Lecture : 6

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## Immunopathology

Autoimmune Diseases Hypersensitivity ( Allergy)

There are four types :

Hypersensitivity Type 1 : ( Atopic Allergy) Typical examples are : Hay fever , Asthma , Eczema , Drug allergy

- Hay fever : or Pollenosis

Allergic Rhinitis : Inflammation of nose which occur when immune system overreacts with allergens ( Pollen , dust , molds ) present in air .

Mechanism of this case involve IgE antibody release from lymphocytes due to histamine which is secreted from mast cells .

Signs and symptoms :

Runny nose , sneezing , red itchy , watery eyes , and swelling around eyes .

Nasal congestion .

- Asthma :

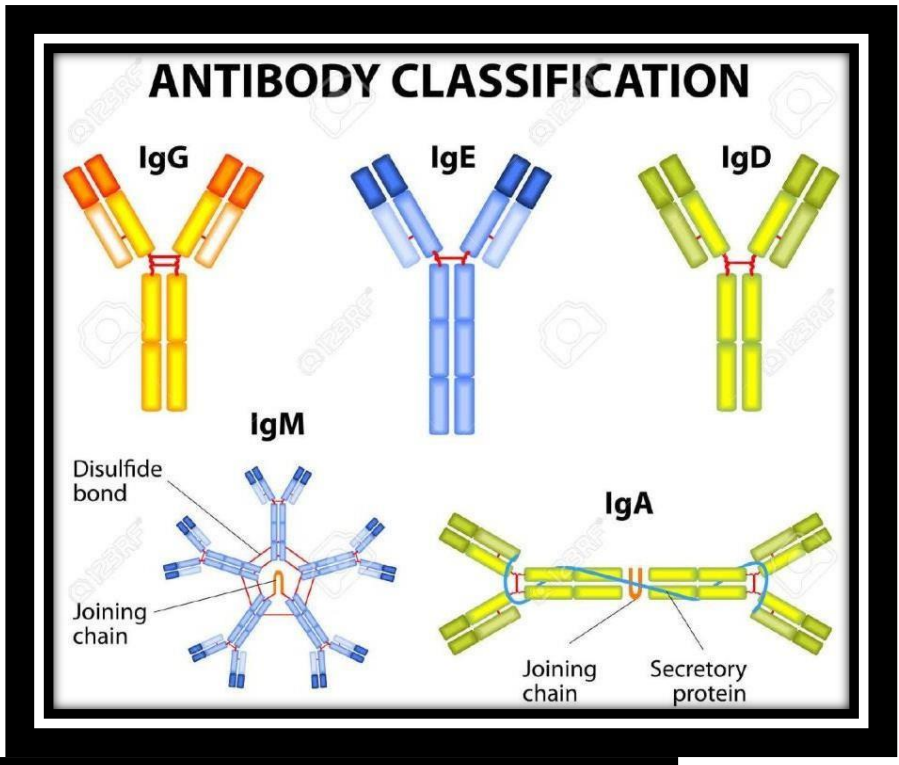
Asthma is chronic lung disease . Causes :

- Asthma is caused by environmental factors ( pollution ) .

– Inherited from parents .
– Respiratory infection during childhood /virus .

Signs and symptoms :
– Coughing often at night and morning .
– Wheezing and whistling due to contraction of smooth muscles in bronchioles .
– Short breath

- Eczema : (Atopic Dermatitis )
It is a condition where patches of skin become inflamed(dermatitis) , itchy , red , cracked and rough . These itchy patches noticed on hands , elbows , back of knees , neck , chest , and eyelids .
- Drug Allergy :
It is abnormal reaction of immune system to medication . Drug allergy occur with certain medication such as Penicillin and amoxicillin , Aspirin , Insulin animal source
, and chemo therapy .
- Food Allergy : as in Celiac disease ( Wheat allergy
)immune disease . Signs and symptoms :
– Vomiting 2 - Diarrhea3 – Skin rash 4 – Itching 5 - Swelling face 6 – Fever
Favism : It is an acute hemolytic anemia occur in
people have deficiency of glucose - 6- phosphate , So hemolytic anemia occur . Not allergy


ANTIBODY CLASSIFICATION
IgG
IgE
IgD
IgM
Disulfide bond
Joining chain
IgA
Joining chain
Secretory protein

Hypersensitivity – Type ll Or Cytotoxic allergy
The autoimmune reaction produced by immune response bind to antigens on the patients cell surface .

| Blood Type | Cell Antigen | Serum Antibodies | Donor |
|---|---|---|---|
| **A** | A | B | A or O |
| **B** | B | A | B or O |
| **AB** | AB | None | All |
| **O** | None | A and B | O |

**Table 1.** ABO Blood Groups

Organ Transplantation Included in this type of Allergy .

Hypersensitivity – Type lll (Immune-complexes)
- Immune- complexes are part of normal immune responses , when increased in blood , cause autoimmune diseases .

- Sometimes immune-complexes called antigen – antibody complexes , antigen mostly bacterial , parasitic and mycotic (Chronic diseases ) . with complements . Molecule of immune complexes formed from antibody plus a soluble antigen in serum ,therefore called circulating immune complexes .
4 – Immune complexes deposited in capillaries causing several autoimmune diseases include :

Rheumatoid arthritis , Rheumatoid heart , Rheumatoid Fever Glomerulonephritis , Lupus erythematous ,

4 – Deposition of immune complexes attract macrophages to phagocytes and may be penetration of capillaries .

Hypersensitivity–Type lV (Delayed Hypersensitivity)
There are two types of this hypersensitivity :

1 - Tuberculin Hypersensitivity ( skin test ):
2 – Granulomatous Hypersensitivity : It is cellular reaction ,
Epithelioid cells and giant cells are typical of granulomatous hypersensitivity .
As well as macrophages and lymphocytes are present forming granuloma .
Granuloma occur with chronic diseases such as tuberculosis , Leprosy ,

AIDS (Acquired Immunonodeficiency Syndrom) It is caused virus / Chronic condition it takes many years also called
HIV ( Human Immunodeficiency virus ) / Retro virus infect Immune system mainly T – Lymphocytes /
Patients can live with virus under special treatment and special food .
HIV spread by 1 – Sex 2 – Blood transfusion 3 - Through placenta from mother to child during pregnancy .
Saliva , sputum ,. Sweat , tears , urine , feces . Acute infection , fever , sore throat , enlarge of lymph node , rash , headach , diarrhea , pneumonia .
HIV infect T – Lymphocytes / depletes these cells .

Slenomegaly : Enlargment of spleen found in upper left quadrant in human abdomen granulocytes , erythrocytes , platelets // Hemolytic Anemia ,
Normal size 11 cm // diseased 20 cm