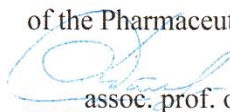


Ministry of Health of Ukraine
National Pirogov Memorial Medical University, Vinnytsya
Department of Clinical pharmacy and clinical pharmacology

«AGREED»

with the Methodical Council
of the Pharmaceutical Faculty
Minutes № 2
Dated «23» December 2024

Head of the Methodical Council
of the Pharmaceutical Faculty


assoc. prof. of HEI Tetyana YUSHCHENKO

«APPROVED»

by the Academic Council of Stomatological
and Pharmaceutical Faculty
Minutes № 2
Dated «24» December 2024

Head of the Academic Council of
Stomatological and Pharmaceutical Faculty

 professor of HEI Serhiy POLISHCHUK

Instruction
for Objective Structured Practical Examination Station

Station name	<i>STATION № 8. Clinical and pharmaceutical aspects of usage some groups of drugs</i>
Subject	Clinical Pharmacy
Speciality	226 «Pharmacy, industrial pharmacy»
Educational qualification	Master of pharmacy
Professional qualification	Pharmacist
Course	V
Form of study	Full-time

Vinnytsya 2024

Tasks:

- To make a consultation on prescription and OTC drugs and other pharmaceutical products range;
- To provide premedical care of patients at emergencies;
- To ensure the rational use of prescription and over-the-counter drugs and other products of the pharmacy range in accordance with physicochemical, pharmacological characteristics, biochemical, pathophysiological features of a particular disease and pharmacotherapeutic schemes of its treatment;
- To make monitoring the effectiveness and safety of the population in the use of drugs according to the data on their clinical and pharmaceutical characteristics, as well as taking into account subjective signs and objective clinical, laboratory and instrumental criteria for examination of the patient.

Station equipment:

1. Scenario of a practical situation
2. Timer years
3. Computer
4. A4 paper
5. Pen

In the case of distance study form the procedure for conducting an objective structured practical (clinical) examination (OSPE) is governed by the Regulations on the introduction of elements of distance learning in Vinnytsya National Pirogov Memorial Medical University and will take place on the platform Microsoft Teams.

Equipment for distance form OSPE: situational tasks.

At the day of the exam, the secretary of the State Examination Commission joins a student to the meeting of the examiner, a group that passes the exam according to the schedule. At the station, the student must greet and introduce himself, present a document (passport) proving his identity to the teacher. The student receives a practical situational task, which provides to determine the clinical and pharmaceutical aspects of drugs when used at different nosologies, possible causes of adverse reactions, elimination and prevention measures, risks and consequences of drug interactions, emergency premedical care of patients.

The duration of the station is 8 minutes. Note that the teacher is an observer of your actions and does not provide instructions, comment or question. After the end of the stay at the station, the examiner does not accept the answer. After the signal about the end of the stay, the student must move to the next station.

Requirements for passing the station:

- usage a computer or laptop during the answer;
- the answer is accepted if the camera and microphone are turned on, where the student who passes the exam is clearly visible and audible;
- video is recorded while working at the station.

It is forbidden to use a mobile phone and other electronic gadgets, without answering during the exam, to transmit, copy, make a screenshot and distribute any information related to the exam and not publicly available.

Part of OSPE of Clinical Pharmacy consists of two stations.

Station № 8 «Clinical and pharmaceutical aspects of usage some groups of drugs»

Practical situations on clinical pharmacy of different groups of drugs and premedical care of patients at emergencies **are presented.**

An example of evaluating the response of a higher education seeker to a practical (situational) task.

Practical situation. Consult an intern about prescribing of antibacterial therapy to a pregnant woman with exacerbation of chronic pyelonephritis. Previously, she used biseptol or ciprofloxacin at exacerbations.

Tasks:

- 1) Name the clinical symptoms and directions of pharmacotherapy of pyelonephritis.
- 2) Evaluate the possibility of using these drugs in this case, taking into account the mechanism of action, pharmacokinetics, indications and contraindications for use.

