CME Questions

Webinar 1 – Cancer Immunology

Learning Objectives:

A. Describe the role of the immune system in cancer prevention
B. Understand how immunoediting leads to tumor escape mechanisms.
C. Describe the three immune phenotypes that lead to cancer growth.

Questions:

1. At each step of the cancer cycle, mutations occur that either increase cell death or limit cell proliferation
    a. True
    b. False
2. Immune deficient mice were shown to be more prone to the development of neoplasms.
    a. True
    b. False
3. The immune system has all of the following roles in preventing cancer except for
    a. Protect the host against viral infection
    b. Prevents establishment of an inflammatory environment
    c. Destruction of host CD8+ T cells
    d. Eliminates tumor cells
4. In which phase does the adaptive and innate immune system work together to destroy tumor cells long before they become clinically apparent?
    a. Elimination
    b. Equilibrium
    c. Escape
    d. Entrance
5. How can tumor cells inflamed tumors affect MHC class I expression?
    a. Increase
    b. No change
    c. Reduce
    d. Elimination

Webinar 2 – Immune Checkpoint Inhibition

Learning Objectives:

A. Describe immune checkpoints
B. Understand how checkpoints are leveraged by cancer
C. Describe therapies that target immune checkpoints

Questions:

1. The main inherent purpose of immune checkpoint is to rapidly multiply and propagate the immune response systemically
    a. True

   b. **False**
2. Each of the following is a well-studied inhibitory receptor in antibody therapy except
   a. CTLA-4
   b. PD-1
   c. TIM-3
   d. CD4
3. Immune checkpoint inhibition molecules are thought to primarily effect what kind of cells function?
   a. B Cells
   b. NK Cells
   c. Macrophages
   d. T Cells
4. What kind of compound is an immune checkpoint inhibitor?
   a. Nanoparticle
   b. Monoclonal antibody
   c. Steroid
   d. Alkylating agent
5. Generally speaking, what kind of host environment is most likely to allow for the success of a checkpoint inhibitor?
   a. Strong endogenous antitumor immune response
   b. No endogenous antitumor immune response
   c. Immunocompromised patient
   d. Weak endogenous antitumor immune response

Webinar 3 – T Cell Mediated Immunity

Learning Objectives:

A. Describe the T cell subtypes
B. Understand how T cell responses are initiated
C. Describe how cytotoxic T cells function

Questions:

1. How do lymphocytes traffic to lymph nodes for activation?
   a. Adhesion and chemokines
   b. Brownian motion
   c. Cooperatively with red blood cell circulation
   d. They are unable to specifically reach lymph nodes
2. What is the primary function of a dendritic cell?
   a. Direct destruction of tumor cells
   b. Oxygenation of peripheral tissues
   c. Antigen presentation
   d. Proliferation of bacterial infections
3. Which cytokine drives the majority of T cell proliferation and differentiation
   a. IL-1

b. IL-6
c. TNF-a
d. IL-2

4. CD8 T cells primarily cause cell death through targeted and specific apoptosis based on MHCI antigen presentation
    a. True
    b. False
5. Which of the following types of T cell based immunotherapy utilizes fresh tumor digests to culture T cells for expansion and administration into patients?
    a. Chimeric antigen receptor therapy
    b. Genetically altered lymphocyte therapy
    c. Tumor infiltrating lymphocyte therapy
    d. Total tumor RNA lymphocyte therapy

Webinar 4 – Surgical Considerations for Immunotherapy in the Treatment of Malignant Glioma

Learning Objectives:

A. Describe the goals of surgery for gliomas
B. Understand the different surgical options in the treatment of gliomas
C. Describe how surgery may be combined with immunotherapy

Questions:

1. Gross total resection confers a survival benefit in malignant glioma over subtotal resection
    a. True
    b. False
2. Which type of fluorescent compound results in the tumor specific metabolism into PPIX
    a. Fluorescein
    b. GFP
    c. YFP
    d. 5-ALA
3. What type of treatment modality may be best for patients with deep seated focal malignant lesions that are poor surgical candidates?
    a. Awake craniotomy
    b. Laser interstitial thermal therapy
    c. Standard craniotomy
    d. Whole brain radiation
4. What was shown to be the effect of neoadjuvant anti-PD1 therapy in patients with recurrent GBM who underwent surgical therapy
    a. Improved survival outcomes
    b. Decreased length of stay
    c. No effect on mortality

    d. Increased rate of death
5. What is the effect of laser interstitial thermal therapy on the blood brain barrier?
    a. Complete irreversible destruction of the blood brain barrier
    b. No effect
    c. Temporary induction of focal permeability
    d. Reduction of blood brain barrier permeability

Webinar 5 – Immunotherapy for GBM

Learning Objectives:

A. Describe immunotherapy strategies for GBM
B. Understand which of immunotherapies have been tested in patients with GBM
C. Describe how immunomodulation can be leveraged in the treatment of GBM

Questions:

1. Younger age is associated with better survival in patients with glioblastoma (GBM)
    a. True
    b. False
2. 1p/q9q co deletion is associated with a diagnosis of
    a. Astrocytoma
    b. Ependymoma
    c. Medulloblastoma
    d. Oligodendroglioma
3. Immune checkpoint inhibitors are usually antibodies
    a. True
    b. False
4. Chimeric antigen receptor (CAR) T cells have not been tested in patients with GBM.
    a. True
    b. False
5. Vaccine platforms that have been tested in patients with GBM include
    a. Neural stem cells
    b. Fibroblasts
    c. Dendritic cells
    d. Red blood cells