MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

Petro Mohyla Black Sea National University

Medical Institute

Department of Therapeutic and Surgical Disciplines

"APPROVE"
The first vice-rector
Ishchenko NM
"__" _____ 2021

CURRICULUM WORK PROGRAM

ONCOLOGY AND RADIATION MEDICINE

Area of knowledge 22 "Health care"
Specialty 222 "Medicine"

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Introduction

The discipline "Oncology and Radiation Medicine" covers the study of basic concepts of clinical oncology and the principles of fundamental research of tumors, identification of diagnostic, prognostic and predictive biomarkers of the tumor process, individualization of treatment and others. Within the framework of teaching the discipline, the issues of pathogenetic bases and mechanisms of development of malignant neoplasms, molecular genetic features of their progression and metastasis are considered in detail. During the teaching of the discipline special attention is paid to the coverage of applied aspects of fundamental oncology, organization of oncology services, clinical signs, diagnostics, principles of treatment of malignant tumors,

The discipline "Oncology and Radiation Medicine" is part of the basic part of student training and is a mandatory subject, as currently the incidence of malignant tumors remains high. In the structure of mortality, malignant tumors occupy 2 - 3 place. radical treatment of cancer patients is possible with early timely diagnosis of tumors, which requires in-depth training.

Radiation medicine is a complex scientific discipline, closely related to a number of theoretical and applied areas of knowledge. The role of radiation medicine in the training of future doctors is constantly increasing. The constant expansion of human contact with sources of ionizing radiation, the possibility of emergencies, accompanied by excessive exposure of professionals and the public, made it important to study the effects of this factor on human health. Analysis of the consequences of the Chernobyl accident revealed a number of shortcomings in the knowledge of doctors, which led to errors in the provision of medical care and prevention of victims of the nuclear disaster. In recent decades, radiation medicine has been supplemented by new approaches in the diagnosis and treatment of radiation pathology.

1. Description of the discipline

Characteristic	Characteristics of the discipline	
Name of discipline	Oncology and radiation medicine	
Branch of knowledge	22 "Health care"	
Specialty	222 "Medicine"	
Specialization (if any)		
Educational program	Medicine	
Level of higher education	Master	
Discipline status	Selective	
Curriculum	5th	
Academic year	2020-2021	
Semester numbers:	Full-time	Correspondence form
	10th	
Total number of ECTS credits / hours	3 credits / 90 hours	
Course structure: – lectures – practical training – hours of independent work of students	Full-time	Correspondence form
	10 hours 40 hours 40 hours	
Percentage of classroom load	56%	
Language of instruction	Ukrainian	
Form of final control	10th semester - diff. test	

2. Purpose, tasks and planned learning outcomes

Goal The study of oncology and radiation medicine is established on the basis of OPP training, and to acquaint students with the current state and principles of basic research in clinical oncology, taking into account the concept of the relationship between tumor and organism, molecular genetic and pathophysiological foundations of tumor development. Mastering the knowledge, skills and abilities of early diagnosis of cancer, as well as the principles of radiation therapy and prevention of tumors; formation of competencies necessary in the professional activity of a doctor.

Formation in students of a complex of knowledge, skills and abilities in radiation medicine, to understand the processes that occur in the human body under the influence of ionizing radiation.

As a discipline is an integral part of clinical medicine, so the study of the basic principles of this field of science - an important point in training a doctor of any specialty.

Learning objectives: acquisition by the student of competences, knowledge, abilities and skills for implementation of professional activity on a specialty:

1) study of the basics of theoretical oncology;

2) study of the main nosological forms of malignant tumors, their clinical manifestations, features of the course and methods of diagnosis;

3) acquaintance with the organization of oncological care to the population and with modern principles of treatment of oncological patients;

4) development of practical skills in the organization of cancer

care, prevention, clinic and early diagnosis of malignant tumors and rehabilitation of patients;

5) study of clinical signs and methods of early diagnosis of tumors and cancer prevention, determining the tactics of the doctor on suspicion of a malignant tumor;

6) physical and radiobiological bases of radiation medicine, diagnostic methods for indication of radiation doses in the body;

7) the effects of radiation on the body andindividual organs and systems;

8) differentiated treatment and emergency care for acute radiation injuries.

9) Prevention of radiation injuries and methods of rehabilitation of persons affected by radiation accidents.

Prerequisites for studying the discipline (interdisciplinary links). Oncology and radiation medicine as a discipline:

a) possible under the conditions of preliminary study of the relevant sections in other departments: medical physics, genetics, biochemistry, clinical pharmacology, pathological physiology and morphology, therapy, surgery, hygiene, social medicine and health care and other disciplines;

b) lays the foundations for the study of translational medicine by students, provides for the integration of teaching with this discipline and the formation of skills to apply knowledge of clinical oncology in the process of further study and in professional activities;

c) allow to understand the processes that occur in the human body under the influence of ionizing radiation.

d) provides an opportunity to gain practical skills and develop professional skills for the diagnosis and provision of medical care for certain pathological conditions and during the care of cancer patients.

e) forms the methodological foundations of clinical thinking.

