Ofokansi Antoinette

17/mhs02/060

Med surge

NSC 306

1. Role of immune system;

It helps to protect our body from any foreign matters that might cause any damage or homeostatic imbalance. The success of the immune system depends on the ability to discriminate between foreign and host cells. When an organism is threatened by microorganisms, viruses or cancer cells the immune system does not mount a response against self. This lack of immune response is called tolerance

When a foreign matter enter the human body, our defence system recognizes this as a 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 its surface a mixture of proteins and sugars that serve to identify the cell to the immune system. Foreign matters lack the identifiers that of all of the body cells have, but each has one unique features or antigens where the immune system attaches identifiers called antibodies.

1. Two types of immunity;
2. Innate(non-specific) immunity
3. Adaptive (specific) immunity
4. Innate immunity; host mechanisms that from the start of an infection but do not adapt to a particular pathogen. It is the first line of defense against pathogens. It involves several cell types, proteins and even organ. Anatomic barriers(skin, mucous membranes)

Physiological barriers (temperature, ph)

Phagocytic barriers (cells that eat invaders)

Inflammatory barriers (redness, swelling)

1. Adaptive immunity; works slower than innate, and is more specific. There are two types ; passive and active. Passive immunity occurs when antibodies are passed from one person to another, as through transfusion for example. The active immunity involves two types of white blood cells. T-cells and b-cells. Dendritic cells after they have eaten and digested the pathogen, present the pathogen pieces to t-cells, which activates (turns on) the t-cells.
2. Different types of antibodies and roles;

1. IgG;

1. Structure; monomer
2. Percentage serum; 80%
3. Location; blood, lymph, intestine
4. Half-life in serum; 23 days
5. Complement fixation; yes
6. Placental transfer; yes
7. Function/role; enhances phagocytosis, neutralizes toxins and viruses, protects foetus and new-born.

2. IgM;

A. Structure: pentamer

B. Percentage serum antibodies: 5-10%

C. Location: blood, lymph, b cell surface (monomer)

D. Half-life in serum: 5 days

E. Complement fixation: yes

F. Placental transfer: no

G. Function/role: first antibodies produced during an infection. Effective against microbesand agglutinating antigens.

IgA;

A. Structure: dimer

B. Percentage serum antibodies: 10-15%

C. Location: secretions (tears, saliva, intestine, milk), blood, lymph

D. Half-life in serum: 6 days

E. Complement fixation: no

F. Placental transfer: no

G. Function/role: localized protection of *mucosal surfaces.* Provides immunity to infant digestive tract

IgD;

A. Structure: monomer

B. Percentage serum antibodies: 0.2%

C. Location: b-cell surface, blood and lymph

D. Half-life in serum: 3 days

E. Complement fixation: no

F. Placental transfer: no

G. Function/role: in serum function is unknown. On cell surface, initiate immune response

IgE;

A. Structure: monomer

B. Percentage serum antibodies: 0.002%

C. Location: bound to mast cells and basophils throughout body. Blood

D. Half-life in serum: 2 days

E. Complement fixation: no

F. Placental transfer: no

G. Function/role: allergic reactions. Possibly lysis of worms.