Evaluation criteria	Evaluation of completed tasks, points		
	Completely	Partially	Absent
Task 1. Name the clinical symptoms and directions of pharmacotherapy of pyelonephritis.			
Syndromes observed in chronic pyelonephritis: 1. Intoxication syndrome occurs with severe exacerbation and is caused by an active inflammatory process in the urinary tract and interstitium of the kidneys. It is manifested by fever, increased sweating, weakness, decreased efficiency. 2. Pain syndrome occurs as a result of stretching of the kidney due to urodynamic disorders and an increase in renal mediators of inflammation. Kidney pain is unilateral, dull, aching, and in urolithiasis may be similar to renal colic. 3. Urinary syndrome is the main exacerbation of the disease and is manifested by leukocyturia, moderate proteinuria and hematuria. Leukocyturia is caused by an inflammatory process in the urinary tract, and proteinuria and hematuria - by interstitial GN. 4. The syndrome of impaired diuresis is characterized by changes in urination. The disease is characterized by moderate polyuria due to damage to the tubules and reduced water reabsorption. Painful and accelerated urination is often observed, due in part to reflex effects from the pelvis and ureters, as well as the presence of comorbidities (cystitis, prostatitis, urethritis). 5. Hypertensive syndrome can occur at any stage of the disease. Blood pressure increases due to the advantage of pressor function of the kidneys over depressant function. Directions of pharmacotherapy	2,5 – «5»	2,3 – 2,0 – «4» 1,97 – 1,5 – «3»	0

<p>1. Treatment should be: etiological, pathogenetic, complex (not only antibacterial therapy), aimed at increasing the resistance of kidney to infection (improving blood circulation, metabolic processes).</p> <p>2. The more severe the course of the disease - the longer the treatment.</p> <p>3. Antirelapse therapy.</p> <p>4. Sanatorium treatment. Each exacerbation is treated as acute pyelonephritis, but the course of treatment lasts up to 6 weeks. The amount of bacterial therapy is determined by the type of pathogen, the severity of the disease, the state of renal function.</p>			
Task 2. Evaluate the possibility of using these drugs in this case, taking into account the mechanism of action, pharmacokinetics, indications and contraindications for use.			
<p>The use of bisepitol and ciprofloxacin is contraindicated in pregnancy.</p> <p>These drugs cross the placental barrier and can cause embryotoxic, fetotoxic and teratogenic effects.</p> <p>Biseptol is a folic acid antagonist, so it can cause abnormalities in fetal development.</p> <p>Toxic effects on fetal bone and cartilage when using ciprofloxacin.</p>	2,5 – «5»	2,3 – 2,0 – «4» 1,97 – 1,5 – «3»	0
Total number of points	5 – «5»	4,6 – 4,0 – «4» 3,94 – 3,0 – «3»	0

The maximum number of points per station is 5

List of situations: clinical and pharmaceutical characteristics of the following drugs: hypotensive agents, nitrates, hypolipidemic drugs, anticoagulants, nonsteroidal anti-inflammatory drugs, hypoglycemic drugs, proton pump inhibitors, antacids, antibacterial agents, bronchodilators, antihistamines, emergency aid for hypoglycemia, angina attack, hypertensive crisis, allergic reaction.

List of practical situations

Practical situation 1

A 45 year-old patient use isosorbide dinitrate 40 mg 1 tablet 2 times a day for a long time due to angina pectoris. During the last 2 weeks, despite repeated increases in the daily dose of isosorbide dinitrate (up to 4 tablets/day), he began to notice an increase in the frequency and intensity of attacks of chest pain.

Tasks:

- 1) Name the reason for the appearance of this symptom. Specify measures to relieve it.
- 2) Evaluate the possibility of using these drugs in this case, taking into account the mechanism of action, pharmacokinetics and pharmacogenetics, indications and contraindications for use.

Practical situation 2

A patient who has been taking warfarin 5 mg for a long time to prevent deep vein thrombosis went to a pharmacy to buy aspirin to treat a cold.

Tasks:

- 1) What drug for the treatment of colds is indicated in this case and why?
- 2) Evaluate the possibility of using these drugs in this case, taking into account the mechanism of action, pharmacokinetics and pharmacogenetics, indications and contraindications for use.

Practical situation 3

A patient with liver cirrhosis, complicated by ascites, who has been receiving spironolactone in a dose of 200 mg/day, furosemide 80 mg/day, lactulose syrup at a dose of 30 ml/day, carvedilol 6.5 mg/day, began to notice swelling and tenderness of the mammary glands.

