

Akindayomi Temitope Oyindamola

17/mhs02/015

Med Surgical

Assignment

1) Explain the role of immune system

Answer

The role of the immune system is to protect our body from any foreign matters that might cause any damage or homeostatis imbalance. The success of the immune system depends on its ability to discriminate between foreign(non self) and host(self) cells. When an organism is threatened by microorganisms, viruses, or cancer cells, the immune system acts to provide protection. Normally the immune system does not mount a response against self. This lack of an immune response is called tolerance.

When a foreign matter enters the human body, our defense system recognizes this as foreign through the immune system. How the human body recognize foreign against itself employs a complex "I.D." system. Each cell in the human body carries on it's surface a mixture of proteins and sugars that serve to identify the cell to the immune system. Foreign objects lack the identifiers that all of the body's cells have, but each one has

unique features or antigens where the immune system attaches identifiers called antibodies. This is the basis for the specific defense mechanisms. Once you have built the antibodies for a specific antigen, the immune system will respond faster than if there had been no previous exposure to the antigen (i.e. you are immune to the pathogen, but only that specific pathogen, because your immune system responds faster.) The non-specific part of the immune system is mostly composed of phagocytes (eating-cells) which engulf and digest foreign substances like bacteria and viruses, which do not bear the body's specific identifiers.

2. Describe the two types of immunity

The two types of immunity are

Innate immunity

Adaptive immunity

Innate immunity: refers to nonspecific defense mechanisms that come into play immediately or within hours of an antigen's appearance in the body. These mechanisms include physical barriers such as skin, chemicals in the blood, and immune system cells that attack foreign cells in the body. The innate immune

response is activated by chemical properties of antigen. It is divided into two types: (a) Non-Specific innate immunity, a degree of resistance to all infections in general. (b) Specific innate immunity, a resistance to a particular kind of microorganism only. As a result, some races, particular individuals or breeds in agriculture do not suffer from certain infectious diseases.

Adaptive immunity: Adaptive immunity refers to antigen-specific immune response. The adaptive immune response is more complex than the innate. The antigen first must be processed and recognized. Once an antigen has been recognized, the adaptive immune system creates an army of immune cells specifically designed to attack that antigen.

Adaptive immunity also includes a "memory" that makes future responses against a specific antigen more efficient. Adaptive immunity can also be divided by the type of immune mediators involved; humoral immunity is the aspect of immunity that is mediated by secreted antibodies, whereas cell mediated immunity involves T-lymphocytes alone. Humoral immunity is called active when the organism generates its antibodies, and passive when antibodies are transferred between individuals or species. Similarly, cell-mediated immunity is active when the organisms' T-cells are stimulated, and passive when T cells come from another organism. Adaptive immunity is specific, diverse, can recognise and respond to foreign molecules (non-self) and can avoid response to those molecules that are present within the body (self) of the person; and can retain memory of the first encounter.

Explain the different types of antibodies and their roles

Functions of Antibody

1. IgG provides long term protection because it persists for

months and years after the presence of the antigen that has triggered their production. IgG protect against bacteria, viruses, neutralise bacterial toxins, trigger complement protein systems and bind antigens to enhance the effectiveness of phagocytosis.

2. Main function of IgA is to bind antigens on microbes before they invade tissues. It aggregates the antigens and keeps them in the secretions so when the secretion is expelled, so is the antigen. IgA are also first defense for mucosal surfaces such as the intestines, nose, and lungs.

3. IgM is involved in the ABO blood group antigens on the surface of RBCs. IgM enhance ingestions of cells by phagocytosis.

4. IgE bind to mast cells and basophils which participate in the immune response. Some scientists think that IgE's purpose is to stop parasites.

5. IgD is present on the surface of B cells and plays a role in the induction of antibody production.