

CONTENTS

Foreword	4
List of abbreviations	5
Introduction	6
Chronic pyelonephritis	7
Acute and chronic glomerulonephritis	25
Secondary nephropathies. Tubulointerstitial nephritis. Nephrotic syndrome . . .	53
Acute kidney injury. Chronic kidney disease	77
References	102

FOREWORD

The issue of diagnosis and treatment is relevant not only to specialists in nephrology, but also for allied health professionals. The prevalence of chronic kidney disease makes it necessary to deepen and improve the knowledge of nephrology among residents in higher medical education institutions. This educational tutorial on nephrology aims to provide comprehensive information and practical guidance for both specialists and general practitioners dealing with kidney-related conditions. It is designed to enhance the understanding of renal diseases, their diagnosis, treatment, and management in order to improve patient outcomes and quality of care. We hope that this tutorial will serve as a valuable resource for medical professionals striving to excel in the field of nephrology.

INTRODUCTION

This publication is intended for medical professionals and students mastering the basic educational program of higher education in General Medicine (31.05.01). The study of nephrology is a crucial part of medical education because kidney disease is a significant issue in modern healthcare. If not properly diagnosed and treated, renal disorders can lead to serious complications and even death.

The guidelines on nephrology for medical students provide valuable information about the theoretical fundamentals of this field, the classification, causes, development mechanisms, symptoms, diagnostic methods, and treatment of the most common kidney diseases. The manual also includes practical tasks for enhancing students' skills, examples of clinical cases, test questions for self-assessment, and a list of recommended literature for further reading.

Particular attention is paid to diseases such as chronic pyelonephritis, acute and chronic glomerulonephritis, acute kidney injury, and chronic kidney disease. By reading these manual, medical students can gain the necessary knowledge and skills to diagnose, treat, and prevent kidney disorders effectively. They will also develop clinical thinking and skills to work with patients.

CHRONIC PYELONEPHRITIS

Goal of the class

Based on a clinical assessment of the patient, students must learn the clinical diagnosis of chronic pyelonephritis, acquire knowledge of the etiology of this nosological entity, its pathogenesis, methods of diagnosis, treatment and prevention, which is necessary for the successful implementation of job functions required by the professional standard of a medical doctor (GC-1, 5, 8; GPC-1, 4, 5, 6, 8, 9, 10; PC-1, 2, 5, 6, 10, 15, 16).

Objectives of the class

Tasks aimed at developing general cultural and general professional competencies.

1. Teach students to analyze the patient's medical history, information from the outpatient card and discharge summaries (if the patient was previously in hospital treatment), in order to draw up a plan for additional clinical and laboratory examination (GC-1).
2. Inform students about the need for self-development, self-realization and self-education (GC-5).
3. Develop readiness to work in a team; tolerantly perceive social, ethnic, religious and cultural differences (GC-8).
4. Teach students to be ready to solve standard tasks of professional activity using information, bibliographic resources, medical and biological terminology, information and communication technologies, taking into account the basic requirements of information security, preservation of medical secrecy and personal data (GPC-1).
5. Teach students to be able and ready to implement ethical and deontological principles in professional activities, to implement them when supervising patients diagnosed with chronic pyelonephritis (GPC-4).
6. Tell about the necessity to be prepared to analyze the results of one's own activities to prevent professional mistakes (GPC-5).
7. Learn how to fill out medical documentation (outpatient and inpatient cards, prescription forms, form No. 148-1/u-88) (GPC-6).
8. Discuss medications needed for the treatment of patients with chronic pyelonephritis (GPC-8) and teach how to prescribe them when the above conditions are identified (GPC-9).
9. Discuss the organization of patient care and the provision of primary pre-medical care (GPC-10).

Tasks aimed at developing professional competencies, relevant medical professional activities.

1. Teach students to be capable and ready to implement a set of measures aimed at preserving and improving the health of patients, including formation of a healthy lifestyle, prevention of the occurrence and/or spread of diseases, their early diagnosis, identification of risk groups based on the causes and conditions of their occurrence and development, as well as those aimed at eliminating the harmful effects of environmental factors on the health of patients (PC-1).
2. To develop readiness skills to conduct preventive medical examinations, medical examinations and follow-up in patients with chronic pyelonephritis (PC-2).
3. Teach the basic rules for collecting and analyzing patient complaints, their medical history, examination results, laboratory and instrumental studies in order to recognize a condition or establish the presence or absence of a disease (PC-5).
4. In class, analyze the main symptoms and syndromes of the disease, which students will be able to use in their independent practical work in the future (PC-6).
5. Discuss the provision of medical care during exacerbation of chronic pyelonephritis (PC-10).
6. Consider questions of preventing chronic pyelonephritis and explain the need to teach patients basic hygienic health measures that contribute to the prevention of diseases (PC-15).
7. Master the main directions of educational activities to eliminate risk factors for the occurrence of pathological conditions in patients (PC-16).

