MINISTRY OF HEALTH OF UKRAINE
Vinnytsia National Pirogov memorial Medical University

"Approved"

by Methodical Council
Department of Tuberculosis, Clinical Immunology
and Allergy
Chair of Department
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Guidelines

for independent preparation for practical classes for 5th year medical students

Topic №8

Academic discipline	**" Clinical immunology and allergology "**
Module №1	Clinical immunology and allergology
Content module№1	*ALLERGIC DISEASES - DIAGNOSIS, TREATMENT.*
Topic of the lesson	Side effects of drugs. Hypersensitivity reactions . Principles of diagnosis. Prevention .. Anaphylaxis. Emergency aid,
Course	5 th
Faculty	"Medical business", "Pediatrics", "Medical and preventive business"
Number of hours	2

1. Actuality of theme:

In modern conditions, allergic diseases (AZ) are one of the most common diseases among the population and are a major medical and social problem. From 15.0% to 35.0% of the world's population suffer from AZ. At the same time, against the background of the general growth of diseases of allergic genesis, there is an increase in the number of allergic reactions (AR) to the sting of membranous insects (bees, wasps, hornets). Thus, 0.4-4% of the world's population suffers from hypersensitivity to stinging membranous, and mortality from stings by insects ranges from 0.09 to 0.45 deaths per million population. Repeated insect bites play an important role in the development of allergy to the venom of membranous wings. Therefore, beekeepers and their families belong to the groups with the highest risk of developing AR stings. The prevalence of insect allergy (IA) in this population ranges from 15% to 43%.

The problem of adverse reactions, in particular, of allergic origin, in the use of diagnostic and medicinal products is very relevant. According to the literature, they occur in 10-20% of the population, in 3% of cases are a reason to see a doctor, in 5% - a reason for hospitalization, in 3% - a reason for intensive care, in 12% - lead to a significantly longer stay in the hospital, 1% can cause mortality and according to this indicator take 5th place after cardiovascular, oncological, bronchopulmonary diseases and injuries. A similar situation occurs in Ukraine, where, according to domestic researchers (there are no official statistics on this), the frequency of drug allergies (MA) among the population ranges from 1-2% and, in theory, can lead to 100-2000 deaths from drug anaphylactic cheek (MAS) annually.

The most real causes of anaphylactic shock are drug, insect and food allergies.

In the USSR, with poorly adjusted registration anaphylactic reactions, for the period from 1970 to 1980 was officially recorded 520 you - greedy anaphylactic shock, with 48 deaths (9.2%), which was about 1 in 5 million. Per year . Ontario (USA) registered 4 cases of shock 10 million. Population in Munich (Nimech - diffusivity becomes) - 79 cases per 100 thousand. Population. In the US, anaphylaxis reyest - ruyetsya in 1 of 3000 patients, which causes about 500 deaths you - greedy year.

2. Learning objectives (basic educational issues for extracurricular self-training).

Know how:

1. Predict the occurrence of MA in patients who should be used drugs (drugs).
2. To collect the anamnesis, to interpret clinical symptoms and laboratory signs of MA , insect allergy .
3. Be able to formulate a diagnosis and make a differential diagnosis between various forms of intolerance to drugs (including real and feigned allergic reactions to drugs).
4. Diagnose MA and insect allergy both n vivo and in vitro .
5. Treat MA and provide emergency care for drug anaphylactic shock (MAS).

3. Be able to:

1. Collect allergological, pharmacological and anamnesis in the patient to whom drugs should be prescribed.
2. Carry out skin testing (pre-test) with drug solutions.
3. Provide emergency care at MASH .

4. Basic level of training.

Names of previous disciplines	Acquired skills
1. Human anatomy	Skin and mucous membranes of the human body.
2. Normal physiology	Adequate response of the body to the use of drugs.
3. Pathological physiology	Inadequate response of the body to the use of drugs. Anaphylactic shock.
4. Pharmacology	Pharmacokinetics of drugs, their dosage, pharmacological history.
6. Otorhinolaryngology	Phenomena of allergic rhinitis.
7. Internal diseases	Asthma attack, emergency care. Hemopathy. Emergency care for anaphylactic shock.

5. Organization of the content of educational material

The teacher introduces students to the problem of side effects of drugs and explains that, given the doctrine of chemotherapy of diseases prevailing in medicine, any prescription of drugs made by a future doctor can pose a threat to health and life of the patient.

Then the teacher demonstrates patients with anamnestic or clinical signs of MA (in the absence of relevant clinical examples and photographs).

During the demonstration of patients, the teacher points out that there could be no complications of chemotherapy if doctors took into account the circumstances of the patients.

The following draws attention to the different nature and mechanism of adverse reactions to drugs, which requires different approaches to the examination and treatment of such patients.

