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МЕДИЦИНСКИ УНИВЕРСИТЕТ - ПЛЕВЕН

ФАКУЛТЕТ „МЕДИЦИНА”

СПЕЦИАЛНОСТ „МЕДИЦИНА”

КАТЕДРА „ДЕРМАТОЛОГИЯ, ВЕНЕРОЛОГИЯ И АЛЕРГОЛОГИЯ”
УЧЕБНА ДИСЦИПЛИНА: „КЛИНИЧНА АЛЕРГОЛОГИЯ”

**ВЛИЗА В СИЛА
ОТ УЧЕБНАТА 2019/2020**

УЧЕБНА ПРОГРАМА ПО КЛИНИЧНА АЛЕРГОЛОГИЯ

ЗА ОБУЧЕНИЕ В СПЕЦИАЛНОСТ „МЕДИЦИНА”
ОБРАЗОВАТЕЛНО-КВАЛИФИКАЦИОННА СТЕПЕН „МАГИСТЪР”

**ПЛЕВЕН
2019**

Разработил: Доц., Ваня Цветкова-Вичева д.м., Ръководител О-ние Алергология, Доц., Людмил Терзиев, д.м., /фамилия, длъжност/	Одобрил: Проф. д-р А. Аспарухов, дмн, Декан на Фак. „Медицина” /фамилия, длъжност/	Утвърдена: на Факултетен съвет на Факултет „Медицина”	Екземпляр № 01
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По единни държавни изисквания – свободно избираема

По учебен план на МУ - Плевен – свободно избираема

Общ брой кредити –

Хорариум – учебни часа, 15 часа лекции, 15 часа – практически упражнения

Учебни семестри – 1

Преподаватели

1. **Доц. Ваня Цветкова**, д.м., ръководител сектор „Клинична алергология”.
Кабинет в сграда “II клинична база”, 3 етаж
☎ вѓтр. 886-802
2. **Доц. Людмил Терзиев** д.м.,
3. **Д-р София Джикова**

ЦЕЛ И ЗАДАЧИ НА ОБУЧЕНИЕТО:

Обучението по клинична алергология има за *цел* студентите-медици да получат основни познания в областта на съвременните алергични болести придобиващи съществено социално значение и тенденция за епидемиологично разпространение в световен мащаб.

Учебното съдържание е обособено в следните раздели:

- Клиничната алергология като наука.
- Механизми на алергичните болести
- Респираторни алергии
- Алергични болести на кожата.
- Хранителна алергия
- Медикаментозна алергия.
- Инсект алергия
- Спешни състояния в алергологията.
- Лекарствени средства: медикаменти и специфична имунотерапия.

Обучението по клинична алергология се стреми да постигне следните **задачи** при студентите магистри по медицина.

- Да бъдат запознати с алергологията като **КЛИНИЧНА** дисциплина изучаваща конкретни нозологични болестни единици произтичащи от мултиорганно алергенно засягане.

- Да бъдат запознати с епидемиологията на алергичните болести в България и другите европейски държави във връзка с предвижданията на СЗО за пандемичен характер на тяхното разпространение през следващото десетилетие.

- Да познават имунологичните и патофизиологични механизми на алергичните болести.
- Да познават етиологията, патогенезата и клиничната изява на алергичните болести.
- Да познават основните методи на клиничната алергология и техните възможности
- Да знаят задачите и задълженията на общопрактикуващия лекар в случаите на новооткрит болен с оплаквания характерни за алергичен ринит или бронхиална астма.
- Да знаят задачите и задълженията на общопрактикуващия лекар в случаите на новооткрит болен с оплаквания характерни за алергична уртикария, atopичен дерматит, хранителна или медикаментозна алергия.

- Да бъдат запознати със задачите и задълженията на общопрактикуващия лекар в случаите на анафилактичен шок при ужилване от насекоми, тежко протичаща медикаментозна алергия с прояви на синдром на Стивън Джонсън или синдром на Лайл.
- Да познават етиологията, патогенезата и клиничната картина на придобит и наследствен ангиоедем.
- Да придобият познания и практически умения за справяне със спешните състояния в алергологията.
- Да бъдат запознати с концепцията за единния дихателен път и с най-новите постижения в областта на респираторните алергични болести.
- Да умеят да извършват самостоятелна оценка на бронхиалната астма като познават критериите за оценка на атопична и неалергична астма.
- Да бъдат обучени и подготвени да разпознават характерните особености на кожните прояви на алергията.
- Да знаят диагностични методики използвани в Клиничната алергология.
- Да интерпретират правилно получените резултати от специфичните изследвания на алергично болния пациент.
- Да могат практически да провеждат спирометрия, бронходилататорен и бронхопровокационен тест.
- Да знаят клиничното протичане, методите на поставяна на диагноза и терапия на инсект алергията.
- Да имат практическа и теоретична подготовка и да могат да се справят със спешните състояния в Клиничната алергология
- Да познават същността и значението на профилактиката на алергичните болести.
- Да се наясно с индикациите, контраиндикациите и схемите на провеждане на АИТ.

