FACULTY OF MEDICINE 1

STUDY PROGRAM 0912.2 MEDICINE

DEPARTMENT OF RHEUMATOLGY AND NEPHROLOGY

APPROVED
at the Commission for Quality Assurance and Evaluation of the Curricula meeting
Minutes No. 1 of 16.09.21
Chairman, PhD, associate professor
Suman Serghei _____

APPROVED
at the Council of Faculty of Medicine 1
Minutes No. 1 of 21.09.21
Dean of Faculty, PhD, associate professor
Plăcintă Gheorghe _____

APPROVED
approved at the meeting of the Discipline of rheumatology and nephrology
Minutes Nr. 2 of 14 september 2021
Head of discipline, professor, PhD
Liliana GROPPA _____

CURRICULUM

CURRENT ISSUES IN THE DIAGNOSTIC AND TREATMENT OF KIDNEY DISEASES.

Integrated studies

Type of Course: **Optional course**

Curriculum developed by the team of authors:

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- **Introduction**

  - General presentation of the discipline: the role of the discipline in the formation of the specific abilities of the professional/specialty training program

Current issues in the diagnostic and treatment of kidney diseases is a suitable medical field for the integration of additional knowledge for the clinical practice (diagnostic criteria, new methods in the diagnosis and management etc.). During this course, along with the study of etiology, pathogenesis, clinical manifestations, natural history, management and prevention of renal diseases, the future doctor will grasp practical skills for the physical examination as well as for the interpretation of results.

- **The aim (goal) of the curriculum in professional training**

Current issues in the diagnostic and treatment of kidney diseases has the aim to accrue knowledge and develop necessary skills for providing a diagnosis, management scheme and rehabilitation of patients with kidney diseases.

- **Language(s) of the course**: Romanian, Russian, English, French.
- **Beneficiaries**: 4th year students, Faculty of Medicine 1 and 2

- ADMINISTRAREA DISCIPLINEI

Code of discipline		**S.08.A.072.2**	
Name of the discipline		**Current issues in the diagnostic and treatment of kidney diseases**	
In charge of the discipline		**Dr. hab., PhD, professor Liliana Groppa**	
Year	**IV**	Semester	**VIII**
Total number of hours, including:			**30**
Lectures	**10**	Practical hours	**10**
Seminars	**-**	Individual hours	**10**
Forms of assessment	**E**	Number of credits	**1**
Code of discipline		**S.08.O.072.2**	
Name of the discipline		**Current issues in the diagnostic and treatment of kidney diseases**	
In charge of the discipline		**Head of chair, professor, doctor, PhD Liliana GROPPA**	
Year	**IV**	Semesters	**VIII**

Total hours			Nr. ore pe tipuri de activități				Type of assesment	No. ECTS credits
Total	**Direct contact**	**Selftraining**	**Clinical training**	**Course**	**Practice, laboratory**	**Seminar**		

30	20	10	-	10	work 10		E	1

- **TRAINING AIMS WITHIN THE DISCIPLINE**

At the end of the module the student will be able to:

- At the level of knowledge and understanding
  1. Comprehend the basics principles from pathology, pathophysiology, pharmacology and semiology.
  2. Understand and apply the specific nomenclature from the course of *Current issues in the diagnostic and treatment of kidney diseases*
  3. Understand the biological principles that are helpful in the comprehension of human pathology and to facilitate making correlation between basic and clinical medical sciences.

- At the application level:
  1. **Theoretically:** acquiring the knowledge related to the clinical features of renal diseases.
  2. **Practice:**
     - Clinical examination of a patient with renal diseases (Practical skills annex 1)
     - At the end of the course, students must be able to interpret radiological, computer tomography, MRI and ultrasound images of the renal system, describe the laboratory results such as acute phase proteins or immunological screening.
     - At the end of the course, students must be able to interpret imaging results of the urinary tract, urinalysis, acid-base and electrolyte tests in correlation with the patient's clinic, acute phase reactants results, immunological tests, renal function tests, general principles of the renal replacement therapies (transplant, hemodialysis, peritoneal dialysis)

- ***at the integration level:***

1. To acknowledge the importance of nephrology in clinical medicine;
2. To approach creatively issues from clinical practice;
3. To draw a logical interrelationship between nephrology and other clinical disciplines;
4. To be able to implement and integrate clinical knowledge;
5. To be able to determine and self-evaluate their knowledge;
6. To be able to comprehend new information from clinical disciplines.