Tasks:

- 1) What adverse reaction occurred in the patient and what drug caused it? Explain the mechanism of development and possible alternative diuretic.
- 2) Name the main clinical symptoms and general directions of pharmacotherapy of liver cirrhosis.

Practical situation 4

A patient with hypertension takes lisinopril, diltiazem and hydrochlorothiazide to lower blood pressure. After 5 days of treatment, the patient began to complain of a painful dry cough in the absence of signs of a cold.

Tasks:

- 1) Indicate the cause and pathogenesis of this symptom. Indicate measures to relieve cough in this situation.
- 2) Indicate possible side effects when using such a combination of drugs, control and prevention measures.

Practical situation 5

A patient who has been taking insulin for a long time due to diabetes has been diagnosed with hypertension (160/100 mm Hg). To normalize blood pressure, the doctor does not recommend the use of atenolol.

Tasks:

- 1) Name the clinical symptoms and the algorithm of emergency care for hypoglycemia.
- 2) Evaluate the possibility of using these drugs in this case, taking into account the mechanism of action, pharmacokinetics, indications and contraindications for use.

Practical situation 6

A 28-year-old patient with a laboratory-confirmed diagnosis of influenza type A on the 2nd day after the onset of symptoms was prescribed an antiviral drug in the tablets, that selectively inhibit the neuraminidase of the virus and reduce its replication in the body.

Tasks:

- 1) Name the clinical symptoms and directions of treatment of acute infections of the upper respiratory tract (Influenza A).

2) Identify the drug and evaluate the possibility of using these drugs in this case, taking into account the mechanism of action, pharmacokinetics, indications and contraindications for use.

Practical situation 7

From the schemes below, choose the most appropriate for the treatment of duodenal ulcer:

1. Rabeprazole 20 mg per 1 tablet. 2 times a day, metronidazole 0.5 g 2 times a day, clarithromycin 0.5 g 2 times a day, de-nol 120 mg 1 tab. 4 times a day
2. Acidin-pepsin 1 tab. 3 times a day, plantaglucid 1.0 g 3 times a day, festal 1 tab. 3 times a day.
3. De-nol 120 mg 1 tab. 4 times a day, pepsidyl 1 tbsp. 3 times a day, gastrocepin 0.05 g 2 times a day

Tasks:

- 1) Choose a treatment scheme and justify the purpose and duration of use of each drug. What antibacterial drugs are indicated for ineffective eradication of *H. pylori*.
- 2) Assess the possible risks of concomitant use of antacids and antibacterial agents. Measures of prevention.

Practical situation 8

A 65-year-old patient has been treated for type 2 diabetes for several months. To normalize blood sugar, he receives the hypoglycemic drug metformin 2000 mg per day and gliclazide 60 mg per day. The control examination revealed signs of B12-deficiency anemia in the general blood test.

Tasks:

- 1) Which hypoglycemic drug provoked anemia and why? Methods of correction of anemia in this case.
- 2) Evaluate the possibility of using metformin in this case, taking into account the mechanism of action, pharmacokinetics, indications and contraindications to use.

Practical situation 9

A 60-year-old patient received amikacin for exacerbation of chronic bronchitis. It is known that the patient has signs of heart failure (edema) and 2-3 times a week he receives furosemide on an empty stomach 50 mg per day. Three days later, the patient complained of hearing loss.

Tasks:

- 1) Indicate the cause of this symptom and possible measures to correct it.
- 2) Advise the patient on the purpose, duration of use of these drugs, and possible side effects.

Practical situation 10

For the treatment of pregnant women with exacerbation of chronic cystitis, the doctor prescribes amoxicillin 1000 mg twice a day. Previously, in exacerbations, she used ciprofloxacin.

Tasks:

- 1) Name the symptoms and directions of pharmacotherapy of cystitis.
- 2) Why did the doctor choose this drug in this situation? Features of the use of antibacterial agents in pregnant women. Indicate the groups of antibiotics that are contraindicated in pregnancy with justification (reasoning) of possible risks to the fetus.

Practical situation 11

During the trip on the bus, one of the passengers suddenly felt worse. Strong squeezing pain behind the sternum, which radiate to the left shoulder blade and neck, feeling of lack of air, dizziness, weakness are disturbed. The face is pale, frightened, the pulse is weak, breathing is accelerated.