Форми на обучение:

- лекции
- учебно-практически занятия

Методи на обучение:

- лекционно изложение
- практически упражнения
- дискусия
- самостоятелни и групови практически задачи
- самостоятелна подготовка

**LECTURES
On Clinical Allergology
For 2019/2020**

№	CLINICAL ALLERGOLOGY	Hours
1	The basic concepts of allergies. Atopy. Genetic Mechanisms. Types of allergens	2
2	First Type of Hypersensitivity Reactions. Anaphylactic Reactions.	2
3	Allergic Rhinitis. Allergic Conjunctivitis	2
4	Atopic Bronchial Asthma	2
5	Hives (Urticaria). Angioedema Hereditary	2
6	Atopic Dermatitis	2
7	Drug Allergy. Food Allergy	2
8	Insect Allergy	1

EXERCISES SCHEDULE OF CLINICAL ALLERGOLOGY FOR 2019/2020		
№	CLINICAL ALLERGOLOGY	часове
1	Medical History and Physical Examination of Patient with Allergic Disease	2
2	Allergy Diagnostic Testing. Specific IgE Testing.	2
3	Spirometry Tests. Bronchodilator Reversibility Testing. Bronchial Challenge test. Allergen Bronchoprovocation Test.	2
4	Specific Medications for Treating Allergic Diseases. H1 Antagonists.	2
5	Medical History and Physical Examination of Patient with Allergic Rhino conjunctivitis. Specific Laboratory Procedures.	2
6	Allergen Specific Immunotherapy.	2
7	Drug and Food Provocation Tests.	2
8	Insect Allergy	1

THESIS

THESIS OF LECTURES

1. The basic concepts of allergies. Atopy. Genetic Mechanisms.

Types of allergens.

Introduction. Target organs of allergy. Definitions. Major cells in allergic reaction. Genetic mechanisms. Immune recognition of allergen. Mechanism of type I IgE mediated allergic reaction. Th1 and Th2 response. Classification of Allergens. Structural biology of allergens.

2. First Type of Hypersensitivity Reactions. Anaphylactic Reactions.

Important items. Genetic factors. Anaphylactic Shock. Etiology. Symptoms. Clinical Forms. Diagnosis. Differential Diagnosis. Patient-specific risk factors. First Aid. Treatment. Prevention. Prophylaxis. Treatment of atopic patients before surgery and X-Ray investigation.

3. Allergic Rhinitis. Allergic Conjunctivitis.

Allergic Rhinitis. Introduction. Definition. Epidemiology. Pathophysiology. ARIA classification. Symptoms. Diagnosis. Differential Diagnosis. Treatment. Pharmacotherapy. Intranasal corticosteroids. Nasal sprays. H1 antihistamines. Nasal decongestants. Mast cells stabilizers. Topical intranasal anticholinergic drugs. Antileukotriens. Allergen specific immunotherapy.

Allergic Conjunctivitis. Definition and epidemiology. Pathophysiology. Classification. Seasonal Allergic Conjunctivitis. Perennial Allergic Conjunctivitis. Vernal Conjunctivitis. Atopic Keratoconjunctivitis in patients with Atopic Dermatitis. Diagnosis. Prevention strategy for Seasonal Allergic Conjunctivitis. Prevention strategy for Perennial Allergic Conjunctivitis. Treatment. Non pharmacological methods. Systemic Anti-Histamines. Ophthalmic Anti-Histamines. Ophthalmic Corticosteroids. Mast Cell Stabilizers.

4. Atopic Bronchial Asthma.

Definition. Characteristics. Prevalence. Epidemiology. Etiology. Pathophysiology. Immunological Mechanism. Classification. GINA Classification. Clinical Data. Asthma Attack. Severe Asthma Attack. Diagnostic Criteria. Medical History. Physical examination. Pulmonary function testing. Measurement of nonspecific bronchial hyperresponsiveness. Methacholine test. Chest x-ray. Daily monitoring of Peak expiratory flow (PEF). Differential Diagnosis. Treatment. Step-wise approach. Quick-relief (rescue) medications. Long-term controllers. Anti IgE therapy. Allergic specific immunotherapy.

