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ASSIGNMENT

The role of the immune system

The two types of immunity

The five types of antibodies and their function

1 THE ROLE OF THE IMMUNE SYSTEM

The immune system is a host defense system comprising many biological structures and processing within an organism that protects against disease. To function properly, an immune system must detect a wide variety of agents, also known as pathogens, from viruses to parasites worms, and distinguish them from the organism own healthy tissue.

There are three lines of defense:  The first step is to keep invaders (through skin, mucus membrane, etc.),  The second line of defense consist of nonspecific ways to defend against pathogens that have broken through the first line of defense (such as with inflammatory response and fever)  The third line of defense is mounted against specific pathogens that are causing disease (B cells produce antibodies against bacteria or viruses in the extracellular fluid, while T cells kill cells that have become infected.

The main parts of the immune system are: white blood cells, antibodies, the component system, the lymphatic system, the spleen, the thymus, and the bone marrow. They are part of the immune system that actively fight against infection

2 THE TWO TYPES OF IMMUNITY

Immunity maybe acquired naturally or artificially and both forms may be active or passive.

ACTIVE IMMUNITY

It means that the individual has responded to an antigen and produced his own antibodies, lymphocytes are activated and the memory cells formed provide long-lasting resistance.

 IN PASSIVE IMMUNITY

The individuals is given antibodies produced by someone else. The antibodies breakdown with time, so passive immunity is relatively brief.

1) NATURALLY ACQUIRED IMMUNITY

Active naturally acquired immunity The body may be stimulated to produce its own antibodies by;  Having the disease: During the course of the illness cells develop into plasma that produce antibodies in sufficient quantities to overcome the infection =.After recovery, the memory B cells produced confer immunity to future infection by the same antigen  Having a subclinical infection-Sometimes the infection is not sufficiently severe to cause clinical disease but stimulates sufficient memory B-cells to establish immunity, e.g. hepatitis A. In other cases subclinical infection may be too mild to stimulate an adequate response for immunity to develop.

Passive naturally acquired immunity

This type of immunity is acquired before birth by the passage of maternal antibodies across the placenta to the fetus, and to the baby in breast milk. The variety of different antibodies provided depends on the mother active immunity. The baby’s lymphocytes are not stimulate and this form of immunity is short lived.

2) ARTIFICIALLY ACQUIRED IMMUNITY

Active artificially acquired immunity

This type of immunity develop in response to the administration of dead or live artificially weakened pathogens (vaccines)or deactivated toxins(toxoids).The vaccines and toxoids retain the antigenic properties that stimulates the development of immunity but they cannot cause the disease. Many infectious disease can be prevented by artificial immunization. Artificial immunization against some infectious disorders gives long-life immunity, e.g. diphtheria whooping cough or mumps. In other infections the immunity myoblasts for a number of years or for only a few weeks before revaccination is necessary.

Passive artificially acquired immunity

In this type of immunity readymade antibodies in humans or animals serum, are injected into the recipient. The source of the antibodies may be individual who has recovered from the infection, or animals, commonly horses, that have been artificially actively immunized.

3 THE FIVE TYPES OF ANTIBODIES AND THEIR FUNCTION

IgA (15% of total immunoglobin)

o Appears in body fluids (blood, saliva, tears and breast milk as well as pulmonary, gastrointestinal, prostatic and virginal secretions o Protects against respiratory, gastrointestinal and genitourinary infections o Prevents absorption of antigens from blood o Passes to neonates in breast milk for protection

IgD (0.2% of total immunoglobin)

o Appears in small amount in serum o Possibly influence D-lymphocyte differentiation, but a role is unclear.

IgE (0.004% of total immunoglobulin)

o Appears in serum o Takes part in allergic and some hypersensitivity reactions o Combacts parasitic infections

IgG (75% of total immunoglobin)

o Appears in serum and tissue (interstitial fluid) o Assumes a major role in blood borne and tissue infection o Activates the complement system o Enhances phagocytosis o Crosses the placenta

IgM (10% of total immunoglobin)

o Appears mostly in intravascular serum o Appears as the first immunoglobin produced in responses to bacterial and viral infection