
13. Busulfan (Busulfex)

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14. Cisplatin (Platinol); Carboplatin (Paraplatin); Oxaliplatin (Eloxatin)
15. Highly
16. Nephrotoxicity
17. False
18. True
19. Increases
20. Neurotoxicity
21. Oxaliplatin (Eloxatin); Acute Neurotoxicity
22. True
23. Electrolyte Wasting, Nausea/Vomiting, Nephrotoxicity, Ocular Toxicity, Ototoxicity, Peripheral Neuropathy, Transient elevations of Liver Function Tests (LFT)

Antimetabolites

1. Myelosuppression, Mucositis, GI Symptoms, Liver Dysfunction
2. True
3. 24 Hours
4. Vitamin B12; Folic Acid
5. True
6. Uridine Triacetate (Vistogard)
7. False
8. Enhance
9. Increases
10. True
11. Within 30 Minutes
12. True
13. Myelosuppression, Hand-Foot Syndrome, Cardiac (coronary spasm), Mucositis, Diarrhea, Ocular Toxicity
14. False
15. Cerebellar Toxicity
16. Myelosuppression
17. Radiosensitizer
18. Infection

Antitumor Antibiotics

1. Anthracyclines, Miscellaneous Agents
2. Cardiac
3. MUGA/ECHO
4. Dexrazoxane (Totect)
5. Red
6. Blue

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7. Cool
8. Cardiac
9. SOB, Decrease in Activity, Peripheral Edema, Enlarged Heart
10. Dexrazoxane (Zinecard)
11. Myelosuppression, Nausea, Vomiting, Alopecia, Mucositis, Infertility
12. 400-550 mg/m²
13. Bleomycin (Blenoxane)
14. Pulmonary Function Tests (PFTs)

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

1. False
2. T-Cell
3. Cytokine release syndrome (CRS)
4. Administration of tocilizumab (Actemra), corticosteroids, fluid resuscitation, vasopressors
5. Cytokine release syndrome and neurotoxicity
6. Bispecific T-Cell Engager (BiTE) therapies; T-cells
7. Risk Evaluation Mitigation Strategy (REMS); cytokine release syndrome (CRS); neurotoxicity
8. Aphasia, altered mental status, weakness, reduced cognition, motor dysfunction, seizures, and/or cerebral edema
9. Immune effector cell-associated encephalopathy (ICE) score

Chemotherapy Error Prevention

1. Cannot
2. Fatigue, Lack of Knowledge, Stress, Understaffing, Poor Communication, Human Error, Environmental Factors
3. False
4. Patient
5. Document the Spill
6. False
7. False
8. Chemotherapy

Extravasation

1. Absence of Blood Return, Swelling, Erythema, Inflammation, Leaking at Catheter Entrance Site, Pain, Burning, Stinging
2. Some
3. True
4. Redness, painless, urticaria, symptoms are transient and are typically confined to the path of the vein

Antineoplastic Therapy and Immunotherapy Course Study Guide Answer Sheet

5. Every 2-5 ml of drug administration, before starting the IV push, and at drug completion
6. Stop the administration, check for blood return, attempt to aspirate the drug from the catheter, do not remove the catheter
7. Vesicant
8. Flushes; Blood Return
9. True
10. Cisplatin (Platinol), doxorubicin (Adriamycin), epirubicin (Ellence), dactinomycin (Cosmegen), daunorubicin (Cerubidine), idarubicin (Idamycin), doxorubicin liposomal (Doxil), mitoxantrone (Novantrone)
11. True
12. Doxorubicin (Adriamycin) & Dexrazoxane (Totect); Vincristine (Oncovin) & Hyaluronidase; Cisplatin (Platinol) & Sodium Thiosulfate

Genetics and Genomics

1. Genomics
2. True
3. Ethnicity, multiple family members with cancer, rare cancers, several generations of cancer
4. Germline

Growth Factors

1. Myelosuppression
2. Neutropenia; Anemia; Thrombocytopenia
3. True
4. Slight; Minimal; Moderate; Severe
5. Granulocyte-Colony Stimulating Factors (GCSFs)
6. False
7. Neutrophil; Macrophage
8. CBC
9. Myeloid
10. Thrombocytopenic
11. Bone pain

Hormonal Agents

1. False
2. True
3. Selective Estrogen Receptor Modulators (SERMs), Selective Estrogen Receptor Downregulator (SERDs); Aromatase Inhibitor (AIs)
4. Fulvestrant (Faslodex) – Selective Estrogen Receptor Downregulator (SERD); tamoxifen (Nolvadex) – Selective Estrogen Receptor Modulator (SERM); anastrozole (Arimidex) – Aromatase Inhibitor (AI)

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5. Thromboembolic Events, Uterine Malignancies, Ocular Effects, Menopausal Symptoms, Weight Gain or Loss, Mood Swings, and Weakness
6. True
7. True
8. True
9. Gynecomastia, Hot Flashes, Fatigue, Depression, Erectile Dysfunction, Edema, Injection Site Reactions
10. Antiandrogens block the effects of androgen in the prostate.
11. True
12. Post
13. Testosterone; tumor flare