Expected learning outcomes. As a result of studying the discipline, students have:

- formation of an idea of the essence of the basic concepts of fundamental and clinical oncology, basic theories of carcinogenesis, biology of tumor growth, human genome and molecular markers in the diagnosis of malignant neoplasms;
- forming an idea of the main directions of basic and applied research in clinical oncology;
- mastering the basic diagnostic methods of research of biological material (hematological, biochemical, immunological, cytomorphological, molecular-biological, etc.) for the diagnosis of oncological diseases and their monitoring;

- forming an idea of current trends in oncology and related sciences for future career guidance.
- operate with knowledge about the biological effects of ionizing radiation on the human body, its impact on various organs and systems;
- to master the issues of etiology, pathogenesis, clinic, course of acute and chronic radiation sickness, local radiation lesions, combined action of different types of ionizing radiation, modern hypotheses of the impact of small doses of radiation on the human body;
- identify and analyze diagnostic methods and possible clinical consequences of radionuclides entering the body, the possibility of using therapeutic and prophylactic measures;

According to the requirements of the educational and professional program, students must:

KNOW:

- semiotics, clinic, etiology, pathogenesis of benign and malignant tumors;
- programs for screening and diagnosis (clinical, laboratory, instrumental) of cancer;
- tactics of the doctor if the patient is suspected of having cancer;
- clinical picture, features of the course and possible complications in oncology;
- the main methods of laboratory and instrumental diagnostics used in oncology (indications for use, interpretation of results), the rules of collection of pathological materials from the patient.
- nature and properties of ionizing radiation (alpha, beta, gamma, neutrons, X-rays);
- dosimetry of ionizing radiation, biological action of ionizing radiation, -questions of etiology, pathogenesis, pathomorphology of radiation damage;
- diagnostic methods in radiation medicine; -clinical course of acute and chronic radiation injuries: principles of treatment of radiation injuries;
- the effect of ionizing radiation on various organs and systems of the body, the long-term effects of ionizing radiation, the effect of small doses of ionizing radiation on the human body;
- principles of prevention of radiation damage and their consequences, medical, psychological and social aspects of large-scale accidents at nuclear power plants;
- maintaining a standard accounting reporting medical documentation in treatment and prevention facilities.

BE ABLE:

- recognize the clinical symptoms of cancer at an early stage of their development.
- to conduct a survey of the patient, in order to collect medical history, including: life history, obstetric and gynecological, hereditary history, etc. be able to examine the patient.
- make a plan of laboratory and instrumental examination, interpret its results;
- to conduct a physical examination of the patient, to use subjective, objective and functional methods of examination of a cancer patient;
- use subjective, objective and functional methods of research of a cancer patient;
- select the necessary drugs for the treatment of cancer and victims of external radiation or internal radionuclides;
- choose adequate diagnostic methods to determine radiation damage to various organs and systems of the body;
- on the basis of dosimetry data, results of laboratory researches and clinical signs to diagnose radiation defeats (severity, period of clinical course, etc.);
- to carry out prevention of radiation damage;
- readiness to implement ethical and deontological principles.

TO HAVE COMPETENCE

- on the application of knowledge in oncology and radiation medicine for the promotion of a healthy lifestyle, as well as for the prevention of oncological pathology;
- about the main perspective directions of development of oncology and radiation medicine; formation of practical skills of diagnosis and treatment of patients with oncological pathology; nature, types and properties of radiation;

- about the main perspective directions of development of oncology and radiation medicine.

The developed program corresponds to the educational-professional program (OPP) and is focused on the formation of competencies:

general (ZK) - ZK1-ZK3 OPP:

ZK1. Ability to abstract thinking, analysis and synthesis, the ability to learn and master modern knowledge.
ZK2. Ability to apply knowledge in practical situations.
ZK3. Knowledge and understanding of the subject area and understanding of professional activity.

professional (FC) - FC1 - 6; FC11; FC16; FK18 OPP:

FC1. Patient interviewing skills.
FC2. Ability to determine the required list of laboratory and instrumental studies and evaluate their results.
FC3. Ability to establish a preliminary and clinical diagnosis of the disease.
FC4. Ability to determine the required mode of work and rest in the treatment of diseases.
FC5. Ability to determine the nature of nutrition in the treatment of diseases.
FC6. Ability to determine the principles and nature of disease treatment.
FC11. Skills to perform medical manipulations.
FC16. Ability to determine the tactics of management of persons subject to dispensary supervision.
FC18. Ability to keep medical records.

program learning outcomes (PRN) - PRN11, PRN13-18, PRN22, PRN25, PRN28, PRN30, PRN32, PRN33, PRN35, PRN41 OPP:

PRN11. Collect data on patient complaints, medical history, life history (including professional history), in a health care facility, its unit or at the patient's home, using the results of the interview with the patient, according to the standard scheme of the patient's survey. Under any circumstances (in the health care facility, its unit, at the patient's home, etc.), using knowledge about the person, his organs and systems.

PRN13. In the health care facility, its unit and among the attached population: be able to identify and record the leading clinical symptom or syndrome by making an informed decision, using preliminary history of the patient, physical examination of the patient, knowledge about the person, his organs and systems, adhering to the relevant ethical and legal norms. Be able to establish the most probable or syndromic diagnosisdisease by making an informed decision, for the patient and the patient's examination data, based on the leading clinical symptom or syndrome, using knowledge about the person, his organs and systems, adhering to the relevant ethical and legal norms.