It is suggested that several students collect allergy pharmacological history in patients:

The range of issues aimed at identifying contingent and at risk for MA

1. Has previously taken drugs, underwent invasive examinations
2. Did you take drugs often, what was the duration of treatment
3. What drugs did you receive *(pay special attention to antibiotics, anesthetics, intravenous, inhalation, application of drugs*)
4. Were there any adverse effects on medication (drugs) and how they manifested themselves: *special attention should be paid to loss of consciousness, low blood pressure, itching and rashes on the skin, redness, swelling; the appearance of discharge from the nose, redness of the eyes, their itching; the phenomenon of bronchospasm*
5. Did such phenomena occur at the first administration of drugs (provided that they were not previously taken by patients) or it occurred after 5-7 or more days of treatment
6. Does he suffer from allergic diseases, did his parents and blood relatives suffer from them?
7. What are his other chronic diseases *(special attention should be paid to autoimmune diseases of the kidneys, liver and gallbladder, stomach and intestines, pancreas)*
8. Does the patient have occupational hazards with sensitizing properties *(special attention should be paid to work in pharmacies, medical institutions, biotechnological enterprises)*
9. Are there food products, food impurities that are not tolerated by the patient (*special attention should be paid to products of animal origin, impurities of indeterminate composition and origin)*

Record in the outpatient or inpatient card that the patient is familiar with the manipulation to be performed, or with the nature of treatment and drugs to be prescribed *(give him the opportunity*

to familiarize himself with their possible side effects and get a signature of informed consent to the manipulation and treatment). If there is an urgent need to prescribe pharmacotherapy to a patient who for various reasons is unable to give this consent, such consent should be obtained from his close relatives or a commission should be made for the administration of drugs or diagnostic procedures.

When conducting a survey of patients, it is necessary to take into account the peculiarities of toxic, false-allergic and allergic reactions to drugs

The next stage of training is carried out in the manipulation room, where skin testing with drug solutions is performed. Each student can take a pre-test with a solution of histamine partner and evaluate the test.

The following are listed (it is better to show this in the laboratory) laboratory methods that can be used to detect the drug-allergen.

The final stage of the lesson is held in the office, where students clearly list the stages of care for a patient with MASH.

6. Plan and organizational structure of training in allergology (240 minutes).

№ s / n	**Stages of the lesson**	**Distribution time ***	**Types of control ***	**Teaching aids** (objects used - are used in the educational process as information carriers and tools of the teacher and student)
1.	**Preparatory stage**	35 min	Visit control practical training. The teacher's acquaintance with students. Acquaintance udents with a clinic. Structured written work, written testing	Visiting log practical students to occupy. Notebooks for practical to occupy. Textbooks, manuals, Guidelines. Test tasks, theoretical questions. .
1.1.	Organizational issues.	5 min		
1.2.	Formation of motivation	5 min		
1.3.	Control of the initial level of training (standardized means of control).	25 min		

2.	**The main stage** (specify all kinds of work performed by students under time of this stage).	120 min	Oral interview survey on standardized lists of questions, situational tasks, analysis of the patient using all methods of objective examination. test control knowledge criteria	Equipment, textbooks, guidelines, spirograms. tests criteria
3.	**The final stage**	25 min		
3.1.	Final level control training.	15 min		
3.2.	General assessment of training student activities.	5 min		
3.3.	Informing students about the topic of the next lesson.	5 min	Theory	Textbooks, manuals, guidelines, lectures.

Note:
* forms of control and teaching aids are specifically determined by the department for each stage of the lesson;
** means of control of theoretical and practical training of students should be standardized.

7. Methods of organizing the educational process in a practical (seminar) lesson.

7.1. Preparatory stage.

Peculiarities of clinical examination of a patient with MA: complaints, allergological and pharmacological anamnesis, course, methods of skin and laboratory examination.

Features of clinical examination of a patient with insect allergy : complaints, allergy and history, course, methods of skin and laboratory examination.

Introduce students to specific goals and lesson plan.

To carry out the initial control of the level of preparation of students at objective inspection of the patient with MA . Determine the level of training on insect allergies.

7.2. The main stage

This stage involves the performance of each student independently and under the supervision of the teacher of the following practical work.

Task 1

Students collect a medical history and objective examination of a patient with MA and insect allergy . Then students conduct each other skin treatment (pre-test) with test-control fluid or histamine solution.