5. Hives (Urticaria). Angioedema Hereditaria.

Definition. Prevalence. Pathophysiology. Urticaria is a mast-cell-driven disease. IgE mediated. Autoimmune mediated. Direct mast cell activated. Signs and Symptoms. Acute urticaria. Chronic urticaria. Physical urticarial: Delayed pressure urticaria, Cold urticarial, Solar urticarial, Cholinergic urticaria, Aquagenic urticaria, Local heat urticaria, Vibratory urticaria. Dermatographism. Angioedema. Diagnosis. Treatment. Antihistamines. Corticosteroids. Epinephrine. Antileukotriene drugs. Mast cell-stabilizing agents. Oral sympathomimetic agents. Summary. Hereditary Angioedema (HAE). Definition. Genetic factors. Types of HAE. Type I. Mutations in the SERPING1 gene. Pathophysiology. Type II HAE. Dysfunction of C1 inhibitor. Type III HAE. There is no abnormality with C1 inhibitor. Triggering factors. Signs and Symptoms. Diagnosis. Treatment.

6. Atopic Dermatitis

Definition of Atopic Dermatitis (AD). Atopic Triad. Prevalence. Etiology. Intrinsic factors. Extrinsic factors. Pathogenesis. Impaired skin lipid and barrier function. Transepidermal water loss (TEWL). Pathophysiology. Skin barrier abnormalities- mutations within the filaggrin gene. Defective innate immune responses contribute to increased bacterial and viral infections. T-cell responses - initially a predominantly T helper-2 response and later a predominantly Th1 response. Increased serum IgE levels. Signs and Symptoms. Eczematous skin lesions. Dry and itchy skin-Xerosis cutis. Hyperlinearity of palms and soles etc. AD in Infants. AD in Children. AD in Adults. Co-Factors. Diagnosis. Major criteria. Minor criteria. Differential Diagnosis. Treatment. Topical Corticosteroids. Topical Calcineurin Inhibitors. Antihistamines. Treatment of skin infections. Systemic Corticosteroids. Other systemic immunosuppressive Therapy. Monoclonal anti IgE and Immunotherapy.

7. Drug Allergy. Food Allergy

Definition of Drug hypersensitivity reactions (DHRs). Epidemiology. Risk Factors. Pathogenesis and Pathophysiology. Role of viruses in the pathogenesis of DHRs. Clinical Classification of DHRs. Immediate DHRs. Nonimmediate DHRs. Drug-induced hypersensitivity syndrome. Diagnosis. Skin prick test. Skin Prick Technique. Intradermal Test. Patch Tests. Patch testing with Finn chambers. In Vitro Tests. Treatment. Specific Treatment. Drug Desensitization. Stevens-Johnson Syndrome and Toxic Epidermal Necrolysis. Epidemiology. Etiology. Clinical Manifestation. Acute Phase. Skin lesions. Ocular involvement. Late Phase. Diagnosis. Differential Diagnosis. Treatment in acute stage. Drug Therapy. Treatment of sequelae. Allergy to Anesthetic Agents. Two types of reactions. Prevalence. Pathophysiology. Diagnosis of a perioperative anaphylactic reaction. Secondary investigations. Contrast Medium Reactions. Types of Iodinated Contrast Media(ICM). Adverse Reactions to ICM. Nonidiosyncratic Reactions. Treatment of Adverse Reactions. Anaphylactic Reactions. Vasovagal reaction. Treatment of Nonidiosyncratic Reactions. Cardiac arrhythmias. Hypertensive reactions. Delayed reactions. Extravasation injuries.

8. Insect Allergy.

Definition. Venom allergens. Pathophysiology of insect allergy. Types of reactions to Hymenoptera. Onset of symptoms. Atopic history. Signs and symptoms. Diagnosis. Management and treatment.

THESIS OF EXERCISES

1. Medical History and Physical Examination of Patient with Allergic Disease

I. Detailed medical history. Onset of symptoms. Evaluation of duration and time course of complaints. Seasonal events. Typical place of symptom expression: farmhouses, villas, bungalows. Patient's opinion for possible triggers of symptoms. Impact of meteorology.

II. Medical history for allergic diseases. Asthma, hay fever, hives, skin rashes as eczema

III. Family history for allergic diseases.

IV. Environmental factors.

V. Physical exam. General medical examination. Hives in urticarial. Angioedema. Specific rash in: drug allergy, erythema exudativum multiforme, Steven-Johnson syndrome, contact dermatitis, allergic rhinitis, allergic conjunctivitis, oedema Quincke.