PRN14. In a health care facility, its unit: to appoint a laboratory and / or instrumental examination of the patient by making an informed decision, based on the most probable or syndromic diagnosis, according to standard schemes, using knowledge about the person, his organs and systems, adhering to relevant ethical and legal norms. Carry out differential diagnosis of diseases by making an informed decision, according to a certain algorithm, using the most probable or syndrome diagnosis, data of laboratory and instrumental examination of the patient, knowledge about the person, his organs and systems, adhering to relevant ethical and legal norms. Establish a preliminary clinical diagnosis by making an informed decision and logical analysis, using the most probable or syndromic diagnosis,

PRN15. Determine the necessary mode of work and rest in the treatment of the disease, in a health care facility, at the patient's home and at the stages of medical evacuation, including in the field, on the basis of a preliminary clinical diagnosis, using knowledge about the person, his organs and systems, adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes.

PRN16. Determine the necessary medical nutrition in the treatment of the disease, in a health care facility, at home at the patient and at the stages of medical evacuation, including in the field on the basis of a preliminary clinical diagnosis, using knowledge about the person, his organs and systems, relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes.

PRN17. Determine the nature of treatment (conservative, operative) of the disease, in a health care facility, at home at the patient and at the stages of medical evacuation, including in the field on the basis of a preliminary clinical diagnosis, using knowledge about the person, his organs and systems , adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes. Determine the principles of treatment of the disease, in a health care facility, at the patient's home and at the stages of medical evacuation, including field conditions, based on a previous clinical diagnosis, using knowledge about the person, his organs and systems, adhering to ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes.

PRN18. Establish a diagnosis by making an informed decision and assessing the human condition, under any circumstances (at home, on the street, health care facility, its units), including in an emergency, in the field, in a lack of information and limited time, using standard methods of physical examination and possible history, knowledge of the person, his organs and systems, adhering to the relevant ethical and legal norms.

PRN22. Perform medical manipulations in a medical institution, at home or at work on the basis of previous clinical diagnosis and / or indicators of the patient's condition, using knowledge about the person, his organs and systems, adhering to relevant ethical and legal norms, making informed decisions and using standard techniques.

PRN25. To form, in the conditions of a health care institution, its division on production, using the generalized procedure of an estimation of a state of human health, knowledge of the person, its bodies and systems, adhering to the corresponding ethical and legal norms, by acceptance of the reasonable decision, among the fixed contingent of the population. :
dispensary groups of patients; groups of healthy people subject to dispensary supervision (newborns, children, adolescents, pregnant women, representatives of professions that must undergo a mandatory dispensary examination).

PRN28. Organize secondary and tertiary prevention measures among the assigned contingent of the population, using a generalized procedure for assessing human health (screening, preventive medical examination, seeking medical care), knowledge about the person, his organs and systems, adhering to relevant ethical and legal norms, by making an informed decision, in the conditions of the health care institution, in particular: to form groups of dispensary supervision; to organize medical and health-improving measures differentiated from the group of medical examination.

PRN30. Carry out in the conditions of a health care institution, its subdivision: detection and early diagnosis of infectious diseases; primary anti-epidemic measures in the center of an infectious disease.

PRN32. In the health care facility, or at the patient's home on the basis of the obtained data on the patient's health, using standard schemes, using knowledge about the person, his organs and systems, adhering to relevant ethical and legal norms, by making an informed decision: tactics of examination and secondary prevention of patients subject to dispensary supervision; to determine the tactics of examination and primary prevention of healthy persons subject to dispensary supervision; calculate and prescribe the necessary food for children in the first year of life.

PRN33. Determine the presence and degree of limitations of life, type, degree and duration of disability with the issuance of relevant documents in a health care institution on the basis of data on the disease and its course, features of professional activity.

PRN35. On the territory of the service according to standard methods of descriptive, analytical epidemiological and medical-statistical research: to conduct screening to identify the most important non-communicable diseases; to evaluate in dynamics and at comparison with average static data indicators of morbidity, including chronic

non-communicable diseases, disability, mortality, integrated health indicators; identify risk factors for the occurrence and course of diseases; to form risk groups of the population.

PRN41. In the conditions of a health care institution or its subdivision according to standard methods: to carry out selection and use unified clinical protocols on the provision of medical care, developed on the basis of evidence medicine; participate in the development of local protocols for medical care; to control the quality of medical care on the basis of statistical data, expert evaluation and sociological data research using indicators of structure, process and performance; identify factors that hinder the improvement of the quality and safety of medical care.

3. Curriculum

The educational process is organized according to the European Credit Transfer and Accumulation System (ECTS).

The program of the discipline "Oncology and Radiation Medicine" is structured in one module.