Task 2

№	Task	Standards of the answer
1.	What is the probability of MA in patients with prescribed drugs?	Depends on the patient's predisposition to allergies, the state of certain organs and systems, the type of drug
2.	Prevalence of MA in Ukraine?	1-1% of the population and is growing in people who are treated long and often
3.	Clinical manifestations of MA?	Depending on the type of immunological reaction in MA
4.	Frequently proya in a MA?	Cutaneous in the form of erythema, urticaria.
5.	The most dangerous manifestation of MA?	Drug anaphylactic shock (MAS).
6.	The longest period after which MA can appear?	7-10 days, after which MA may appear as a syndrome of serum sickness.
7.	Does the occurrence of MA depend on the dose of the drug administered?	No.
8.	Does MASH have the same course in all patients?	No, there are certain syndromes of MASH (hemodynamic, asphyxial, abdominal).
9.	Should all patients undergo skin testing before prescribing the drug?	No, only risk categories.
10.	Is it possible to perform skin testing with a drug that previously caused MASH in a patient?	Absolutely not.
11.	How can skin testing with drug solutions be assessed?	Only as a screening test.
12.	What are the reactions to insect allergies?	Local and general, early and late.
thirteen.	Which patients should be screened for insect allergies?	Patients with an immediate reaction to the sting.
14.	What method of diagnosis allows to distinguish toxic reactions to insect stings from insect allergies?	Skin testing with insect allergens.

Task 3

Solve test tasks:

1. At skin testing with a solution of drugs there was a positive reaction to all three solutions. How can such a reaction be considered?

The answer is unreliable.

2. What is the manifestation of MA in type 4 immunological response?

The answer is the type of contact dermatitis

3. Are drugs full-fledged allergens?

The answer is no, most of them are haptens - defective allergens, which acquire the character of a full-fledged allergen only when combined with serum albumin.

4. Which method of drug administration is the safest, which is the most dangerous?

From the lead - respectively, oral; dermal and inhalation

5. Is it advisable to introduce antihistamines after stinging membranous?

Answer - only at normal blood pressure .

Task 4

Tasks for self-control:

№ / №	*Task*	*Answer*
1.	Type of immunological reaction in allergic rhinitis as a manifestation of MA	Immediate type hypersensitivity
2.	Type of immunological reaction in drug-induced hemopathy	immunocomplex
3.	Parenteral antihistamine	C uprastin , tavegil
4.	What is missing in pseudoallergic adverse drug reactions?	Immunological mechanism
5.	Which skin test is the most common in the skin diagnosis of MA?	Pre-test
6.	The very first measure in the event of MASH	Elimination of drugs
7.	Can MA occur with the first use of drugs?	No
8.	Is MA dose-dependent?	No
9.	Is it possible to use a drug to which there is an allergy, on the background of antihistamines?	No

7.3. The final stage.

The current activity of each student during the lesson is evaluated, the analysis of students 'progress is analyzed, the evaluation of each student's activity is announced and it is placed in the journal of visits and students' progress. The head of the group at the same time enters grades in the statement of performance and attendance of students, the teacher certifies them with his signature.

It is advisable to briefly inform students about the topic of the next lesson and methods of preparation for it.

8. Appendices.

8.1. Theoretical issues of the preparatory stage:

1. Features of collecting allergological and pharmacological anamnesis in order to prevent MA.
2. The main complaints in patients with MA and clinical manifestations of MA.
3. Skin tests as a screening method for the etiological diagnosis of MA.
4. Collection of anamnesis, methods of diagnosis and treatment of insect allergies.
5. Provision of emergency care at MASH.

A typical level II task

Task1.

The nurse complains of itching, redness, cracked skin, lichenification, which occur the day after contact with penicillin antibiotics. The diagnosis of allergic contact Derm and Titus. What type of allergic reaction occurs? What should the patient be advised?

Standard answer. 1. Delayed type hypersensitivity. 2. Change profession or go to a job not related to drugs.

Task 2.

When removing a tooth in the dental office after the introduction of lidocaine, the patient had the following symptoms: sharp bl and dyst of the skin, cyanosis of the mucous membranes, cold sweat, difficulty breathing. Your diagnosis? What measures should be taken and how quickly?

Standard answer. 1. A prephylactic shock. 2. Anti-shock measures should be taken immediately.

Task 3 .

After a bee sting, an 11-year-old boy developed itchy skin, hoarseness, barking cough, restlessness, swelling of the lips, eyelids, cyanosis, and itchy blisters on the skin. Which of the following drugs is used in the first place?

Standard answer. And drenaline hydrochloride .

Task 4 .

A 4-year-old girl with the introduction of penicillin developed a feeling of heat, redness of the skin, anxiety, fear of death, headache, tinnitus, chest pain, blood pressure - 60/30 mm Hg. The drug was discontinued, emergency care was provided. What type of allergic reaction occurred?

Standard answer. P eag and new (immediate type hypersensitivity)

Task 5 .

