Logo of the University

GENERAL COURSE TITLE. CLINICAL NUTRITION PRACTICE IN CHRONIC KIDNEY DISEASES (Module 2. Nutrition in Diseases)

Course overview

UNIT NAME: CLINICAL NUTRITION PRACTICE IN CHRONIC KIDNEY DISEASES (CNPCKD)

WELCOME TO Course CLINICAL NUTRITION PRACTICE IN CHRONIC KIDNEY DISEASES!

This course is focused on the nutritional management of chronic kidney diseases. We will learn general information about chronic kidney diseases and their stages. Each class will highlight the most important disorders in chronic kidney disease and nutritional methods for their correction. During the course, we will review cases to enhance understanding of the management of complications in chronic kidney disease. We welcome students who are interested in kidney disease and nutrition with appropriate pre-requisite completion.

Semester:

Lecturer:

Name	**Position**	**Institute**	**Contact information**	**Consulting hours**
Dr. Irina Bacheva	Associate Professor of the Department of Internal Medicine	Karaganda Medical University, Kazakhstan	Phone number: +7 777 611 40 20 Bacheva@qmu.kz	Wednesday and Friday from 13.00 to 15.00 hours
Dr. Evgeniya Lim	Associate Professor, Head of Department of Special surgical disciplines	International Higher School of Medicine Kyrgyzystan	Phone number: +996 553 808 049 lim.evg.115@gmail.com	Monday and Friday from 14.00 to 16.00
Dr. Firuz Umarov	assistant of the department of Rehabilitation and sports medicine	Bukhara state medical university. Uzbekistan	phone number: +998997067691 firuz7umarov@gmail.com	Monday and Friday from 13.00 to 15.00 hours

Type: Elective	Semester load: 25 hours. 1 unit = 45 min 33,3 units =25 hours	ECTS: 1	Groups:

Prerequisites: Nutrition Biochemistry or equivalent; Internal diseases and their treatment or equivalent.

Course Communications:
We appreciate hearing questions from students. You are welcome to email questions or from MOODLE.
Office Hours: online/offline, according to schedule
Any questions about homework, cases or other class related issues contact teachers via e-mail or MOODLE

Course Summary:

The purpose of this course is to understand complications of chronic kidney disease (CKD) and plan various forms of nutritional management for the different CKD‘s stages. CLINICAL NUTRITION PRACTICE IN CHRONIC KIDNEY DISEASES (CNPCKD) course provides basic nutritional management of CKD and end stage of kidney disease (ESKD). However, CKD is very complicated and recent trends in dietary therapy of CKD have changed in favor of preserving the quality of life and prolonging the life of patients with different stages CKD. This course will cover updated knowledge the stages of CKD, diagnosis and nutrition management for correcting hyperkalemia, hyperphosphatemia. Students will learn to clinical examples to prescription nutritional strategy for protein and sodium.

Goals of the course:
The goal of the course is to increase knowledge on a variety of CKD‘s stages, complications. They will also learn about nutritional management there complications for apply that knowledge to their clinical practice

At the completion of the course, students should be able to:

- ✓ explain the guidelines of nutritional therapy for chronical kidney diseases (especially for CKD1-5D),
- ✓ can create nutritional strategy for correcting hyperkalemia, hyperphosphatemia
- ✓ can calculate level of protein in various CKD‘s stages
- ✓ can carry out nutritional medical consultations.

The contents are to be consolidated by means of problem-based learning (case examples).

