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1. **VEL**

**ASSIGNMENT ON BASIC IMMUNOLOGY**

THE ROLES OF IMMUNE SYSTEM

The roles of immune system include;

* NATURAL IMMUNITY: This is non specific, provides a broad spectrum of defense against and resistance to infection. It is considered the first line of host defense following antigen exposure. Natural immunity co-ordinates the initial response to pathogens through the production of cytokines and other effector molecules which activates cells for the control of pathogen by elimination.
* WHITE BLOOD CELLS ACTION: Cellular response is the key to effective initiation of the immune response. Leukocytes or white blood cells participate in both the natural and acquired immune responses. Granulocytes fight invasions by foreign bodies by releasing cell mediators such as histamine, bradykinins and prostaglandins and engulfing the foreign bodies. Neutrophils, a part of granulocytes are the first cells to arrive at the site where inflammation occurs.
* INFLAMMATORY RESPONSE: this is elicited in response to tissue injury or invading organisms. Chemical mediators assist by minimizing blood loss, walling off the invading organisms, activating phagocytes and promoting the formation of fibrous scar tissue and regeneration of injured tissue.
* IMMUNE REGULATION: This involves balance and counterbalance. A successful immune response eliminates the responsible antigen. If an immune response fails to develop and clear an antigen sufficiently, the host is considered to be immunocompromised or immunodeficient.
* ACQUIRED IMMUNITY: This is also known as adaptive immunity. It usually develops as a result of prior exposure to an antigen through immunization or by contracting a disease, both of which generate a protective immune response.

THE TWO TYPES OF IMMUNITY

 The two types of immunity are:

1. INNATE / NATURAL IMMUNITY: This is inherited from parents and gives protection throughout life. As its name suggests it lacks specific responses to specific invaders. It is well done by providing different barriers to the entry of the foreign agents into our body.
2. ACQUIRED IMMUNITY: This is the immunity that an individual acquires after birth. It is specific and mediated by antibodies or lymphocytes or both which makes the antigen harmless. It also prevents further attack of a disease in the future.

TYPES OF ANTIBODIES

 Antibodies are specialized proteins made by the immune system and there are five different types of antibodies they include:

1. IgG: This is the antibody isotope that is built by immunization. It activates an immune cascade that can eliminate some forms of infection. It can also neutralize certain toxins.
2. IgA: It is the antibody isotope that is found in usually mucosal areas such as mouth and vagina. It is also found in breast milk, tears and saliva. It keeps pathogens from sticking to epithelial cells.
3. IgM: This is one of the first type of antibody that is produced after a pathogen has entered the body. It is made up of 5 subunits together and has very high avidity. It is very important in the early stages of infection.
4. IgE: It is the antibody that is responsible for the allergic response. It is found in the lungs, skin and mucous membranes. When IgE binds to an allergen, it starts the histamine reaction which causes the symptoms of an allergy attack.
5. IgD: This is important in the early stages of the immune response. It is bound to B cells and does not circulate. Instead, it signals those cells to become active.