Hypersensitivity Reactions

1. True
2. Platinums
3. Immediately stop the infusion, call for help, obtain vital signs, ensure the patient has a patent IV line and infuse normal saline or other compatible IV solutions, assess the airway, give O2 as needed, call the MD/APP, do not leave the patient
4. Rituximab (Rituxan), cetuximab (Erbix), alemtuzumab (Campath), gemtuzumab (Mylotarg), ofatumumab (Kesimpta), trastuzumab (Herceptin)
5. Cycle 1 or 2

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

1. Tumor
2. Cytokine Induced Capillary Leak Syndrome, Increased Liver Function, Pruritis, Flu-Like Symptoms, Neurotoxicity, Infection, Oliguria, Increased Creatinine, Nausea, Vomiting, and Diarrhea
3. Hypotension; Tachycardia; Fever; Chills
4. CBC with Diff, CMP, Weight, Strict I/O, Hold antihypertensives, Hold steroids
5. False
6. Pancreatitis, Hepatitis, Anaphylaxis, DIC, Fever
7. Attachment of a PEG to a drug or therapeutic protein can “mask” the agent from the hosts' immune system, decreasing immunogenicity and subsequent reactions.
8. Fibrinogen
9. Vaccine; PAP-GM-CSF
10. Melanoma

Miscellaneous Drugs

1. False
2. EKG
3. Calcium; Potassium; Magnesium
4. True
5. Acute promyelocytic leukemia (APL) Differentiation Syndrome
6. Steroids
7. CBC; Hepatic Function
8. Impaired Wound Healing
9. B

Monoclonal Antibodies

1. A; D; B; C
2. True
3. CD20; non-Hodgkin's lymphoma
4. False
5. Murine; Chimeric; Humanized; Fully Human
6. True
7. Ramucirumab (Cyramza), ziv-aflibercept (Zaltrap)
8. Acneiform
9. True
10. Breast; HER 2
11. Nivolumab (Opdivo), pembrolizumab (Keytruda), atezolizumab (Tecentriq), avelumab (Bavencio), durvalumab (Imfinzi), and ipilimumab (Yervoy)
12. True
13. False

Organ Toxicities

1. Acute, Delayed, Anticipatory
2. Pain Management, Mouth Care Before and After Meals, Rinsing Mouth with Normal Saline, Water-Based Moisturizers to Protect Lips, Patient Education Including Proper Oral Hygiene and Avoiding Tobacco and Alcohol
3. Age, Pre-Existing Cardiac Conditions, Cumulative Drug Dose, Radiation to Chest, Receiving Multiple Cardio-Toxic Drugs, Hematopoietic Stem Cell Transplantation (HSCT), Host Susceptibility, Hepatic or Renal Dysfunction, Smoking, Diabetes
4. Dexrazoxane (Zinecard)
5. Anthracyclines
6. 400
7. False

Antineoplastic Therapy and Immunotherapy Course Study Guide Answer Sheet

8. Myelosuppression
9. Nausea
10. Mesna (Mesnex)
11. True
12. True

Plant Alkaloids

1. Vincristine (Oncovin)
2. Stocking/Glove, Neuropathic Pain, Autonomic Dysfunction, Constipation
3. Liver; Hepatic
4. False
5. True
6. True
7. Early - atropine (Lomotil); Late - loperamide (Imodium)
8. Hypotension
9. Wheezing, Bronchospasm, Hypotension
10. False
11. B and C
12. Antihistamine; Steroid; H2 Blocker; Anti-Emetic
13. B, C, and D
14. True

Principles of Cancer Drug Therapy

1. Monotherapy; Combination Therapy
2. Cytotoxic
3. Tumor cells can become resistant to single-agent dosing and combination therapy has more efficacious dosing and differing mechanisms of action and toxicity patterns.
4. Resistance
5. True
6. Decreasing
7. Alkylating agents, anthracyclines

Protectants

1. Leucovorin, dexrazoxane (Zinecard), amifostine (Ethyol), palifermin (Kepivance), mesna (Mesnex)
2. Leucovorin
3. Leucovorin
4. Heart
5. True
6. Bladder

7. Ifosfamide (Ifex)
8. Leucovorin

Tyrosine Kinase Inhibitors

1. True
2. CYP3A4; CYP3A4
3. True
4. Blood Pressure
5. True
6. True
7. D
8. Imatinib (Gleevec), regorafenib (Stivarga), alectinib (Alecensa), midostaurin (Rydapt)
9. Erlotinib (Tarceva), sorafenib (Nexavar), lapatinib (Tykerb), nilotinib (Tasinga), pazopanib (Votrient), cabozantinib (Cometriq), dabrafenib (Tafinlar), trametinib (Mekinist), afatinib (Gilotrif), ceritinib (Zykadia)