PATHOLOGY of IMMUNE SYSTEM.

ALLERGY

DEPARTMENT OF PATHOLOGICAL PHYSIOLOGY– 2018
Immunodeficiency syndromes

• Primary:
  • Cellular
  • Humoral
  • Mixed

• Secondary:
  • AIDS (Acquired Immunodeficiency Syndrome)
ALLERGIC REACTIONS
ALLERGENS

Exoallergens
• Non-infectious
• Infectious
• **Endoallergens**
• Natural
• Acquired:
  non-infectious
  infectious (simple or complex)
STAGES of ALLERGIC REACTIONS

• Immunogenic stage
• Pathochemical stage
• Pathophysiological stage
Classification of hypersensitivity by P.Gell & P.Coombs (1969)

• I type (atopic reactions)
• II type (cytotoxic reactions)
• III type (immune complex type)
• IV type (delayed type or T-cell mediated hypersensitivity)
I Type - Atopic Reactions
Pathochemical stage
Mechanisms of type II hypersensitivity
Mechanism of Type III Hypersensitivity
Mechanism of type IV hypersensitivity

A. Delayed-type hypersensitivity

- APC presenting tissue antigen
- CD4+ T cell
- CD8+ T cell
- Cytokines
- Inflammation
- Normal tissue
- Tissue injury

B. T cell-mediated cytolysis

- CD8+ CTLs
- Cell killing and tissue injury
Formation of granulomas during IV type of hypersensitivity
Graft versus Host disease
Mechanisms of Pseudoallergy

- The release of mediators of allergy from mast cells under the influence of environmental factors, rather than as a result of damage to their complexes AG-AT (cold and sun rash, reaction at long reception of ACE inhibitors)

- **Violation of metabolism** of polyunsaturated fatty acids - **arachidonic acid** (aspirin asthma)

- **Uncontrolled complement activation** due to a hereditary deficiency of C1-inhibitor of the complement system (hereditary angioedema angioedema)
Mechanism of immune tolerance
Autoimmune diseases

• Hereditary predisposition
• Previous infection
• Violation of immunological tolerance mechanisms
Changes in skin and mucosa during atopic reactions