- **PROVISIONAL TERMS AND CONDITIONS**

Current issues in the diagnostic and treatment of kidney diseases is a suitable medical field for integration and implementation of basic medical sciences in clinical practice (anatomy, human physiology, microbiology, pathophysiology etc.). During the course, the student will study the etiology, pathogenesis, clinical manifestations, evolution, treatment and prevention measures of renal diseases, as well as grasp the practical skills and describe the obtained results.

Nephrology has a distinct position in establishing the foundations of clinical thinking, which will impart the future doctor with the necessary skills and knowledge to put the correct diagnosis, treat the disease as well as fix emergency situations related to renal disease.

- **THEMES AND ESTIMATE ALLOCATION OF HOURS**

Lectures, practical hours/ laboratory hours/seminars and self-training

Nr. d/o	SUBJECTS	Number of hours		
		Lectures	Practical hours	Self-training
1.	Renal involvement in systemic diseases.	2	2	2
2.	Diabetic kidney diseases.	2	2	2
3.	Genetic diseases in nephrology.	2	2	2
4.	Polycystic kidney disease.	2	2	2
5.	Kidney replacement therapies.	2	2	2
Total		**10**	**10**	**10**

- **CLINICAL SKILLS**
- Taking the history of the patient with kidney diseases.
- Physical examination of the urinary system.
- Interpretation of laboratory results (urine, biochemistry, immunological tests).
- Interpretation of imaging tests (Xray, ultrasound, CT, MRI etc.)

- **REFERENCE OBJECTIVE OF CONTENT UNITS**

Objectives	Content units
Subject (chapter) 1. RENAL INVOLVMENT IN SYSTEMIC DISEASES.	
• To define the notion of systemic disease • To comprehend the diagnostic methods used in systemic lupus erythematosus, rheumatoid arthritis, polyarteritis nodosa, vasculitis, mixed connective tissue disease, systemic sclerosis. • To demonstrate the role of autoimmune factors in the pathogenesis of renal involvement in systemic diseases. • To integrate the knowledge in the treatment of systemic diseases.	1. Definition. 2. Epidemiology. 3. Etiopathogenesis. 4. Classification. 5. Clinical manifestations. 6. Laboratory assessment and diagnostic imaging. 7. Management principles. 8. Evolution. 9. Treatment. 10. Prognostic.
Subject (chapter) 2. DIABETIC KIDNEY DISEASE. DEFINITION. CLASSIFICATION. EPIDEMIOLOGY. PATHOGENESIS. PARACLINICAL MANIFESTATIONS. PREVENTION AND TREATMENT.	
• To define the notion of diabetic kidney disease. • To know the diagnostic criteria for diabetic kidney disease • To understand the mechanism of how diabetic kidney diseases lead to chronic kidney disease. • To explain the role of etiological factors in the development of diabetic nephropathy. • To apply the knowledge in the treatment of diabetic kidney diseases.	1. Definition. 2. Epidemiology. 3. Etiopathogenesis. 4. Classification. 5. Clinical manifestations. 6. Laboratory assessment and diagnostic imaging. 7. Management principles. 8. Evolution. 9. Treatment. 10. Prognostic.

Objectives	Content units
Subject (chapter) 3. GENETIC DISEASES IN NEPHROLOGY	
• To define the autosomal dominant polycystic kidney disease, Alport syndrome. • To apprehend the clinical and paraclinical manifestations in polycystic kidney diseases, Alport syndrome. • To demonstrate the role of genetic diseases in the progression of chronic kidney disease • To apply the accrued knowledge in the treatment of autosomal dominant polycystic kidney disease, Alport syndrome.	1. Definition. 2. Epidemiology. 3. Etiopathogenesis. 4. Classification. 5. Clinical manifestations. 6. Laboratory assessment and diagnostic imaging. 7. Management principles. 8. Evolution. 9. Treatment. 10. Prognostic.
Subject (chapter) 4. POLYCYSTIC KIDNEY DISEASE.	
• To define polycystic kidney disease • To understand the paraclinical methods that can aid us in the differentiation of polycystic kidney and simple kidney cysts. • To know the prognosis of polycystic kidney diseases.	1. Definition. 2. Epidemiology. 3. Etiopathogenesis. 4. Clinical manifestations. 5. Laboratory assessment and diagnostic imaging. 6. Management principles. 7. Evolution. 8. Treatment. 9. Prognostic.
Subject (chapter) 5. KIDNEY REPLACEMENT THERAPIES (HEMODIALYSIS, RENAL TRANSPLANT, PERITONEAL DIALYSIS)	
• To understand the basic principles of hemodialysis, peritoneal dialysis and renal transplantation. • To know the advantages and disadvanges of each kidney replacement therapy. • To know the indications of kidney replacement therapies. • To understand the indication of kidney replacement therapies. • To demonstrate the relative and absolute contraindications of each kidney replacement therapies.	1. Definition. 2. Epidemiology. 3. Etiopathogenesis. 4. Clinical manifestations. 5. Laboratory assessment and diagnostic imaging. 6. Management principles. 7. Evolution. 8. Treatment. 9. Prognostic.