The structure of the discipline

Names of meaningful topics	Total hours	L.	ave.	s.r.
1	***2***	***3***	*4*	***5***
Topic № 1. Subject and tasks of general oncology.	18	2	8	8
Topic № 2. Principles of early diagnosis of malignant tumors.	18	2	8	8
Topic 3. Private oncology.	18	2	8	8
Topic № 4. Methods of organizing primary prevention of cancer.	18	2	8	8
Topic № 5. Physical and technological bases of radiation therapy.	18	2	8	8
TOGETHER	**90**	**10**	**40**	**40**

4. The content of the discipline

4.1. Lecture plan

№ z.p.	TOPIC	Number hours
1.	**Topic № 1. Subject and tasks of general oncology.**Epidemiology of tumors in children. Etiology of tumors. Tumor genetics. Clinical stages, clinical groups. Deontology in oncology. The structure of the oncology dispensary. Deontology in oncology. Organization of oncological care, rehabilitation, medical examination with oncological diseases. Features of childhood oncology.	2
2.	**Topic № 2. Principles of early diagnosis of malignant tumors.** Collection and evaluation of complaints and medical history of a cancer patient. Features of objective research at suspicion of a malignant tumor. Endoscopic examination, X-ray, isotope, ultrasound. Computed tomography. Nuclear magnetic resonance. Positron emission tomography. laboratory research. Cancer markers. Principles of surgical treatment of malignant tumors. Principles of ablastic, antiblastic, zonation and case. the concept of operability and resectability. Combined operations. Palliative surgery. Features in children. Classification of anticancer drugs. Input methods. Side effects of drugs.	2
3.	**Topic 3. Private oncology.** Lymphogranulomatosis. Pathomorphology. Clinical picture and diagnosis of the disease. Stages of the process. Principles of treatment of patients with lymphogranulomatosis. features of the disease. Non-Hodgkin's lymphoma. Pathomorphology. Clinical picture and diagnosis of the disease. Stages of the process. Principles of treatment of patients with non-Hodgkin's lymphoma Features of the disease and treatment. Bone tumors. Pathomorphology. Clinical picture and diagnosis of the disease, stages of the process. Principles of treatment of patients with bone tumors. Features of the disease and treatment in children Soft tissue tumors. Pathomorphology. Clinical picture and diagnosis of the disease. Stages of the process. Principles of treatment of patients with soft tissue tumors. Features of the disease and treatment in children Nephroblastoma. Pathomorphology. Clinical picture and diagnosis of the disease. Stages of the process. Principles of treatment of patients with kidney tumors. Principles of treatment of patients with neuroblastoma. Brain tumors. Pathomorphology. Clinical picture and diagnosis of the disease. Stages of the process. Principles of treatment of patients with brain tumors. Features of the disease and treatment in children	2
4.	**Topic № 4. Methods of organizing primary prevention of cancer.** Formation motivation to maintain health individuals, families and society, including including the abandonment of bad habits, affect cancer morbidity. Forms and methods of organization of hygienic education and upbringing of the population, the main components of a healthy lifestyle; - The main risk factors that affect health. The organization of work on formation at the population, patients and members of their families of the motivation directed on preservation and strengthening of the health and health of others. Willingness to apply the basic principles of organization and management in the field of public health. Principles of organization of primary, specialized, ambulance and palliative care; structure outpatient and inpatient medical organizations, who provide medical care to various groups of the population.	2

	Organization of examination (Control) of the quality of medical care at the level of medical organization; to conduct an examination of temporary and permanent disability. Analysis of the activities (quality and efficiency) of health care organizations for the care of cancer patients, using information about the state of health of the population and the activities of treatment and prevention facilities to improve the efficiency of the oncology service of the hospital.	
5.	**Topic № 5. Physical and technological bases of radiation therapy.**Biological bases of radiation therapy. Methods of radiation therapy of malignant tumors and non-neoplastic diseases. Principles of planning and conducting radiation therapy. basics and principles of radiation therapy of tumors and non-neoplastic diseases. Device of radiation therapy department. Ensuring radiation safety. planning and conducting radiation therapy. Post-radiation reactions and complications.	**2**
TOGETHER		**10**

4.2. Plan of practical classes

№ z. p.	**TOPIC**	**Number hours**
1.	**Topic 1.** Subject and tasks of general oncology. *Practical lesson № 1.*Etiology of tumors. Tumor genetics. Clinical stages, clinical groups. *Practical lesson № 2.* Organization of oncological care, rehabilitation, medical examination with oncological diseases. *Practical lesson № 3.*The structure of the oncology dispensary. Deontology in oncology. *Practical lesson № 4.*Epidemiology of tumors in children. Features of childhood oncology.	8
2.	**Topic 2. Principles of early diagnosis of malignant tumors.** *Practical lesson № 5.*Collection and evaluation of complaints and medical history of a cancer patient. Features of objective research at suspicion of a malignant tumor. *Practical lesson № 6.*Endoscopic examination, X-ray, isotope, ultrasound. Computed tomography. Nuclear magnetic resonance. Positron emission tomography. Laboratory tests. *Practical lesson № 7.*Cancer markers. Principles of surgical treatment of malignant tumors. Principles of ablastic, antiblastic, zonation and case. the concept of operability and resectability. Combined operations. Palliative surgery. *Practical lesson № 8.*Classification of anticancer drugs. Input methods. Side effects of drugs.	8
3.	**Topic 3. Private oncology.** *Practical lesson № 9.*Lymphogranulomatosis. Pathomorphology. Clinical picture and diagnosis of the disease. Stages of the process. Principles of treatment of patients with lymphogranulomatosis. features of the disease. *Practical lesson № 10.*Bone tumors. Pathomorphology. Clinical picture and diagnosis of the disease, stages of the process. Principles of treatment of patients with bone tumors. Features of the disease and treatment in children *Practical lesson № 11.*Soft tissue tumors. Pathomorphology. Clinical picture and diagnosis of the disease. Stages of the process. Principles of treatment of patients with soft tissue tumors. Features of the disease and treatment in children	8

