

Ministry of health care of Ukraine
Highest state scientific institution of the Ukraine
«Ukrainian medical stomatological academy»

"Approved"

at a meeting of the Department of Experimental
and Clinical Pharmacology with Clinical
Immunology and Allergology

Head of the department

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**Methodical guidance
for students' self-directed
work when preparing for practical session**

Academic discipline	Clinical Immunology and Allergology
Semantic module №2	Allergic, toxic and allergic diseases
Topic 10	Other allergic (non-atopic) disease. Bronchial asthma. Skin allergies.
Year of study	5
Faculty	medical

1. Relevance of the topic:

By allergy is commonly understood as manifestations of hypersensitivity of the immune system of the body to the allergen (antigen) with repeated contact with him, which is clinically characterized by damage in the first place the body tissues through which penetrates the allergen. Allergic reaction is a kind of immune responses, however, are distinguished in the first place, the presence of allergies own tissue damage, and secondly, allergic reactions are the same type of clinical manifestations RPG, regardless of the nature the allergens. Allergic diseases - this is the most affordable model, an example of which today it is easier to explain the basic principles of pathogenesis, clinics, diagnosis and treatment of patients with immunopathology.

Over the past two decades, the frequency of allergic diseases increased substantially, especially in economically developed countries and with the unfavorable ecological situation in the country. According to scientists' predictions, XXI century will be the century of allergic diseases. Today and more than 20,000 zvestna allergens and their number continuous grow.

The reasons for increasing the frequency of allergic diseases appear various factors: changes in the structure of infectious diseases, hereditary factors and environmental factors.

2. Specific learning objectives

1. Conduct a survey and physical examination of patients with allergic diseases.
2. To determine the etiologic (group of allergens) and pathogenetic (types of immune reactions) factors of allergic diseases.
3. Explain the basics of allergy research methods (laboratory tests, skin tests, provocation tests, etc.).
4. To prepare a plan of examination of patients with allergic diseases, to justify the use of basic diagnostic methods used in allergy, to determine the indications and contraindications for their conduct, possible complications.
5. Identify the different variants of the course and complications of allergic diseases.
6. Determine the forecast conduct primary and secondary prevention of allergic diseases.
7. To appoint anti-allergic therapy, to evaluate its effectiveness.
8. To be able to determine the etiologic and pathogenetic factors of the side effects of medications.

3. Basic knowledge, skills necessary for studying the subject (interdisciplinary integration)

The name of the previous disciplines	These skills
Anatomy	Knowing the structure of the thymus, lymph nodes, Peyer's patches, spleen, bone marrow. To conduct physical examination of patients.
Normal physiology	To know the functioning of the central and peripheral organs of the immune system. Master the basics of clinical and laboratory studies.
Biochemistry	Learn the basics of biochemical laboratory studies. Action and effect of various cytokines groups of biologically active substances.
Microbiology and Virology	Know the immune response, diagnosis of bacterial and viral infections Ia. Master the basics of special microbiological methods.
Therapy	Know the pathogenesis and clinical manifestations of allergic diseases and secondary immunodeficiencies. To be able to collect immunological and allergic history.
Phthisiatry	To master the mechanisms of the immune response cell dependence. The course and clinical manifestations of tuberculosis.

4. Tasks for work during preparation for the classes.

4.1. The list of key terms, parameters, characteristics which the student is to assimilate while preparing for the class:

Terme district	Definition
Allergical diseases	This group of diseases which are based on damage caused by the immune

	reaction to exogenous allergens
Hapten	Poluantigeny substances (mostly low molecular weight), do not have immunogenic properties, but is, capable specifically interact with the antibodies and immunocyte after binding to a specific molecule more such protein, so that they become immunogenic antigens
type	Increased sensitivity to allergens caused by antibodies and neurotransmitters. It is characterized by rapid development after the administration of the allergen and the ability of passively transferred serum.
linseed syndrome	Steady increase in the number of eosinophils, 0.6 g / L in the peripheral blood with the exception of well-known causes of disease development.

4.2. Theoretical questions for the class:

1. Classification of allergic reactions at Gelli-Coombes.
2. Immune mechanisms of allergic reactions.
3. Classification of allergens.
4. Atopic disease: hay fever, atopic asthma, atopic dermatitis. Diagnostics, difdiagnostic, treatment and prevention.
5. First aid in anaphylactic shock.
6. Emergency treatment of bronchial asthma.
7. Emergency assistance in status asthmaticus.