VI. Laboratory findings. Eosinophilia. Spirometry. Broncho dilating test. Bronchial hyperresponsiveness. Skin prick tests. Total and specific IgE in serum.

2. Allergy Diagnostic Testing. Specific IgE Testing.

Standardization. Test allergens used for diagnosis and treatment. Skin allergy tests. Scratch tests. Skin prick tests (SPT). Intradermal tests. Patch tests. Indications. Skin test's technique. Interpretation of results. False positive and false negative results.

3. Spirometry Tests. Bronchodilator reversibility testing. Bronchial Challenge test. Allergen Provocation Test.

Definitions: Spirometry. FVC (Forced Vital Capacity). VC (Vital Capacity or Slow Vital Capacity). MVV (Maximum Voluntary Ventilation). Performing an FVC test. Tidal breathing. Maximum inspiration. Forced expiration. Forced inspiration. Obstructive type. Restrictive type. Bronchodilator reversibility testing. Preparation. Bronchial challenge test with methacholine. Allergen bronchoprovocation tests.

4. Specific Medications for Treating Allergic Diseases. H1 Antagonists.

Antihistamines. Classification.

First generation H1 blockers. Mechanism of action. Competitive H1 receptor antagonist. Chlorpheniramine, Diphenhydramine, Hydroxyzine, Promethazine hydrochloride, Triprolidine, Azelastine (oral and topical), Levocabastine (topical). Advantages. Disadvantages. Indications.

Second and Third Generation H1 Blockers (non-sedating antihistamines). Astemizole, Azelastine, Ebastine, Ketotifen, Mmizolastine, Terfenadine, Cetirizine dihydrochloride, Levzetirizin, Cetirizine dihydrochloride, Loratadine, Desloratadine, Fexofenadin. Advantages. Disadvantages. Indications.

Leukotriene antagonists (Leukotriene modifiers). Montelukast, Zafirlukast, Pranlukast. Side effects. Indications.

Corticosteroids. Short acting: Hydrocortison, Cortisone. Medium: Prednisone, Prednisolone, Methylprednisolone. Long acting: Triamcinolone, Dexamethasone, Bethamethasone, Beclomethasone. Route of administration. Classification of commonly used topical corticosteroids. Side effects. Indications.

Theophylline. Short-acting (6-12 hours); Long-acting (24 hours). Dosage. Side effects. Indications.

Beta 2-Adrenoceptor Agonists (β -agonists)

Side effects. Indications.

5. Medical History and Physical Examination of Patient with Allergic Rhinocconjunctivitis. Specific Laboratory Procedures

I Allergic rhinitis. Natural history. Skin prick tests. Allergen-Specific Nasal Provocation Testing. Nasal smear for eosinophils. The clinical significance of nasal smear for eosinophils and the type of cells found in nasal secretions is important to define distinction between allergic and non-allergic rhinitis. Measurement of nasal airflow and resistance to airflow: rhinomanometry. Measurement of the nasal surface area: acoustic rhinometry. This is a noninvasive technique for studying the geometry of the nasal cavity.

II Conjunctival provocation testing.

6. Allergen Immunotherapy

Definition. Immune mechanisms. Pharmacological effects. Standardization process in two ways: **Biologically** (the potency of the vaccine is compared to the cutaneous response obtained in a reference population) and **Immunologically** (the potency of the vaccine is based on RAST-inhibition experiments using standard pools of sera). Standardized allergen extracts should be preferred for allergy diagnosis and therapy. Indications. Safety and side effects. Systemic reactions. Non-specific reactions. Mild systemic reactions. Non-life-threatening systemic reactions. Anaphylaxis. Risk Factors. long-term benefits of Sublingual immunotherapy. Injection technique. Non-injection methods of administration. Sublingual immunotherapy (SLIT). Oral immunotherapy (OIT). Local nasal (LNIT). Local bronchial (LBIT).

7. Food and Drug Provocation Tests.

I Food allergen provocation tests. The food allergen provocation test (FAPT) provides a gold standard diagnostic for food-related adverse reactions leading to appropriate food avoidance. The test is also indicated for follow-up of previously diagnosed food sensitivities. Indications. Procedure.