	Practical lesson № 12. Tumors of the central nervous system (CNS). Brain tumors. Pathomorphology. Clinical picture and diagnosis of the disease. Stages of the process. Principles of treatment of patients with brain tumors. Features of the disease and treatment in children.	
4.	**Topic 4. Methods of organizing primary prevention of cancer.** *Practical lesson № 13.*Forms and methods of organization of hygienic education and upbringing of the population, the main components of a healthy lifestyle; - The main risk factors that affect health. *Practical lesson № 14.*Willingness to apply the basic principles of organization and management in the field of public health. Principles of organization of primary, specialized, ambulance and palliative care; the structure of outpatient and inpatient medical organizations that provide medical care to various groups. *Practical lesson № 15.* Formation motivation to maintain health individuals, families and society, including including the abandonment of bad habits, affect cancer morbidity. *Practical lesson № 16.*Analysis of the activities (quality and efficiency) of health care organizations in the care of cancer patients, using information about the state of health of the population and the activities of treatment and prevention facilities to improve the efficiency of the oncology service of the hospital.	8
5.	**Topic 5. Physical and technological foundations of radiation therapy.** *Practical lesson № 17.* Physical foundations and technical support of radiation therapy. *Practical lesson № 18.*. Interaction of radionuclides with matter. Nuclear medical equipment. 3. Elements of nuclear physics. *Practical lesson № 19.*Techniques of CT and MRI of the brain. 6. Techniques of CT and MRI examination of the spinal cord. 7. Methods of X-ray diagnostics of OGK *Practical lesson № 20.*methods of treatment, the role of radiation therapy in combination therapy	8
TOGETHER		**40**

15. 19. 21. Techniques of CT and MRI examination of ORS 25. CT and MRI anatomy and physiology of ORS 26. CT and MRI diagnosis of traumatic injuries of ORS 27. 29. 30. Radionuclide diagnosis of diseases of the head and neck. 31. 32. 34.

4.3. Tasks for independent work

For independent work of students the tasks of theoretical character which are insufficiently thoroughly considered within lectures and seminars are taken out. The student must study literary sources and be ready to answer questions during practical classes and exams. Tasks and tasks are of a practical nature.

№ z.p.	TOPIC	Number of hours
1.	Regularities of ultrasound image formation. Ultrasound devices, phenomena and artifacts.	**4**
2.	Tuberculosis and lung tumors. 10. Lung tumors. 11. Methods of X-ray examination of the cardiovascular court. systems.	**4**
3.	X-ray semiotics of cardiovascular diseases. systems. Aortic disease. CT and MR anatomy of the cardiovascular court. systems.	**4**
4.	X-ray semiotics of breast diseases. X-ray diagnosis of mastopathy.	**4**

5.	Urgent radiological diagnosis in urology and nephrology. CT and MR semiotics of urogenital diseases. systems. PD of kidney, ureter and bladder diseases.	**4**
6.	Methods of X-ray examination of the musculoskeletal system. X-ray anatomy and radiophysiology of the musculoskeletal system. X-ray semiotics of diseases of the musculoskeletal system.	**4**
7.	CT and MR diagnosis of diseases of the retroperitoneal space. X-ray diagnosis of childhood diseases. CT and MR - diagnosis of childhood diseases.	**4**
8.	Radionuclide diagnostics in oncology. Radionuclide diagnosis of diseases of the cardiovascular system.	**4**
9.	Radionuclide diagnosis of diseases of the digestive system. Static examination of the liver.	**4**
10.	Radionuclide diagnosis of primary tumors and bone metastases. Radionuclide diagnosis of non-neoplastic processes in the skeleton	**4**
TOGETHER		**40**

Individual tasks

Selection and review of scientific literature on the subject of the program of the student's choice with the writing of an abstract and its public defense.

Selection and review of scientific literature on the subject of research work of the department with the preparation of a scientific report at a meeting of the SNT or at student conferences.

Experimental research on the topic of research work of the department with the publication of results in scientific journals.

Participation in the work of the student scientific circle and speeches at scientific forums.

Participation in the student Olympiad in the discipline.

Curation of patients.

Typical tasks for checking the mastered material in practical classes:

(sample)

1. An 8-year-old boy was admitted to the clinic. Diagnosed with supraspinatus extensor fracture of the right humerus. Under local anesthesia, the fragments were repositioned and immobilized with a splint-circular plaster bandage to the upper third of the right shoulder. After 3 hours, the fingers of the right hand turned white, sensitivity and active movements disappeared.

Your diagnosis of the complication that arose, its mechanism? Methods of prevention and treatment tactics.

2. A 35-year-old patient was admitted to the clinic with a fracture of the ulnar process with a slight displacement of fragments. The patient had a posterior plaster cast at an angle of flexion in the elbow joint up to 80 degrees. The patient is referred for outpatient treatment. Recommendations: the plaster bandage should not be removed for weeks, after which you will appear for an appointment at the clinic.

1. Are the treatment tactics and method of immobilization correct?
2. Are the recommendations correct?
3. Your treatment tactics.

3. 4 weeks ago the patient addressed to a trauma center concerning a back dislocation of the right forearm. The dislocation was removed, the posterior plaster cast was applied. No radiography was performed. In a polyclinic in 3 weeks the plaster bandage is removed and medical gymnastics is appointed. However, despite vigorous rehabilitation, movements in the elbow joint were not restored.