- **PROFESSIONAL (SPECIFIC (PC)) AND TRANSVERSAL (TC) COMPETENCES AND STUDY OUTCOMES**

Professional (specific) (PC) competences

- PC1. - Responsible execution of professional tasks with the application of the values and norms of professional ethics, as well as the provisions of the legislation in force

- PC2. - Adequate knowledge of the sciences about the structure of the body, physiological functions and behavior of the human body in various physiological and pathological conditions, as well as the relationships between health, physical and social environment
- PC3. - Resolving clinical situations by developing a plan for diagnosis, treatment and rehabilitation in various pathological situations and selecting appropriate therapeutic procedures for them, including providing emergency medical care
- PC4. - Promoting a healthy lifestyle, applying prevention and self-care measures
- PC5. - Interdisciplinary integration of the doctor's activity in a team with efficient use of all resources
- PC6. - Carrying out scientific research in the field of health and other branches of science
- **Transversal competences (TC)**
- TC1. - Independency and responsibility

- **Study outcomes**

Teaching students in line with the strictness of the medical act and the understanding of basic sciences for the particular level, as well as for the professional formation. Obtaining of the practical skills to perform correctly various medical tests and understand their real value. Theoretical and practical training for helping students put the correct diagnosis of renal diseases.

Note. Study outcomes are deduced from the professional competencies and formative valences of the informational content of the discipline.

- **SELF-TRAINING**

No.	Expected product	Implementation strategies	Assessment criteria	Implementation terms
1.	Interacting with patients.	Examination of the patient and putting a presumptive diagnosis, with subsequent confirmatory tests and treatment recommendations.	The ability to create conclusions and the correctitude of writing the medical report.	During the course.
2.	Preparation of presentations, posters and reports.	Selecting the research subject, determining the outline and deadline. Selecting the components of the projects, presenting the PowerPoint, poster or report – title, scope, results, conclusions, practical applications and references.	The degree of insight of the project's subject, the level of scientific support provided, the quality of conclusions, creativity elements; the formation of personal aptitudes, scientific data coherence and correctness, graphical representation, mode of presentation.	Until the end of the course.
3.	Using different teaching methods.		The degree of insight of the project's subject, the level of scientific support provided, the quality of conclusions, creativity elements; the formation of personal aptitudes, scientific data coherence and correctness.	During the course.

- **METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-ASSESSMENT**
  - ***Teaching and learning methods used***

Current issues in the diagnostic and treatment of kidney diseases is taught in conformity with the classical university standards: courses, seminars. The theorical course is held by tenured professors. ***The discipline reserves the rights to hold the practical lessons and courses in an interactive manner.*** The algorithm of the practical lessons in *Current issues in the diagnostic and treatment of kidney diseases*: duration – 2 academic hours (90 min.)

a) The professor answers the students' questions regarding the today's topic – 10 min
b) Discussion of the topic using various didactical and graphical materials – 10 min
c) The discussion of the clinical cases based on problem-based situations integrated with laboratory and imaging results – 60 min.
d) Assessment of the practical lesson, conclusions – 10 min

- ***Applied teaching strategies***

Try to understand the key nomenclature, explained by the professor, although you should not focus on the assessment methods; study not only for the exams, but to obtain the knowledge that you will use further in other disciplines.

The course is intended to meet the students' needs for professional development in nephrology, for this reason ask the teacher to support the information through examples, applications, theoretical and practical problems, these will assure an interactive mode of learning.