Schedule:

Class activity: 15,1 Units (11,3 hours)	**Topic**	**Self-preparation: 18,2 Units (13,7 hours)**
	Topic 1. Chronic Kidney Disease (CKD) **Learning goal**: Understand the different stage of kidney disease, renal replacement therapy and nutritional recommendations for CKD **Objectives:** • definition of CKD • determination of glomerular filtration rate (GFR) • various types of renal replacement therapies • state pros and cons of each dialysis option • nutritional management of patients do not receive hemodialysis • medical nutrition therapy for patients receiving replacement therapy	

2 units (90 min)	• create nutritional patterns for patients with CKD depending on individual needs	
	Plan of work:	**4 units =180 min**
	I PART - Basic information about CKD *10 minutes to classroom work*: introduction, explanation of the work plan, topics on CKD	
		2 units =90 min studying the following topics: definition of CKD, stages of CKD, GFR calculation formula, dialysis, transplantation. Students need to study the material on the Moodle platform: «I PART. Chronic Kidney Disease (CKD1-5)»; «I PART. Information on Kidney Transplantation»; «I PART. Information about dialysis».
	35 minutes to classroom work: - Calculate the glomerular filtration rate (GFR) - describe pros and cons of various types kidney replacement therapy	
	II PART - Nutritional management of CKD *10 minutes to classroom work:* introduction, explanation of the work plan, topics on Nutritional management of CKD	
		2 units=90 min studying the following topics: composition nutritional indices of patients with different stages of CKD and various replacement therapy. Students **need to study** the material on the Moodle platform «II PART - Nutritional management of CKD», **make 1 nutritional therapy plan** for patients (on FORUM): - patients with CKD stages 3-5 not receiving dialysis or - patients with stage 5 CKD receiving dialysis or - patients with stage 5 CKD receiving peritoneal dialysis or - patients after kidney transplantation and **give 1 comments** on any nutritional therapy plan of other students

	35 minutes to classroom work: - Identify the nutritional risk of CKD stages 1-5 - Discuss appropriate nutrition recommendation in various stages of CKD and various replacement therapy	
2,6 units (117 min)	**Topic 2: Protein Foods for the patients of the Chronic Kidney diseases (CKD1-5D)** **Learning goal**: Understanding protein metabolism and recommendations for dietary protein intake in CKD **Objectives**: • Describe and calculate daily requirement protein for the patients of the Chronic Kidney diseases (CKD1-5D) • Calculate protein portions • Describe and calculate animal and vegetable protein sources • Create recommendation of the protein diet on the clinical situations patients of kidney disease	
	Plan of work	**4 units =180 min**
	10 minutes to classroom work: introduction, explanation of the work plan, topics on metabolism of protein CKD	
		3 units =135 min studying the following topics: «Protein CKD», «An example of calculating protein per daily serving for patients with CKD», «KIDNEY DISEASE AND PROTEIN», «Strategy of choice protein to patients with CKD», «Protein portion», «Types of Proteins»
	87 minutes to classroom work: - List sources of animal and plant protein; - Calculate daily protein intake for patients with CKD - Describe the pros and cons of dietary protein restriction strategies for patients with CKD	
	20 minutes to classroom work: presentation of Case 1 and explanation of homework on creating dietary recommendations to Case 1	
		1 units =45 min Calculate proteins in a diets of a patient with CKD (Case 1 "Protein intake in a patient with diabetes mellitus")
1 unit (45 min)	Discussion of students dietary recommendations to Case 1 "Protein intake in	

	a patient with diabetes mellitus" and creating feedback	
2,6 units (117 min)	**Topic 3: Hyperphosphatemia in patients with the Chronic Kidney diseases (CKD1-5D)** **Learning Goal:** Understanding the role of phosphorus and low-phosphorus diets for the treatment of people with CKD (CKD1-5D) **Objectives:** • Describe and calculate daily requirement phosphorus for the patients of the Chronic Kidney diseases (CKD1-5D) • Describe and calculate animal and vegetable phosphorus sources • Create a low-phosphorus diets for patients of the Chronic Kidney disease	
	Plan of work	**4 units =180 min**
	20 minutes to classroom work: introduction, explanation of the work plan, topics of the importance of phosphorus in the body	
		3 units =135 min studying the following topics: «Causes of hyperphosphatemia», «Phosphate homeostasis, monitoring and managment of hyperphosphatemia in patients with the Chronic Kidney diseases» «Examples of Patient Education Infographics to Reduce Phosphorus Loading»
	77 minutes to classroom work: - List the main sources of dietary phosphate; - Describe the pros and cons of dietary phosphorus restriction strategies for patients with CKD	
		1 unit =45 min the student needs to read the assignment on the forum and complete it.
	20 minutes to classroom work: presentation of Case 2 and explanation of homework on creating dietary recommendations to Case 2	
1 unit (45 min)	Discussion of students dietary recommendations to Case 2 "Daily food plan for patients with hyperphosphatemia on the hemodialysis" and creating feedback	