1. What is the mistake of the doctor who provided care and the doctor of the clinic?
2. With what injuries it is necessary to differentiate posterior dislocations of the forearm?

4. A 5-year-old child was taken to the emergency room after falling from the stairs to his right arm. Diagnosed with a fracture of the medial epiphysis with displacement of fragments. The posterior plaster cast was applied in the position of forearm extension, after which the child was sent for outpatient treatment.

Are the tactics of care and further treatment correct? If not, why not?

5. A 32-year-old patient was treated for a week with skeletal traction for oblique fracture of the humeral diaphysis in the distal third. However, the width offset of the fragments could not be eliminated. On day 10, an open reposition of the fragments was performed, followed by osteosynthesis with a metal plate. The next day after the operation, the examination revealed that the patient could not actively stretch his fingers and hand, as well as withdraw 1 finger.

1. Was the operation legal?

2. Why the patient can not actively unbend the fingers, hand and withdraw the finger?

3. Tactics of further treatment.

6. A 28-year-old patient fell on his left arm, felt pain in the elbow joint, which increased with movement. On examination: the contours of the left elbow joint are smoothed, movements are limited, the patient fixes the forearm with a healthy hand in the middle position between supination and pronation. Supination, pronation are impossible due to pain, which is localized in the projection of the head of the radial bone. On radiographs in two projections fracture of the head of the left radial bone. '

1. Justify the treatment plan.

2. Methods and terms of immobilization.

4.4. Ensuring the educational process

1. Multimedia projectors, computers, screens for multimedia presentations, lecture presentations.
2. Diagrams, tables, tests, video.
3. Technical teaching aids: simulation manipulation class.
4. Differential tickets.

5. Final control

List of questions of final control (differential test)

1. Cognitive points and lines that are determined during the examination of an orthopedic-traumatological patient.
2. How is the comparative measurement of the length of the upper and lower extremities?
3. How to determine the amplitude of active and passive movements in the joints of the limb?
4. Types of restriction of movements in the joints.
5. The mechanism of fracture of long bones.
6. The course of reparative regeneration of bone tissue in fracture.
7. The main principles of treatment of bone fractures.
8. Indications and principles of application of the fixation method of fracture treatment.
9. Indications and principles of application of the extension method of fracture treatment.
10. Indications and principles of surgical treatment of fracture.
11. Indications and principles of application of compression-distraction method.
12. Define the concept of "dislocation" and its classification depending on time.
13. Classification of rib fracture and the mechanism of its formation.
14. Clinic, diagnosis and treatment of isolated and multiple rib fractures.
15. Fracture of the clavicle. Mechanism of formation, classification, clinic and diagnosis.
16. Methods of treatment of clavicle fractures and indications for them.
17. Classification of fractures of the bones of the shoulder, forearm, the mechanism of its occurrence and

features of displacement of fragments at a diaphyseal fracture.

18. Isolated diaphyseal fracture of the forearm, wrist, hand and phalanx, clinic, diagnosis and treatment.
19. Classification of spinal injuries.
20. Clinic, diagnosis and treatment of fractures of the vertebral processes of the spinous, transverse, articular and arches.
21. Clinic, diagnosis and treatment of complicated dislocation and fracture-dislocation of the vertebrae.
22. Clinic, diagnosis and treatment of uncomplicated compression vertebral fracture.

23. Clinic, diagnosis and treatment of uncomplicated dislocation and vertebral fracture-dislocation.
24. Prevention of complications in patients with complicated spinal cord injury.
25. Mechanism and classification of pelvic fracture.
26. Features of shock and intra-tissue bleeding in pelvic fractures and their treatment.
27. Clinic, diagnosis and treatment of pelvic fracture combined with pelvic injuries.
28. Treatment of fracture of the femoral neck and acetabulum.
29. Mechanogenesis, clinic, diagnosis and treatment of diaphyseal fracture of the femur.
30. Mechanogenesis of damage to the ligament of the knee joint. Clinic, diagnosis and treatment.
31. Mechanogenesis of damage to the meniscus of the knee joint, clinic and diagnosis in the early and late periods of treatment.
32. Indications for conservative and surgical treatment of patellar fracture.
33. Mechanogenesis of diaphyseal fracture of the tibia and fibula, clinic, diagnosis and treatment.
34. Mechanism and classification of ligament injuries, fractures of the ankle joint.
35. Fracture of the heel, heel, metatarsal bones and phalanges of the fingers. Damage mechanism, clinic, diagnosis and treatment.
36. Pathogenesis of osteochondrosis of the spine and its stage.
37. Clinic, diagnosis of osteochondrosis of the cervical, thoracic and lumbar spine.
38. Indications for conservative and surgical treatment of osteochondrosis of the spine, its main methods.
39. Etiology and pathogenesis of deforming atrosis and its classification.
40. Indications for conservative and surgical treatment of deforming arthrosis, its methods.
41. Tuberculosis of bones and joints. Clinic, diagnosis and treatment.
42. Etiology of spastic paralysis and its main clinical signs.
43. Indications for conservative and surgical treatment of spastic paralysis, their methods.
44. Flaccid paralysis. Etiology, clinical signs. Conservative and operative treatment.
45. Etiology, pathogenesis, clinical signs of congenital muscular curvature of the neck. Conservative and operative treatment.
46. Definition of "scoliosis" and classification of scoliosis by etiology.
47. Conservative and operative methods of treatment of scoliotic disease and scoliosis.
48. Posture defects and their clinical signs. Etiology and principles of treatment.
49. Clinical signs of congenital clubfoot and its classification.
50. Conservative and operative treatment of congenital clubfoot, its methods and indications.
51. Clinical and anatomical forms of syndactyly and polydactyly. Treatment.
52. The role of prosthetics in the rehabilitation system of orthopedic and trauma patients.
53. The main indications for urgent planned amputation of limbs.
54. Methods and methods of limb amputation.
55. Types of limb prostheses and their characteristics.
56. Orthopedic devices, their purpose and indications for use.
57. Definition of traumatic shock. Frequency and severity of shock in war and in peacetime.
58. Clinical manifestations of shock at different localizations of wounds. Comprehensive treatment of shock.
59. Prolonged crushing syndrome, etiology, pathogenesis. Classification. Phases of development. Clinic.
60. Features of treatment of open and closed large soft tissue injuries with fracture and without bone fracture.