Use different methods of interaction of active reading and resources, which will incite critical thinking to solve different situational problems. These will systemize the students' abilities.

"Try to be a professor" – explain your colleagues the key ideas of the studied topic, give personal examples, explain harder issues, listen to their opinions. The ability to explain the topic to your colleagues will develop your thinking and oral skills.

- ***Applied teaching methods.***

Presentation of clinical case – this teaching method is based on the analysis of the clinical situation of a real (from the department of nephrology) or virtual, roleplaying "patient-student-professor", which will allow to form the connection between theoretical and practical knowledge and will serve as a platform for clinical teaching.

- ***Assessment methods.***

Continuous assessment

a. During practical lessons – at each practical lesson, the student is evaluated at the patient's bedside, oral report presentations.

Final assessment

The exam on the discipline is multiple-choice tests (variant "Test Editor" PI SMPU "Nicolae Testemițanu"). The multiple-choice test is comprised of 50 questions per test on all the discussed topics on **Current issues in the diagnostic and treatment of kidney diseases**, of which 20 questions are with one correct answer, and the other 30 are with multiple correct answers. The student has overall 1 hour to answer the questions. The test is assessed with marks from 0 to 10.

Absence for the final assessment without any serious ground is equivalent to "0" (zero). The student has the right to retake the final failed assessment two times consecutively. The final assessment is an differentiated colloquy.

Assessment is marked with grades from 10 to 1, without decimals:

- Mark 10 or "excellent" (ECTS equivalent – A) is given for studying 91-100% of the material.

- Mark 9 or "very good" (ECTS equivalent – B) is given for studying of 81-90% of the material.
- Mark 8 or "good" (ECTS equivalent – C) is given for studying of 71-80% of the material.
- Mark 6 and 7 or "fair" (ECTS equivalent – D) is given for studying of 61-65% and 66-70% respectively, of the material.
- Mark 5 or "poor" (ECTS equivalent – E) is given for studying of 51-60% of the material.
- Mark 3 and 4" (ECTS equivalent – FX) is given for studying of 31-40% and 41-50% respectively, of the material.
- Mark 1 and 2 or "insufficient" (ECTS equivalent – F) is given for studying of 0-30% of the material.

Mark rounding method at different assessment stages

Intermediate marks scale (annual average, marks from the examination stages)	National Assessment System	ECTS Equivalent
1,00-3,00	2	F
3,01-4,99	4	FX
5,00	5	E
5,01-5,50	5,5	
5,51-6,0	6	
6,01-6,50	6,5	D
6,51-7,00	7	
7,01-7,50	7,5	C
7,51-8,00	8	
8,01-8,50	8,5	B
8,51-8,00	9	
9,01-9,50	9,5	A
9,51-10,0	10	

- **RECOMMENDED REFERENCES:**

A. Compulsory:

1. Rheumatology and Nephrology. Under the editorship of prof. Liliana Groppa, Chisinau, 2019
2. KDIGO Guidelines:
   a. KDIGO Clinical Practice Guideline on Glomerular Diseases - Public Review Draft June 2020. 2020;
   b. KDIGO Autosomal Dominant Polycystic Kidney Disease. 2016.
   c. KDIGO 2020 Clinical Practice Guideline for Diabetes Management in Chronic Kidney Disease
   d. KDIGO 2020 Clinical Practice Guideline on the Evaluation and Management of Candidates for Kidney Transplantation.
   e. KDIGO 2017 Clinical Practice Guideline on the Evaluation and Care of Living Kidney Donors.
   f. KDIGO 2009 Clinical Practice Guideline for the Care of Kidney Transplant Recipients

B. Additional:

1. Levy J, Brown E, Lawrence A. Oxford Handbook of Dialysis. Oxford University Press; 2016.
2. Steddon S, Chesser A, Cunningham J, Ashman N. Oxford Handbook of Nephrology and Hypertension. Oxford Handbook of Nephrology and Hypertension. 2014.
3. Feehally J, Floege J, Tonelli M, Johnson JR. Comprehensive Clinical Nephrology. 6th ed. Elsevier; 2019.

4. A. Yu, G. Chertow, V. Luyckx, P. Marsden, K. Skorecki, M. Taal, Brenner and Rector's The Kidney, 2-Volume Set, 11th Edition, 2019.