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<tr><td rowspan="9">2,4 units (108 min)</td><td colspan="2">Topic 4: Hyperkalemia and its diet correction in a treatment of patients with the Chronic Kidney diseases (CKD1-5D)

Learning Goal: Understanding homeostasis, excretion of potassium and dietary potassium is the focus of these recommendations with CKD

Objectives:
• Describe and calculate daily requirement potassium for the patients of the Chronic Kidney diseases (CKD1-5D)
• Describe and calculate potassium sources
• Create recommendation of the lower amount
of potassium, diet on the clinical situations patients of kidney disease</td></tr>
<tr><td>Plan of work</td><td>4 units =180 min</td></tr>
<tr><td>10 minutes to classroom work:
introduction, explanation of the work plan, topics of the importance of potassium in the body</td><td></td></tr>
<tr><td></td><td>1 unit =45 min
studying the following topics:
«The methabolism of potassium»
«The daily potassium requirements calculator»</td></tr>
<tr><td>10 minutes to classroom work:
introduction, explanation of the work plan, topics of the Potassium in CKD Diet</td><td></td></tr>
<tr><td></td><td>2 units =90 min
studying the following topics:
«Potassium in CKD Diet»
«Diet on the patients with kidney disease. Low-potassium diet.»
«NKF Guide to Potassium (infographic)»
«Dietary Approach to Hyperkalaemia in Patients with Decreased Kidney Function»</td></tr>
<tr><td>68 minutes to classroom work:
- List the main sources of dietary phosphate;
- Describe the pros and cons of dietary phosphorus restriction strategies for patients with CKD</td><td></td></tr>
<tr><td></td><td>1 unit =45 min
the student needs to read the assignment on the Forum and complete it.</td></tr>
<tr><td>20 minutes to classroom work:
presentation of Case 3 and explanation of homework on creating dietary</td><td></td></tr>
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<tr><td></td><td>recommendations to Case 3 «Daily food plan for CKD patients with Hyperkalemia»</td><td></td></tr>
<tr><td>1 unit (45 min)</td><td>Discussion of students dietary recommendations to Case 3 "Daily food plan for CKD patients with Hyperkalemia" and creating feedback</td><td></td></tr>
<tr><td rowspan="3"></td><td colspan="2">Topic 5: The nutritional support of patients with the Chronic Kidney diseases (CKD1-5D)
Learning Goal: The nutritional support of patients with CKD

Objectives:
Create dietary recommendations taking into account material from topics 1-4 for patients with different stages of CKD</td></tr>
<tr><td>Plan of work</td><td>2,2 unit =99 min</td></tr>
<tr><td></td><td>the student needs to read the assignment Case 4 « Dietary recommendations for a patient with CKD» and complete it</td></tr>
<tr><td rowspan="3">2,5 unit (112,5 min)</td><td colspan="2">Topic 6: Overview of nutrition. Nutrition Management for CKD

<u>Learning Goal</u>: To do analisis, create a personal nutritional treatment plan and nutrition coaching

<u>Objectives</u>:
● Discussing the solutions of the Case 4 «Dietary recommendations for a patient with CKD»
● Discussion of nutritional interventions of various complex indications</td></tr>
<tr><td>Plan of work</td><td></td></tr>
<tr><td>68 minutes to classroom work:
- discussion of student solutions of the Case 4 «Dietary recommendations for a patient with CKD»
44,5 minutes to classroom work:
- discussion of dietary approaches, depending on the stage of CKD, eating habits and national customs
- receiving feedback</td><td></td></tr>
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Previous knowledge required:
Basics of: physiology, biochemistry, pathology, nutritional physiology, basic knowledge of dietetics