"0" version of the ticket diff. offset

Petro Mohyla Black Sea National University
Educational qualification level - master
Field of knowledge: 22 Health care
specialty 222 Medicine

Course - Traumatology and Orthopedics

Option № 0

1. The course of reparative regeneration of bone tissue in fracture - the maximum number of points - 20.
2. Pathogenesis of osteochondrosis of the spine and its stage - the maximum number of points - 20.
3. Mechanism and classification of pelvic fracture - maximum number of points - 20.
4. Indications for conservative and surgical treatment of spastic paralysis, their methods - the maximum number of points - 20.

Approved at the meeting of the Department of Therapeutic and Surgical Disciplines, minutes № ___ from "__" _____ 2020.

Head of Department **Doctor of Medical Sciences Zak M.Yu.**

Examiner **Assoc. Grishchenko GV**

And such 15 tickets

An example of the task of KKR
Option № 1

I. Questions

and. Mechanism and classification of ligament injuries, fractures of the ankle joint.

b. Types of restriction of movements in the joints.

II.tasks:

1. You measured the lower extremities of the patient. Anatomical length: segmental measurement of both thighs and legs is the same; when measuring the relative length revealed a difference of the right lower limb by 5 cm. What are the reasons for such a difference?
2. A 14-year-old patient has congenital hip dislocation, diving gait. What cognitive lines and measurements will give us grounds to clinically diagnose hip dislocation?
3. When measuring the volume of movements in the knee joint, you received data: flexion to 90 degrees, extension to 160 degrees. What is the name of such an installation, its variety, the causes of pathological attitudes in the joints?
4. When examining the patient, the angle between the axis of the thigh and lower leg is open to the outside. What is the name of such a deformity in the knee joint (Latin name)? What and how to define it?
5. When examining the patient, the angle between the axis of the thigh and shin is open inward. What is the name of such a deformation (Latin name) and how to measure it?
6. The patient does not walk, there are no movements in the knee joints, pathological installations in them at an angle of 145 degrees. What are the names of such pathological attitudes? The reasons for their occurrence?
7. At inspection of the patient (at loading) the foot is flattened and inclined together with a heel outside. What is the name of the deformation (Latin name)?
8. The patient due to the disease preserved hook and pinch grip. What types of brush grips are missing?

9. The patient due to improperly grown fracture of the tibia had a deformity with an angle open forward. What is the deformation called and defined?
10. At the patient owing to incorrectly increased fracture of bones of a shin there was a deformation with the angle opened back. How is deformation defined and called?

And so 15 options

6. Evaluation criteria and tools for diagnosing learning outcomes

Control methods

- Survey (testing of theoretical knowledge and practical skills).
- Test control.
- Writing a review of scientific literature (abstracts).
- Preparation of presentations.

Current control. Testing in practical classes of theoretical knowledge and the acquisition of practical skills, as well as the results of independent work of students. Supervised by teachers according to the specific purpose of the curriculum. Assessment of the level of student training is carried out by: interviewing students, solving and analyzing situational tasks and test tasks, monitoring the acquisition of practical skills.

Intermediate control. Checking the possibility of using students for the practical application of theoretical knowledge and practical skills on all topics studied, as well as the results of independent work of students. Carried out in the last lessonby section by passing practical skills, testing.

Final control. Students who have attended all lectures, classroom classes, full-time independent work and scored a number of points in the learning process, not less than the minimum - 60 are allowed to the final control (differential test). **points in the semester.**

Distribution of points received by students

A positive grade in each seminar can be from 3 to 6 points. A score below 3 points means "unsatisfactory", the lesson is not credited and is subject to practice in the prescribed manner.In order to assess learning outcomes, the final control in the form of diff. credit, which is recommended for academic disciplines.

The student can get a maximum of 120 pointstotal for the discipline + 80 points for diff. offset; a total of 200 points.