4.3. Practical works that are performed in class:

1. To prepare a plan of examination of patients with Allergic Diseases and pseudoallergic.
2. Master the skills performed leather allergy tests (tests panch-).
3. Mastering these skills assessment laboratory allergy, toxic-allergic tests.
4. Master the skills defined allergens with similar antigenic determinants to make recommendations for the prevention of Allergic.
5. Master the skills to perform allergy tests provocative forms for skin allergies and assessing their performance.
6. Conduct a differential diagnosis, to justify a clinical diagnosis of major allergy, pseudoallergic diseases based on data analysis of laboratory and instrumental examination.
7. To appoint treatment, determine prognosis, to conduct primary and secondary prevention of allergic diseases.
8. To render the first aid in case of acute or pseudoallergic pathology.
9. Enforce standards of diagnosis and treatment of allergic, pseudoanalytic l ergologic their diseases.

Content topics

Among the cutaneous manifestations of urticaria, allergic diseases ranked second in frequency after asthma. It is characterized by sudden onset of common skin rashes in the form of itchy blisters. The main role in the development of allergic urticaria plays IgE-dependent mechanism. However, the disease can be implemented by antibody dependence cytotoxic (overflow blood of Contents) or in type of immune (the introduction of antitoxic sera). It should be noted that quite often occurs pseudoallergical urticaria, in which the release of mediators pathochemical second stage is not connected with immunologic mechanisms.

Atopic dermatitis (AD) - one of the most frequent manifestations of topical disease in childhood. BP clinically recurrent itchy rash papular, erythematous of nature. The basis of the disease can lie as specific, both specific and non-specific mechanisms. In the first case, such factors can be food allergens (milk, eggs, citrus fruits, chocolate), inhaled (especially the smells of household chemicals, cosmetics), external stimuli, physical or biological nature, negative emotions. Food allergens are the most relevant in children of the first years of life; other factors act as provocateurs in middle-aged and older children. When one of true atopy or at least a very limited number of allergens because of IgE-dependent mechanism is a highly specific process. While at

skin rash may appear in response to a variety of factors.

Aspirin-induced asthma (BA Ac)

Aspirin-induced asthma, according to the overwhelming majority of experts is not an allergic disease. However, because it is a combination of symptoms of asthma and nasal polyposis, it seems legitimate to shine on this problem. Especially as in the formulation of asthma diagnosis, to a lesser extent - allergic rhinitis, should bear in mind the possible presence of aerosol and corticosteroids, given the characteristics of the course and treatment, have certain caution against such patients.

AI asthma is one of the clinical and pathogenetic variants of bronchial asthma and is a combination of bronchial asthma with intolerance to acetylsalicylic acid and other nonsteroidal anti-inflammatory drugs (GMP). For patients allergic bronchial asthmas characterized by recurrent sinusitis and nasal polyposis. The combination of asthma, aspirin intolerance and polypoid sinusitis received in the literature as "asthmatic triad". Aspirin was first synthesized in 1887 and have been widely used in medicine since 1899. Three years later came the first report of an anaphylactic reaction in the form of rashes and urticaria second angioedema after receiving patients. Cook KA in 1919 he described 15 patients who developed significant bronchospasm in 15-20 minutes after taking aspirin. The first case of a patient death associated with aspirin, described in 1920. A combination of asthma, nasal polyposis and aspirin intolerance was first reported in 1922, after this message has been described in detail and named aspirin triad (1968). The data of different authors on the prevalence of intolerance to aspirin in patients with bronchitis and asthma cial vary widely - from 0.2% to 50%. The pathogenesis of aspirin-induced asthma is associated with impaired metabolism of arachidonic acid, which significantly affect alitsilova with acetyl I acid and NPP. Inhibition prostaglandinsintetazy inhibits the synthesis of prostaglandins E and F, which leads to bronchospasm (KHaitov RM, 2002).

In a classic case of asthmatic symptoms triad formed gradually, sometimes over several years, with the sequence of: vasomotor rhinitis, nasal polyposis, asthma attacks, and then there is intolerance of acetylsalicylic acid in the form of asthma attacks. According to the literature, aspirin-induced asthma seen in 48-71% of cases of asthma.

Lyell's syndrome (mainly based on the 4 type of allergic reactions) or epidermal necrolysis appears hectic body temperature, severe intoxication, sore throat, joint pain, tachycardia. The skin of the trunk, limbs, sometimes the face is sharply hyperemic with a bluish tint, a large number of different size bubbles. The skin easily peels off, removed, forming a large eroded surface with "rags" of the skin, sores on mucous membranes. There may be toxic and infectious lesions of many organs. Mortality in Lyell's syndrome reaches 30-50%.

