Role of the immune system

Immune system of materials consist of number of specialized organs distributed around the body and different cell type which circulate in the blood. These circulation cells have evolved specific mechanisms by which they can discriminate self nonself and eliminate everything which is anything which is nonself by mountain immune response against them. In the human body organs such as spleen and lymphnodes etc which are present in different party or the busy perform thus surveillance is done by agglutination which are different from antibodies and phagoctyic cells. There are certain molecules such as lyzosome which are involved in killed invading organisms by biochemical means and are produced as a consequence of immune system has two functional divisions namely natural/ innate and acquired/ adoptive immune system. Both of them play important role in protection of an animal from invading organisms.

Immunity then is the homeostatic characteristic of vertebrate animals that ensued their survival;

TWO TYPES OF IMMUNITY

NATURAL IMMUNITY: Is defined as the natural resistance against infection that an individual inherits genetically and which he is born with which he is born, certain antibodies begin naturally present within his body. For instance an individual may have a high natural resistance throughout his life with cold and flu. Whereas another person becomes cold every winter. However a person's resistance to infectious disease can be greatly enhanced or reduced by such factors as diet, environment the virulence of the invading microorganism.

Natural immune function as the first line of defense against invasion of an infectious agent. The exterior of the body ,namely the skin is an effective ive barrier to the entry of most organisms and is an important part to natural immune system. If the skin is healthy and intact no infectious organisms can penetrate through it this is achieved by a variety of biochemical and physical barriers. On the skin as well as in various organs a number of commercial organisms survive as calories and they also compete effectively with potential pathogens preventing them to enter the body. Lysozyme,an enzyme which is present in most secretion of the body such as tears and salaiva as well as other proteins present in the blood such as complement component or acute phase protein act as chemical barriers to infection and are part of the innate immune system but in the event when the innate immune system is breached by invading organisms, the adoptive immune system gets activated and a specific immune response is mounted. The response under normal circumstances can control the growth of the invading organism and host is protected.

ACQUIRED IMMUNITY : In acquired immunity the individual is not born with an inherited resistance to a particular organism;instead he develops immunity against and organism either by actively producing his own antibodies(active immunity) or by passively receiving antibodies that have been manufactured within the bodies of other people or animals (passive immunity).

Acquired immunity may either develop naturally within an individual's body or artificially as a result of vaccinator inoculation. When acquired immunity develops naturally, it results from a disease process within the body. This form of immunity is produced during the initial attack by the causative bacteria or virus and it probably on reason that the sick individual recovers.

To acquire immunity naturally,the patient depends then upon an innate ability to develop immune bodies against particular virus or bacteria when the individuals body is invaded by a specific organism for the first time he may suffer a serious reaction. However antibodies are built up against the initial version of his organism A 'memory' of the antigens produced by the organism is passed on to successive generations of body cells. As a result when the body is attacked a second

time by the same antigen, the reaction will be very slight or possible no reaction will take place at all. Thus, the individual has acquired an immunity to any organism against which he had no natural immunity. This type of immunity once developed persists for years even for the life time of the individual. For example both small pox and measles confer long life immunity upon their victims. However,as ever cold suffer knows colds, and many types of flu confer no immunity at all.

In some unfortunate cases individual can develop and acquired immunity against a particular organism even tho they still habor the organism within their bodies this organism then, while harmless to it carrier, can be transmitted to the other India and can infect them. The classic example of this situation is the typhoid carrier. In the case of a typhoid carrier, antibodies against typhoid are present in this blood, although typhoid bacilli continue to live in his gallbladder and intestinal tract. The individual while protected by his own antibodies remains highly ineffective to other susceptible individuals.

When acquired immunity develops artificially as a result of vaccination or inoculation, it may be acquired either passively or actively.

DIFFERENT TYPES OF ANTIBODIES AND ROLES

G is the antibody isotype that most people think of when they're talking about antibodies. It is the antibody that is built by immunization. It activates an immune cascade that can eliminate some forms of infection. IgG can also neutralize certain toxins.3

IgA is the antibody isotype that is found in usually mucosal areas, such as the mouth and the vagina. It can also be found in saliva, tears, and breast milk. IgA is formed by two Ig subunits bound together. When IgA binds to a target, it can stimulate inflammation. In mucosal areas, IgA can also keep pathogens from sticking to epithelial cells.4

The production of IgA against inappropriate targets is associated with certain autoimmune diseases, such as celiac disease.5

IgM is one of the first types of antibody to be produced after a pathogen has entered the body.6 Since it is made up of five Ig subunits bound together, it has very high avidity. In other words, it sticks very strongly to its target. IgM is very important in the early stages of an infection. IgM sometimes appears when an infection becomes reactivated, such as with a herpes outbreak. It can also appear when someone is reexposed to a disease they've previously gotten rid of.7

IgE is the antibody that is responsible for the allergic response.8 It is mostly found in the lungs, skin, and mucous membranes. When IgE binds to an allergen, it starts the histamine reaction. It's the histamine reaction that causes the symptoms of an allergy attack. This single subunit antibody also helps to protect the body from parasitic worms.

IgD is important in the early stages of the immune response. Bound to B cells, it does not circulate.9 Instead, it signals those cells to become active. This can help to stimulate inflammation. IgD is the least understood type of antibody, and its functions are still being discovered.