Assessment of student performance

Type of activity (task)	Maximum number of points
practical lesson 1	6
practical lesson 2	6
practical lesson 3	6
practical lesson 4	6
practical lesson 5	6
practical lesson 6	6
practical lesson 7	6
practical lesson 8	6
practical lesson 9	6
practical lesson 10	6
practical lesson 11	6
practical lesson 12	6
practical lesson 13	6
practical lesson 14	6
practical lesson 15	6
practical lesson 16	6
practical lesson 17	6
practical lesson 18	6
practical lesson 19	6
practical lesson 20	6
Together	**120**
Diff. test	**80**
Together with diff. offset	**200**

Criteria for assessing knowledge

Score 5 - 6 points in a practical lesson, 111 - 120 points overall current performance in the semester and 71 - 80 points on the exam (A on the ECTS scale and 5 on the national scale) the student's response is evaluated if it demonstrates a deep knowledge of human anatomy and physiology, the ability to apply theoretical material for practical analysis and has no inaccuracies.

Score 4 - 5 points per semester, 91 - 110 points overall current performance in the semester and 61-70 points on the exam (B and C on the ECTS scale and 4 on the national scale) the answer is evaluated if it shows knowledge, the ability to apply them in practice, but some fundamental inaccuracies are allowed.

Score 3 - 4 points per semester, 70 - 90 points overall current performance in the semester and 50-60 points on the exam (D and E on the ECTS scale and 3 on the national scale) the student's response is evaluated provided that he knows the main theoretical principles and can use them in practice.

7. Recommended sources of information

7.1. Basic

1. Bitchuk DD, Istomin AG, Khimenko MF, Maryu Khnych AO Traumatology and orthopedics. Collection of test tasks for extracurricular preparation of students for licensing exams: Step-2.-Kharkiv: KhDMU, NTU "KhPI", 2004.-224p.
2. Bukup Klaus. Clinical examination of muscles and joints / Bukup Klaus. - M., 2007. - 320 c.
3. Buryanov OA, Sklyarenko ET, Voloshin OI, Zadnichenko MO, Kvasha VP, Grek VP Traumatology and orthopedics. Handbook for practical classes. Kiev. Book-plus-2006. - 136c.
4. Methodical instructions for writing an educational history of the disease in the supervision of patients with injuries and diseases of the ORA. / M. WITH . Клепач, M. And. Pustovoit, V. P. Omelchuk et al. Ñ Methodical instructions ñ Ivano - Frankivsk 2002 40 p.
5. Methodical instructions for writing a medical history in the supervision of patients with injuries and diseases of the musculoskeletal system. - Zaporizhzhia. - 2010. – 15 p.
6. Oleksa AP Orthopedics. - Ternopil TSMU "Ukrmedkniga" - 2006.
7. Orthopedics and Traumatology / Ed. prof. Oh. M. Хвисюка. ñ H., 2013. - 656 p.
8. Workshop on the course of traumatology and orthopedics (for students of higher medical institutions) .- T. "Ukrmedknyha", 2004.
9. Sklyarenko ET Traumatology and orthopedics. - K .: Health, 2005. - 328p.
10. Traumatology and orthopedics: a textbook for students of higher medical schools / ed. Needles G. G., Bur í yanova O. A., Klymovytsky V. G.- Vinnytsia: Nova Kniga, (Ukr.) 2014. - 416 p.
11. Traumatology and Orthopedics: A Textbook for Students. higher textbook institutions / ed. AHEM. Кавалерского. - 2nd ed., Reworked. and ext. - M .: Publishing Center "Academy", 2008. - 624 p.
12. Trubnikov VF Traumatology and orthopedics.- K .: Higher school, 1986.- 591p.
13. Chemiris AY, Neryanov YM, Kudievsky AV, Shishka IV Practical skills and abilities in traumatology and orthopedics. Educational and visual aid for students of higher educational institutions. - Zaporizhzhia. - 2010. - 64 p.

7.2. Additional

1. Babosha VA, Klimovich VG, Pasternak VN etc. Pelvic trauma (Clinic, diagnosis and treatment) .- Donetsk: Donetsk region, 2000.-176 p.
2. Diagnosis and treatment of degenerative-dystrophic lesions of the joints / IV Shumada, OY Suslova, VI Stetsula, NF Moroz, AP Krysyuk, etc.-Kiev: Health, 1990.- 200 p.
3. Korzh MO, Dedukh NV, Zupanets IA (ed.). Osteoarthritis. Conservative therapy.-Kharkiv: Flag, 1999.-33p.
4. Kornilov NV, Gryaznukhin EG Traumatology and orthopedics (guide for doctors in 4 volumes). 2004 –2007
5. Oleksa AP Traumatology and orthopedics.- K .: Higher school, 1999.-511p.
6. Organization of emergency medical care in military units (institutions) of the Armed Forces of Ukraine: guidelines / [2nd ed., Revised. and add.] // [Authors ...]. - GVMKC "GVKG". - K.:, 2014. - 144 c.
7. Osteoporosis: epidemiology, clinic, diagnosis, prevention and treatment / Ed. NA Korzha, VV Povoroznyuk, NV Dedukha, IA Zupants.- H. Golden Pages, 2002.-648p.
8. Fishchenko V.Ya. Scoliosis.-Makeyevka: Poly Press, 2005.- 568p.

Information andelectronic resource

National Library named after VI Vernadsky - www.nbuv.gov.ua.
State Service of Ukraine for Emergencies - www.dsns.gov.ua.
Ministry of Health of Ukraine - http://www.moz.gov.ua.
https://www.cebp.nl/?NODE=239
www.pubmed.gov
www.amjphysmedrehab.com
www.apta.org
www.sciencedirect.com
www.acsm-msse.org

www.pmrjournal.org
www.imtt.com.ua