The objectives of the lesson aimed at developing knowledge, skills and abilities as components of general cultural, general professional and professional competencies are presented in **Table 1**.

Control questions on the topic

1. Definition of chronic pyelonephritis.
2. Etiology of chronic pyelonephritis.
3. Pathogenesis of chronic pyelonephritis.
4. Classification of chronic pyelonephritis.
5. Clinical manifestations of chronic pyelonephritis.
6. Diagnosis of chronic pyelonephritis.
7. Treatment of chronic pyelonephritis.

Table 1. Knowledge, abilities, skills as components of general cultural, general professional and professional competencies when mastering the topic “Chronic pyelonephritis”

Code GC, GPC, PC	Content of the competence	Knowledge	Abilities	Skills
Sections of the class (stages, objects and types of professional activity of the student)				
<i>Examination of the patient in order to establish diagnosis, risk factors for disease development GC-1, GC-8, GPC-1, GPC-4, PC-1, PC-5, PC-6. Professional standard labor function code A/01.7</i>				
GC-1	Possessing the ability for abstract thinking, analysis, synthesis	Methodology of collecting the patient's history	Analysis of outpatient records, discharge summaries (if the patient was previously hospitalized). Analyzing and interpreting data from the results of examination, laboratory and instrumental examination of patients diagnosed with chronic pyelonephritis	Communication and professional skills when conducting a survey
GC-8	Having a willingness to work in a team, tolerantly perceive social, ethnic, confessional and cultural differences	Mastering the principles of conversation for the purpose of building tolerance in communication with colleagues, relatives and patients, taking into account social, ethnic, confessional and cultural differences	Conducting interviews with patients, relatives of patients, colleagues, representatives of medical organizations	Ethical and deontological methods of communication between employees and representatives of medical organizations with patients and medical workers

Table 1, continued

Code GC, GPC, PC	Content of the competence	Knowledge	Abilities	Skills
GPC-1	Being willing to solve standard problems of professional activity using information bibliographic resources, medical and biological terminology of information and communication technologies and taking into account basic information security requirements	Fundamentals of the functioning of information and communication technologies and principles of working with bibliographic and resources in medicine	Searching for information, use modern information technologies, including anticipating the risk of developing pathological conditions	Skills in working in the system of information and communication technologies, bibliographic resources and biomedical terminology
GPC-4	Being able and ready to implement ethical and deontological principles in professional activities, to implement them when observing dispensary patients, including those with established disabilities	Communication principles that allow you to communicate confidentially with patients and relatives caring for the patient	Conducting a conversation with patients, taking into account the characteristics of the patients' social status and education	Ethical and deontological methods of communication with the patient and those caring for him
PC-1	Being capable and ready to implement a set of measures aimed at preserving and improving the health of patients and including the formation of a healthy lifestyle, prevention of the occurrence and/or spread of diseases, their early	Risk factors, causes, leading pathology of chronic pyelonephritis	Assessing the health status of a patient. Prescribing a set of measures for observation, examination, treatment, rehabilitation. Giving recommendations on regimen and nutrition	Technique of examining a patient. Methods and techniques for drawing up an observation plan, examination by specialists, and carrying out preventive vaccinations

Table 1, continued

Code GC, GPC, PC	Content of the competence	Knowledge	Abilities	Skills
	diagnosis, identification of risk groups based on the causes and conditions of their emergence and development, as well as aimed at eliminating the harmful effects of environmental factors on human health			
PC-5	Being prepared to collect and analyze patient complaints, patient history data, findings of physical exam, laboratory, instrumental, pathological, anatomical and other studies for status recognition purposes for establishing the existence or absence of disease	Methodology for collecting past history and complaints, know the reference values of laboratory values and instrumental data	Conducting a patient interview. Carefully collect an epidemiological history, medical history, history of allergies and occupational history. Conducting a physical examination. Assessing and interpreting the results of examination, clinical and laboratory assessment of the patient	The method of collecting past history, general clinical examination of a patient with an assessment of health status
PC-6	Mastering the ability to identify risk groups, symptoms, disease syndromes, and nosological entities in patients in accordance with the International Statistical Classification of Diseases and Related Health Problems (ICD)	Risk factors, clinical manifestations of diseases such as chronic pyelonephritis	Formulating a diagnosis in accordance with ICD codes. Assessing the severity of the patient's condition	Through acquiring the skills of examining a patient, identifying the main syndromes and symptoms of the disease, students should know the methods of differential diagnosis