Tasks:

- 1) What condition do you think developed in the patient? Specify the reason of this condition?
- 2) Which drug should be used for emergency care, indicate its group, mechanism of action, possible side effects, frequency and duration of use, features of interaction with other drugs? What advice should be given to the patient regarding further lifestyle and treatment?

Practical situation 12

A pediatrician prescribed amoxicillin tablets and salbutamol in the form of inhalation through a nebulizer (6 times a day) to a 10-year-old child with acute bronchitis complicated by bronchoobstructive syndrome. After 3 days of therapy, the child complained of increased heart rate and tremor.

Tasks:

- 1) Indicate the cause of these complaints and possible corrective measures.
- 2) Advise the child's parents about the purpose, duration of use of these drugs, and possible side effects.

Practical situation 13

A 56-year-old patient went to the pharmacy with complaints of headaches in the occipital region, "flicker of flies" in front of her eyes, dizziness, palpitations. This condition is periodically repeated after psycho-emotional stress.

Tasks:

- 1) What condition, in your opinion, has developed in the patient? What examination in a pharmacy can be performed to clarify the diagnosis?
- 2) Which drug from the group of ACE inhibitors can be recommended to relieve this condition? Indicate this drug, mechanism of action, possible side effects, frequency and duration of use, contraindications. Your advice to the patient on further lifestyle and treatment?

Practical situation 14

A 60-year-old man was diagnosed with chronic obstructive pulmonary disease for the first time, berodual was prescribed in the form of inhalation through a nebulizer 4 times a day. The patient noted a violation of urination (urinary retention).

Tasks:

- 1) Indicate the cause of this symptom and possible corrective measures. What drugs are part of the berodual, their group affiliation?
- 2) Indicate possible side effects when taking these drugs, measures to control and prevent side effects.

Practical situation 15

A 25 year-old patient was diagnosed with acute purulent tonsillitis. In addition to local treatment, cefixime 400 mg was prescribed once a day. On the third day, digestive disorders were appeared, diarrhea up to 5 times a day.

Tasks:

- 1) To which group does the drug Cefixime belong? Mechanism and spectrum of action of this group of drugs?
- 2) What is the reason for worsening of patient's health? Give recommendations for further use of cefixime?

Recommended literature

1. V. Bobyrov. Pharmacology: textbook / V.Bobyrov, T.Devyatkina, O.Vazhnicha, V.Khristyuk. - 3rd ml ., updated - Vinnitsya : Nova Knyha, 2015. -520 p.: il.
2. Brunton L.L., Chabner B.A., Knollmann B.C. Goodman and Gilman's The Pharmacological Basis of Therapeutics (13-th Edition).-2017. 1423p.
3. Essentials of medical pharmacology / edited by Tripathi KD. - 6th edition. – New Delhi, 2010. – 940 p.
4. Handbook of Drug Interactions: a clinical and forensic guide. - Edited by A. Mozayani, H. County, L.P. Raymon -2004.-662 p.
5. H. Lüllmann, A. Ziegler et al. Color Atlas of Pharmacology.-2000.-662 p.
6. Katzung B.G., Masters S.B., Trevor A.J. Basic & Clinical Pharmacology (14-th Edition).-2018.- 1547 p.
7. Pharmacology - Cito!: Textbook II Edited by S.M. Drogovoz. - Kharkiv, 2016. - 192 p.
8. Pharmacology at your palms: reference book / Drogovoz S.M., Kutsenko T.A. - Kharkiv: Nphall, 2016.-80 p.
9. Pharmacology / [edited by] Karen Whalen ; collaborating editors, Richard Finkel, Thomas A. Panavelil. – Sixth edition. – 2015. (Lippincott illustrated reviews)
10. Rational use of medicines: progress in implementing the WHO medicines strategy Report by the Secretariat, EB118/6, 11 May 2006, [Електронний ресурс].–Режим доступу: who.int/gb/ebwha/pdf_files/EB118/B118_6-en.pdf/
11. Websites PubMed, MEDLINE, MD Consult, UptoDate, Clinical Evidence etc.
12. The European Association for Clinical Pharmacology and Therapeutics (EACPT) <http://www.eacpt.org>
13. Drug interactions resource: <http://medicine.iupui.edu/flockart/>