II Drug provocation tests. The DPT is widely considered to be the "gold standard" to establish or exclude the diagnosis of hypersensitivity to a certain substance, as it not only reproduces hypersensitivity symptoms, but also any other adverse clinical manifestation, irrespective of the mechanism. Indications. Procedure

8. Diagnosis of Hymenoptera Venom Allergy

Hymenoptera venom allergy is an immunoglobulin E (IgE)- mediated hypersensitivity to the venom of insects in the insect order Hymenoptera. Reactions to Hymenoptera stings are classified into: normal local reactions; large local reactions, systemic toxic reactions, systemic anaphylactic reactions, and unusual reactions. The most frequent clinical patterns are large local and systemic anaphylactic reactions. Risk factors of Hymenoptera venom allergy. Risk factors influencing the outcome of an anaphylactic reaction. Diagnosis. History. Skin tests. In vitro tests. Allergen-specific IgE In vitro radioallergosorbent test (RAST). Allergen-specific IgG. Baseline serum tryptase. Other in vitro tests. Sting challenge tests.

На кредита по Клинична алергология съответства точки, разпределени както следва:

Дейности	Мах.бр.точки	Мах.кредити	Процент
1. Присъствие и участие в практически-те занятия			
2. Присъствие на лекции			
3. Самостоятелна подготовка за практически занятия			
5. Самостоятелна подготовка за задължителен текущ контрол			
6. Самостоятелна подготовка за семестриален изпит			
ОБЩО			

МЯСТО НА ДИСЦИПЛИНАТА В ЦЯЛОСТНОТО ОБУЧЕНИЕ:

Клиничната алергология ще обогати значително учебно-практичната подготовка на студентите магистри по специалността медицина. Клиничната алергология дава основа за разбиране на важни процеси в живия организъм, свързани с различните видове видове алергични реакции, тяхното клинично протичане, лечение и евентуална превенция.

ОЧАКВАНИ РЕЗУЛТАТИ:

Резултатите са свързани с постигане на целта на курса: изучаване на основите на клиничната алергология, получаване на практични умения в провеждането на различните специфични изследвания/КАП, спирометрия/, познаване клиничното протичане на алергичните болести и основните принципи в тяхното лечение.

QUESTIONARY

Theoretical exam

1. Basic concepts in allergology.
2. Definition of atopy. Genetic mechanisms.
3. Types of allergens.
4. IgE reagins. First type of hypersensitivity.
5. Anaphylactic reactions. Immunological and pathophysiological mechanisms.
6. Antihistamines. Classification. Pharmacology and clinical use.
7. Leukotriene Receptor Antagonists (LTRAs). Pharmacology and clinical use.

8. Glucocorticoids. Pharmacology. Clinical use of systemic, topical and inhaled steroids.
9. Xanthines. Theophylline. Pharmacology and clinical use.
10. Sympathomimetics. Classification and clinical use.
11. Atopic asthma. Definition. Prevalence. Etiology. Classification.
12. Atopic asthma. Pathophysiological and immunological mechanisms.
13. Asthma symptoms.
14. Diagnosis and differential diagnosis of asthma. Treatment
15. Allergic rhinitis. Classification. Symptoms and treatment.
16. Allergic conjunctivitis. Classification. Symptoms and treatment.
17. Insect sting allergy.
18. Urticaria and Angioedema.
19. Hereditary Angioedema.
20. Atopic Dermatitis
21. Food allergy. Definition. Causes and Pathophysiological mechanisms.
22. Food allergy. Symptoms Diagnosis and Treatment.
23. Drug Allergy. Definition. Causes and Pathophysiological mechanisms.
24. Drug Allergy. Symptoms Diagnosis and Treatment.
25. Contrast Medium Reactions.
26. Allergy to Anesthetic Agents.
27. Erythema exudativum multiforme. Stevens-Johnson syndrome. Lyle's syndrome.
28. Anaphylactic reactions. Causes and Pathophysiological mechanisms.
29. Anaphylactic reactions and Emergency Treatment.
30. Allergen Immunotherapy. Definition. Indications and contraindications.
31. Allergen Immunotherapy. How is Treatment administered? Expected effects. Side effects.

Practical exam

1. Medical history of patient with allergic disease.
2. Physical exam of patient with allergic disease.
3. Specific laboratory tests used for allergic diseases.
4. Skin testing. Scratch tests.
5. Skin testing. Prick tests.
6. Skin testing. Intradermal tests.
7. Skin testing. Patch tests.
8. Specific IgE testing. In vitro testing.
9. Spirometry tests
10. Bronchial challenge tests
11. Bronchoprovocation tests with methacholine and allergens
12. Allergen nasal provocation tests. Rationale and indications
13. Allergen conjunctival provocation tests. Rationale and indications
14. Allergen food and drug provocation tests. Rationale and indications
15. Contrast Medium and Anesthetic Agent tests
16. Allergen Immunotherapy technique

Pleven

Vanya Tsvetkova, MD, PhD