Extrinsic allergic alveolitis - a disease resulting from an allergic reaction to lung tissue inhalation of antigens (Ag) contained in an organic dust. Among AG, causing the formation of this pathology an important role is played termofilic actinomycetes, animal proteins (birds, fish, mammals), and others. Depending on the nature of the antigen, a disease-allocate its various forms. AG, which enter the body by inhalation, the formation of precipitating cause antibodies related to IgG. Repeated contact AT, reacting with AG to form circulating immune complexes that are deposited under the endothelium of the alveolar capillaries. Immune complexes activate the complement system, chemotactic factors. Circulating complexes contribute to the release of lysosomal enzymes that cause damage to the lung tissue. Because of these interactions form epithelioid cell pellets occurs between infiltration of alveolar septa lymphocytes and plasma cells, and in the final step - fibrosis. Damage to lung tissue is associated with the influence of sensitized lymphocytes, disequilibrium between T and B to letochnymi reactions. Clinical symptoms of the disease is determined by the duration and intensity of exposure to the antigen and its form. The acute form develops within a few hours after contact with the antigen. Manifested by shortness of breath, cough. Auscultation defined typical alveolet and crepitus. The chronic form of the disease characterized by progressive respiratory failure, cough, crepitus, malnourished patients. X-ray detect focal shadows, increased vascular pattern, in chronic forms - fibrotic changes. In the diagnosis of exogenous alveolitis attaches great importance to the immunological studies aimed at the identification of specific antibodies or determination of cell-mediated reactions. Sensitive fluorescence method is AT and radioimmunoassay test that is used for quantification. Identify

precipitating AT in conjunction with the anamnestic data on the presence of allergen exposure and corresponding symptoms usually sufficient for diagnosis.

Materials for students' self-directed work.

A. Tests for the self-control:

- 1). The best means of diagnosing IgE-dependent reactions:
 - a) enzyme immunoassay method for the determination of specific IgE; +
 - b) reactions specific leukocytolysis;
 - c) skin test to allergens; +
 - g) RAST method.
- 2). What are the main mechanisms of urticaria (by Gell-Coombs):
 1. I type +
 2. Type II +
 3. Type III +
 4. the I V type
- 3). Food allergens can often be the cause of atopic dermatitis?
 1. cereals, plum
 - 2 eggs, chocolate +
 3. apricots, bananas
 4. Citrus, milk +
- 4). The most frequent cause of atopic dermatitis in children during the first years of life there?
 1. household allergens
 2. food allergens +
 3. emotional factors
 4. The physical effort
- 5) When you inhibit the activity of Th2 helper cells predominantly produce interleukin:
 - a) 4,5,13; +
 - b) 1,2,7;
 - c) alpha-interferons, colony stimulating factor
- 6). Medication often has kidney failure genesis:
 - a) toxic; +
 - b) allergic;
 - c) infection;
 - d) Autoimmune
- 7). K antagonist leukotrienes are about to relate:
 - a) aspirin;
 - b) the singular;
 - c) Zileuton;
 - d) none of the above
- 8). What are the underlying mechanisms are not typical for the development of urticaria (by Gell-Coombs)?
 1. Type I
 2. Type II
 3. Type III
 4. The type of the I V +

9) The most common cause of hives in children during the first years of life are?

1. household allergens
2. food allergens +
3. emotional factors
4. The physical effort

10. How many pathophysiological stages of development tend to have allergic reactions on A.D. Ado?

1. two
2. Three +
3. four
4. five.

B. Tasks for the self-control:

1. The patient who underwent surgery for acute appendicitis during the third ligation surgeons found severe inflammation of the skin around the surgical wound, the presence in the outbreak of blisters and erosions. Focal lesion is clearly limited. Put a clinical diagnosis.

- a) contact dermatitis +
- b) acute eczema
- g) atopic dermatitis.

2. A man 37 years old during pyelography via verografin appeared itching, swelling of the face, dizziness, fear of death. BP - 70/40 mm Hg, RB - 130 beats per minute. Breath rattling, wheezing could be heard in the distance, on auscultation breathing weakened, single dry rales. The drug must enter the patient first?

- a) + epinephrine;
- b) prednisone;
- c) salbutamol;
- g) suprastin;
- d) eufillin.