In a 15-year-old child with asthma and atopic dermatitis, there was no history of drug allergy. However, after instilling in the ear 2 drops of an aqueous solution of furacillin on the accession of right-sided otitis, after 5-7 minutes itching, redness, swelling of the right auricle, face and neck.

From the anamnesis it became clear that the girl, in the past, often used this drug in the form of lotions for dermatitis. What happened to the child? Treatment and recommendations?

Standard answer.

The child had an acute allergic reaction in the form of Quincke's edema to furacillin.
Recommended: to abandon the use of furacillin forever, to prescribe parenteral antihistamines of the 1st generation, systemic corticosteroids at the rate of 1 mg / kg body weight.

Task 6 .

Employee tannery was introduced tetanus syrovat - ka. After 7 days he developed fever, increase lymph - tation nodes, generalized urticaria, swelling, pain in the joints.

Standard answer. With whey disease .

Level III tasks

Task1.

On the background of ARI, a patient receiving a sulfonamide drug, non-steroidal anti-inflammatory drug, acidified beverages and roaring appeared spotty-papular elements of the rash on the skin, accompanied by itching and difficulty breathing. Therapy should include all of the following, except:

1. Cancellation of all prescribed drugs

2. Antihistamines
3. enterosorbents
4. Broncholytics
5. Specific immunotherapy

Standard answer. Specific immunotherapy

Task 2.

A 37-year-old man underwent itchy skin, facial edema, dizziness, and fear of death during pyelography with verografin. BP 70/40 mm Hg., PS 130 beats in a minute .. noisy breathing, wheezing heard on mo d condition, auscultation relaxed breathing, single dry wheezing. Diagnosis? What drug should be administered to the patient in the first place?

Standard answer. 1. Anaphylactic shock. 2. Adrenaline.

Task 3.

The patient has a history of Quincke's edema after administration of a penicillin antibiotic. If necessary, antimicrobial therapy is not recommended to prescribe drugs of the following group :

1. Aminoglycosides
2. Macrolides
3. Cephalorsporins
4. Fluoroquinolones
5. Sulfanilamides

Standard answer : cephalosporins

Task 4.

By receiving patient department delivered 22 years, after which ekstraktsi tooth with " appeared on the face and swelling for 2 hours spread to the neck, chest, upper limbs. The edema was pale, dense, and was accompanied by itching and urticaria. After administration of antihistamines and corticosteroids, the patient's condition did not improve. What are the possible causes of edema?

Standard answer: deficiency of C1-complement inhibitor

4. **Make your own algorithm for** examining a patient with suspected MA.

X . LIST OF EDUCATIONAL AND METHODOLOGICAL LITERATURE

Basic:

1. Allergology and clinical allergology // ed. acad. Khaitova RM, Ilyina NI // GEOTAR "Media", 2018.- 352p.

2. Clinical immunology and allergology. Oxford Handbook.// Gavin Spickett - 2019, 832 p.

3. Anaphylaxis in children. Pampura AN, Esakova NV // M.: ID, MEDPRAKTIKA-M, 2020, 368p.

4. Clinical immunology and allergology (manual for practical classes // Chopyak VV, Potemkina GO, Gavrilyuk AM - 2017. - 224p.

5. Order of the Ministry of Health of Ukraine dated 30.12.2015 №916: Drug allergy, including anaphylaxis.

6 Allergology for the family doctor. // B.M. Puhlik: - Vinnytsia.- 2012.

Additional literature:

1. Proof allergology-immunology .- // Kolhir PV- M .: Practical medicine, 2010.- 528p.

2. Allergy. Official Journal of the European Academy of Allergy and Clin Immunol.- 2019

3. Singh AB Allergy and allergen immunotherapy new mechanisms and strategies.-2017., Edition 1, publ Apple Academic Press Inc. , pades 528

16. Information resources

Website address: **www.phthisiatry.at.ua** / departments / departments of tuberculosis with a course of clinical immunology.
Libraries: library.vsmu.edu.ua

Methodical:

1. Milleryan VE Methodical bases of preparation and carrying out of educational employment in medical universities (methodical manual) .- K .: "Khreschatyk", 2004.-80 p.

2. Principles and interpretations of immunogram data in the practice of a clinical immunologist (Method and iCal and e rekomendatst uu / V. Is . Kazm and rchuk , D.V.Maltsev.- Kyiv, 2007.- 24s.

Training manuals:

1. A set of class presentations for multimedia use.
2. Test control Step-2 (computer version) and a collection of situational tasks for learning.
3. Methods of development for conducting practical classes.
4. Set of tables, slides

Methodical recommendations prepared

Associate Professor **A. Bogomolov**

Methodical recommendations were reviewed and approved at the meeting of the department

“28” 08 ”2022 Protocol № 1

Head of Department

Ph.D. Associate Professor of HEI Kulik LG 