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Clinical Module 6 – Infectious Diseases

Module 6 Questions:

I. Definitions

What is HAART?

Stands for “Highly Active Antiretroviral Therapy” which means using HIV medications to treat HIV infection. Individuals with HIV take more than one HIV medication every day.

What is CD4?

CD_4 are a type of white blood cells that are important in the immune system. For someone with HIV, CD_4 counts are checked because the lower the count, the lower the amount of CD_4 cells that can fight infections.

What is VL?

Stands for “viral load”. It is a test that measure the amount of HIV particles per mL of blood.

II. Anatomy/Physiology

A. Briefly discuss the functions of the immune system.

The immune system is to protect the body from “invaders” like certain bacteria, viruses, and fungi from entering the body. The immune system also destroys any microorganisms that it detects in the human body. The immune system consists of a type of white blood cells called lymphocytes. These lymphocytes fight any infection that occur in the body.

B. What are some micronutrients that are important in immunity?

The following micronutrients play an important role in immunity: Vitamin A, Vitamin B_{12}, Vitamin B_6, Vitamin C, Vitamin E, Magnesium, and Zinc.

C. What are some of the metabolic abnormalities that can occur in patients treated with HAART?

The metabolic complications of HAART include lipodystrophy (abnormal distribution of fat in the body), dyslipidemia (high level of lipids), and metabolic syndrome.

D. What are some of the physical changes that can occur in patients treated with HAART?

Some of the physical changes that occur in HAART patients are lipoatrophy and lipohypertrophy. Lipoatrophy is the subcutaneous fat wasting of limbs, face, and buttocks. Lipohypertrophy is the accumulation of visceral, truncal (abdomen), dorso-cervical (upper back), and breast fat.

III. Pathophysiology

A. What are some opportunistic infections commonly seen with HIV infection?

Pneumonia, Salmonella, Candidiasis (thrush), Toxoplasmosis, and Tuberculosis.

B. How do these impact nutritional status?

Salmonella can cause diarrhea and fever. Candidiasis can cause decrease in appetite, changes in taste, pain in the mouth, pain or difficulty swallowing, and sensitivity to spicy foods. Individuals with toxoplasmosis need to ensure to never eat undercooked meats which means they can no longer eat certain types of foods. Tuberculosis causes weight loss, fatigue, loss of appetite, and coughing. Having any of these conditions will cause an individual to eat differently or maybe to eat very little which can definitely impact their nutritional status since they may lose a lot of weight.

IV. Drug Therapy

A. Discuss the use of the following classifications of drugs. Include indication for use with AIDS patients, and pertinent drug/nutrient interactions.

Drug Classification	Indication for use with AIDS patients	Drug/Nutrient Interactions
Appetite Stimulants	Improve appetite and intake	LDL level may increase. Appetite stimulants also body weight and fat mass.
Protease Inhibitors	Disable protease which is a protein HIV needs to make more copies of itself.	These medications may cause GI stress. Some protease inhibitors may need to be taken with food.
Nucleoside Reverse Transcriptase Inhibitors (NRTI)	Stalls virus reproduction	Need to have adequate folate and Vitamin B_{12} intake to prevent toxicity. NRTI's may cause lactic acidosis, hypersensitivity reactions, neuropathies, pancreatitis, anemia, and neutropenia.
Non-nucleoside Reverse Transcriptase Inhibitors (NNRTI)	Binds and disables NRTI so the HIV virus cannot reproduce	Can cause rashes and hepatotoxicity. Monitor for abnormal liver enzymes. Hyperlipidemia can occur.
Fusion Inhibitors	Prevent HIV entry to cells	May cause GI distress or pneumonia. Nausea, diarrhea, fatigue, diarrhea, and pancreatitis may occur.
Anabolic Agents	Improve appetite and intake	LDL level may increase. Appetite stimulants also body weight and fat mass.

V. Nutritional Management

Discuss the importance of educating immunosuppressed patients on safe food handling techniques.

Safe food handling is extremely important for individuals with weakened immune systems. A weak immune system already means that the body cannot get rid of the bacteria if it becomes infected, so handling food safely ensures that bacteria cannot easily enter the body. If the body with a weakened immune system becomes infected, fighting the infection would be extremely difficult and may lead to severe complications or death.