3. The baby after drinking strawberry dish originated skin rash, itching. Previously, when the child used the small amount of strawberries, these phenomena were not. The doctor has appointed Claritin and forbidden to eat strawberries. True or did the doctor? Is there anything in this case are allergic to strawberries?

a) Occurrence pseudoallergic is most likely due to the fact that strawberries histamine is released and it itself contains significant quantities of T. Therefore it should be advised not to drink large amounts of strawberries; +

b) a food allergy to strawberries. The doctor did everything right;

c) the child digestion defect. It doobs explore;

d) the child has a food allergy to strawberries. It is necessary to carry out specific immunotherapy;

d) optionally, strawberries and may be washed well, and there is food poisoning.

4. Patient A., 48 years old. Fell ill suddenly, the morning of March 18, when the first felt itchy thighs, buttocks and eyelids, in 15 minutes to argue with calculus plots were rashes in the form of bubbles (reminded tunately nettles). After another 30 minutes, a rash appeared on the body, and in places contradict calculus above, merged, acquired a kind of "geographical map". From history we know: 11 March she felt disuria disorder (frequent urge, cramps). I have addressed to the doctor, was appointed Biseptol 480 Table 2. twice a day and furazolidone of 0.1 to 4 times a day. She took medication 7 days (March 12-17). Objectively: on the skin of the whole body unit and drain the bubbles with enlightenment in the center and on the periphery of the Viennese hyperemia, edema of the eyelids, periorbital hyperemia. Body temperature 36,90S. HR 72 at 11. BP 120/80 mm Hg. Art. Tongue is moist, overlaid with light gray coating. Abdomen soft, liver protruded from the costal arch to 1.5 cm, the spleen is not enlarged.

1. What is the preliminary diagnosis of the patient A.?

2. The doctor Tactics (assign the examination and treatment plan).

3. Dif. diagnostics?

5. Patient M., 18 years of delivery in the emergency room, "ambulance". 35 minutes ago drank sugar water gas near the central market. He felt a piercing pain in the ball of your mouth, then spit out the insect - wasp. After 5 minutes, I feel shortness of breath, weakness, dizziness and fainting. "Ambulance" From the doctor's records: the patient is pale, covered with cold sweat, breathing crowing, increased language (does not fit in the mouth). Reflexes from the cornea retained, the pupils react to light. BP - 60.0 mm Hg. Art. Permission Sol. Adrenalini 0,1% - 0,5 ml in the root of the tongue. Vienna could not be punctured, put Prednisoloni 120 mg intramuscularly. After 50 minutes of breathing. At the time of examination in the emergency department: pale skin, consciousness is stored, contact, breathing hard, whistling, BP - 90/50 mm Hg. Art. Another ENT doctor diagnosed laryngeal edema 1 tbsp.

Question:

1. Diagnosis?
2. Please comment on the actions of the doctor of "first aid".
3. Tactics medical receptionist?

6. Patient J., 60 years old. Worried weakness, dizziness, swelling of the whole body, especially the face and joints, rash on the body in the form of urticaria. History: 10 days ago the patient was bitten by a homeless kitten. A day went to the doctor, was assigned to the introduction of anti-rabies serum. On day 7, there was a rash at the injection site first, and then - all over the body, the next day there were listed symptoms.

Question:

1. Diagnosis?
2. Tactics doctor.

C. Situation tasks:

Task 1.

- 1) Allergy medicines in the form of a generalized acute urticaria.
- 2) Plan Survey: complete blood count, urinalysis, liver function tests, determination allergical dependence basophil degranulation with furazolidone and Biseptol, urine culture on the flora and fungi, feces on a dysbacteriosis.

Treatment plan: to cancel Biseptol and furazolidone; antihistamine drugs; diphenhydramine 1% - 1.0 ml / m across 8:00; prednisolone 30 mg / in to saline or 5% glucose - 400.0 ml chelators; diuretics (furosemide 40 mg).

- 3) Acute infections: measles, rubella, infectious mononucleosis.

Problem 2.

1. Hymenoptera venom allergy: anaphylactic shock. Acute edema of the larynx and tongue by a wasp sting.

2. You must enter antihistamine drugs.
3. See the materials for practical classes: immediate assistance in the AL.

Problem 3.

1. Serum sickness.
2. Hospitalization. Cancel the introduction of anti-rabies serum; Diphenhydramine 1.0 - 1% №3; prednisolone 30 mg / m; epinephrine hydrochloride 0.1% - 0.5 n / a under the control of blood pressure; diuretics in low doses

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