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Approved

At the meeting of the Faculty Council
Medicine No. 1

Minutes No. 3 of 24.10.2013

Dean of Faculty of Medicine No. 1

PhD, associate professor  Gh. Plăcintă

Approved

Discipline of Internal Medicine Minutes

No. 1 of 28.08.2014

Head of the Discipline of Internal Medicine
PhD, professor  Ion Țîbîrnă

SYLLABUS FOR STUDENTS OF FACULTY OF MEDICINE 1 SPECIALIZATION PUBLIC HEALTH

Name of the course: **Immunology**

Code of the course: **S.11.O.095**

Type of course: **compulsory**

Total number of hours – 35

lectures -10 hours, practical lessons - 25 hours

Number of credits provided for the course: 1,5

Lecturers teaching the course: **Professor Ion Tibirna, MD, PhD**

Professor Minodora Mazur, MD, PhD

Associate Professor Maria Feghiu, MD, PhD

Chisinau 2014



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I. Aim of the discipline

- Studying of the defending function of human and animal bodies, which is a part of a *relationship* function and is *essential* for survival. The immune system is essential for the survival of multicellular organisms, because of permanent aggression of infectious agents (microorganisms and viruses). Immunology studies reactivity of human and animal bodies after their contact with pathogens, the mechanisms of immune response and peculiarities of tissues, cells and molecules that determine the state of immunity. In the classical sense, the notion of immunity defines the state of non-receptiveness or resistance of the body an infectious pathogen, in situation when there are conditions for the emergence of infectious diseases;
- Enriching and deepening of fundamental knowledge and its implementation in clinical practice;
- Deepening of knowledge in the process of diagnosing by setting up and reasoning a program of para-clinical examinations that will facilitate early diagnosis;
- Enhancing and enriching the skills of interpretation of the immunological examinations results for finalization of diagnosis, development of clinical reasoning: assessment of the results of clinical examination of the patient and their relationship to immunological characteristics, diagnostic reasoning, consultations of other specialists, making of differential diagnosis within the studied diseases, formulation of a specific clinical diagnosis and reasoning of the appropriate individual treatment, predicting of the evolution of patient's disease;
- Enhancing, enriching and implementation of knowledge in medical ethics and deontology in clinical practice.

II. Objectives obtained in teaching the discipline

- At the level of knowledge and understanding

For nosological forms:

- To know the definition, incidence, epidemiology, modern aspects of immunodeficiency diseases;
- To know clinical manifestations, including atypical variants, modern classification, peculiarities of clinical examination, modern methods of immunological investigations;
- To make early diagnosis, premorbid conditions, diagnostic criteria, formulating diagnosis, differential diagnosis;
- To know evolution, complications, prognosis;



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- To know medical treatment (if surgery - general principles, indications and contraindications), complications of treatment;
- To know criteria for hospitalization;
- To understand peculiarities of approach in patients with immunological changes without clinical manifestations, their supervision;
- To know diagnostic and treatment algorithm in emergency cases;
- To know primary and secondary prevention, preventing chronicization of acute illnesses, medical expertise of vitality, recovery, medical surveillance;

- At the level of application

- Ñ To take the medical history and assess the data of physical examination of patients with immunodeficiency diseases;
- Ñ To formulate and reason the preliminary diagnosis;
- Ñ To set up and reason the program of paraclinical investigation;
- Ñ To interpret the results of immunological investigations indicated for treatment adjustment;
- Ñ To perform differential diagnosis of the studied diseases;
- Ñ To formulate and reason the positive (clinical) diagnosis
- Ñ To reason an appropriate individual treatment;
- Ñ To be able to predict the evolution of established pathologies.

- At the level of integration

- To appreciate the importance of **Immunology** in the context of Internal Medicine and integration with related health disciplines;
- To apply creatively knowledge of immunology in the process of examination of the patient;
- To deduce the interrelations between immunology and clinic;
- To take optimal decisions in indicating immunological investigations to make early diagnosis;
- To formulate the principles of ethics and deontology in medical care of patients with immunodeficiency diseases;
- To be able to assess and self-assess objectively their knowledge in the field;
- To be able to assimilate new developments in clinical immunology.

III. Provisional terms and conditions

Immunology is one of the basic clinical disciplines in undergraduate training of physicians, regardless of specialty that they subsequently choose, it is the



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widest field of integration and implementation of fundamental knowledge (anatomy, human physiology, pathophysiology, etc.) in clinical practice. Within this discipline, along with studying the clinical manifestations of disease, its evolution, treatment and prevention, future specialist gains practical skills in clinical and paraclinical examination of the patient and assessment of the results, put the basis of clinical reasoning, things that ensure an accurate diagnosis and appropriate treatment.

Immunology course for students of the faculty of medicine, specialty of Public Health includes studying contemporary clinical immunology of immunological mechanisms of cardiovascular, renal, hepatic, neuro-endocrine diseases in the context of clinical immunology.

Basic object of study is the patient. All topics are discussed showing clinical examples. Some of the topics are studied independently under the guidance of a teacher.

The current curriculum provides teaching of the subject of Immunology to students of Faculty of Medicine, specialty Public Health, VIth academic year (semester 11).

To learn this subject, good sound knowledge of chemistry, human anatomy, human histology and embryology, molecular biology and genetics, human physiology, pathophysiology, morphopathology, pharmacology, medical semio logy, internal medicine are needed.