Learning methods:

Method: Please tick as appropriate and describe	
Lecture	
x Exercises	**The course contains 4 cases:** Case 1 «Protein intake in a patient with diabetes mellitus»

	Case 2 "Daily food plan for patients with hyperphosphatemia on the hemodialysis" Case 3 «Daily food plan for CKD patients with Hyperkalemia» Case 4 «Dietary recommendations for a patient with CKD» **Topics for discussion:** - create a nutritional therapy plan for patients with CKD - make recommendations for phosphorus control in peritoneal dialysis patients - make flayer "How to cook food to reduce potassium in prepared foods" for CKD patients - discuss the following topic: "Are there benefits from the Plant-Dominant diet in patients with CKD?"
Survey in institutions	
Street survey	
Excursion	
Presentation	
x Seminar paper	Analysis of dietary recommendations compiled via students based on presented Cases 1-4
Project work	
x Group work	Development of flyers, information cards on dietary recommendations for patients with CKD
Other: Videos	

Grading:

Assessment:		**Weighting in %**
1	Homework assignments	60% (development of nutritional recommendations based on cases)
2	Collaboration	
3	Exercises	30%
4	Seminar paper	
5	Midterm exam	
6	Final written exam	
7	Final oral exam	
8	Presentation	
9	Project work	10%
10	Other	

Grade		**In points**
1	Very good	92-100
2	Good	83-91
3	Satisfactory	74-82
4	Sufficient	66-73

5	Not sufficient	0-65

Participation in course:

Students are obliged to attend all courses - as long as they are not prevented by illness or other compelling reasons. In such cases, a written excuse must be sent to the course director, the program director and the secretary's office. In the case of foreseeable valid reasons, the course director and the program director must be informed in advance.

The existing attendance requirement is at least 80% per course. Failure to meet the attendance requirement is equivalent to a negative assessment of the course.

In order to be able to complete the course positively in spite of this, substitute work can be done in consultation with the head of the study program and the head of the course.

If the substitute work is not completed or if the substitute work is evaluated negatively, the first examination is considered to be the second examination. Should the examination also be assessed negatively, a board examination will follow.

Participation in the course will be assessed according to the professional basis of the individual contributions or questions.

Students are expected to arrive on time for the course. If, for reasons beyond their control, students are nevertheless late, they should enter the course room without disrupting the course or fellow students. Cell phones are to be turned off prior to the start of the course. The consumption of food during the course is not permitted.

Literature:

1. Nutrition in Kidney Disease 3 rd ed. Humna Press, Springer Nature Switzerland, 2020. ISBN-978-3-030-44857-8.
2. 2. KDOQI Clinical Practice Guideline for Nutrition in CKD: 2020 Update Am J Kidney Dis 76: 3 (Supp) 2020 www.ajkd.org
3. Fiaccadori E, Sabatino, A, Barazzoni R, et al. ESPEN guideline on clinical nutrition in hospitalized patients with acute or chronic kidney disease. Clin Nutr. 2021;40:1644-1668. https://doi.org/10.1016/j.clnu.2021.01.028
4. McClave SA, Taylor BE, Martindale RG, et al; Society of Critical Care Medicine; American Society for Parenteral and Enteral Nutrition. Guidelines for the provision and assessment of nutrition support therapy in the adult critically ill patient: Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.). JPEN J Parenter Enteral Nutr. 2016;40(2):159-211. https://doi.org/10.1177/0148607115621863
5. Eating Right for Chronic Kidney Disease - NIDDK (nih.gov)
6. Fair DE, Ogborn MR, Weiler HA, Bankovic-Calic N, Nitschmann EP, Fitzpatrick-Wong SC, Aukema HM. Dietary soy protein attenuates renal disease progression after 1 and 3 weeks in Han:SPRD-cy weanling rats. J Nutr. 2004 Jun;134(6):1504-7. doi: 10.1093/jn/134.6.1504. PMID: 15173419.