IV. Main theme of the course

A. Lectures:

| No. | Topic | Hours |
|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Immunology, VIth year, XIth SEMESTER | | |
| 1 | The immune system of the body. Central and peripheral lymphoid organs immunogenesis. Characterization of T and B lymphocytes. Structural and functional characteristics of immunoglobulins. | 1 1 |
| 2 | Primary (hereditary) and acquired immunodeficiencies. HIV infection. Insufficiency of nonspecific resistance. Auto-sensibilisation | 1 1 |
| 3 | Auto-immune diseases. | 2 |
| 4 | Immunological mechanisms of cardiovascular, renal, hepatic, neuro-endocrine diseases. Immunopathology of the blood elements. | 1 1 |
| 5 | Immediate and delayed hypersensitivity. Transplant rejection reaction. | 1 1 |
| Total hours | | 10 |
| TOTAL HOURS OF LECTURES IN THE SUBJECT | | 10 |



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B. Practical lessons:

| No. | Topic | Hours |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Immunology, VIth year, XIth SEMESTER | | |
| 1 | Clinical examination, completing the patient's file. Practical skills of clinical and immunological investigation of the patient and assessment of the results obtained. Prescription of specialized diagnostic procedures. | 5 |
| 2 | Diagnostic immunological reactions. Interpretation of immunological tests. | 5 |
| 3 | Elaboration of a treatment plan. Prescription of hygienic recommendations and diet. Presentation of the patient during a visit. | 2 2 1 |
| 4 | Study of clinical material in accordance with the syllabus. Systemic lupus erythematosus, IIM, systemic scleroderma, differential diagnosis, treatment. Examination of patients. | 3 2 |
| 5 | Study of clinical material in accordance with the syllabus. Serum sickness. Quincke edema. Acute allergosis. Drug induced disease, pharmacotherapy of anaphylactic shock. Examination of patients. | 2 1 1 1 |
| Total hours | | 25 |

V. Recommended literature:

- A. compulsory:

1. P. Harrison Principles of internal medicine vol 1,2 ed.18
2. Immunology for Medical Students: Amazon.com: With STUDENT CONSULT Online Access, 2e R.Nairn

- B. additional:

1. Vera Onu. Imunitatea și alergia (Material didactic pentru studenți și rezidenți).- Chi in u, 2007

VI. Teaching and learning methods Immunology is taught in classical manner: lectures and practical lessons. Lectures are delivered by lectures. At practical lessons students visit the patients for clinical examination under the guidance of the teacher, present clinical cases, write medical records according to an established scheme (IVth year, 8th semester), and participate in instrumental examinations and curative procedures for patient. Basic object of study is the patient. Each topic foreseen in the syllabus is carried out by presentation (by one of the students) and discussion of the patient (or patients) with certain nosological form, with the active participation of all students in the group. Informational technologies methods (simulated clinical cases) are used at practical lessons.



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The Department reserves the right to perform some practical lessons in an interactive manner.

VII. Suggestions for individual activity From the pedagogical point of view, one of the least effective methods of learning is passive listening of lectures, even if they are thoroughly structured and illustrated, including using multimedia technologies. Even if the material is interesting, and the student - motivated enough, many ways of processing the material studied are necessary to learn something. Practicing is much more effective than reading about how to do something, but even more effective is to teach someone else to do the same.

Based on the above said, if you want to have success in learning Immunology, you should actively work with the material. We offer some suggestions below:

1. First read the material, not just look through it. Take notes. Try to formulate the main points. Study the diagrams and pictures in the textbook and workbook. Answer the questions from your workbook.
2. Attend lectures and practical lessons, but not just for attendance! Otherwise you are unlikely to meet the requirements. Take notes. Try to assimilate the information, asking yourself: Do I agree with the teacher? Do I understand what it is about? Does the material taught correspond to the one in the textbook?
3. Ask questions! Ask your teacher, each other, or yourself. Do this in the auditorium, study hall, teacher's office. Asking questions means that you are trying to understand and process the material taught and can only be welcomed. Each student has the right to ask his teacher for individual counseling in teacher's working hours, or in hours foreseen for recovering academic debts (from 14.00 until 17.00) .
4. Gather in groups of 2-3 students to discuss the course material and prepare for tests. Usually working in small groups provides a much better and clearer understanding than when working individually. In addition, the ability to explain the material learned to colleagues will be very helpful in the future.
5. An effective method of training is preparing scientific reports on a certain topics.

Use your time reasonably. Studying immunology is not easy. The same is true for many subjects taught in this academic year. Therefore, you have to manage your time and find perfect balance between the effort to obtain knowledge, other responsibilities and personal life. According to the requirements, for each hour of work in direct contact with the teacher, the student must work individually for



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1-2 hours. In other words, to acquire sufficient knowledge in Immunology, you have to work individually at least 5 hours per week

VIII. Methods of assessment

Evaluation of the students' knowledge is done at practical lessons by assessment of their theoretical knowledge (orally, written tests), practical skills in examination of the patient, reasoning the diagnosis; by checking the medical records written by them, by solving problems - clinical situations and during the test at the end of the course.

The discipline Immunology ends with a undifferentiated colloquium.

IX. Language of study: Romanian