

**MINISTRY OF HEALTH OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY
International faculty
Department of Internal Medicine 1**

APPROVED
Acting vice-rector for research and educational work



_____ Eduard Buryachkivskiy

_____ 2023

**METHODOLOGICAL DEVELOPMENT OF PRACTICAL LESSON FROM
EDUCATIONAL DISCIPLINE**

for 6th year, international faculty

Academic discipline: «CURRENT ISSUES OF RHEUMATOLOGICAL PATHOLOGY»
(elective discipline)

The program was discussed and approved at the meeting of the Department of Internal Medicine No. 1, 05.09.2023. Protocol No. 1.

Head of the Department: _____ Yurii KARPENKO



Developers:

Karpenko Yurii Ivanovich, professor
Zolotarova Natalia Artemivna, profesor
Poliakov Anatolii Yevheniiovych, profesor
Izha Hanna Mykolaivna, associate professor
Kryzhanovskyi Yurii Mykolaiovych, associate professor
Pavlovska Kateryna Mykolaivna, associate professor
Potapchuk Oleksandr Vasylovych, associate professor
Savelieva Olha Valeriivna, associate professor
Shukhtina Iryna Mykolaivna, associate professor
Alavatska Tetiana Vasylivna, assistant
Blikhar Olena Volodymyrivna, assistant
Bondarenko Olha Vitaliivna, assistant
Hunenko Iryna Ihorivna, assiatant
Kravtsova Kateryna Volodymyrivna, assistant
Maistrenko Mariia Serhiivna, assistant
Mytrokhina Nadiya Anatoliivna, assistant
Pashaieva Viktoriia Faikivna, assisitant
Riabinina Anna Hennadiivna, assistant
Sukhina Yuliia Oleksandrivna, assistant
Ukhan Viktoriia Viktorivna, assistant
Yanvarova Olha Yuriivna, assistant
Yurdanova Ilona Heorhiivna, assistant
Zolotarova Kseniia Olehivna, assistant

Practical lessons

Practical lesson № 01

Topic: Clinical evaluation of the musculoskeletal system. Inspection, palpation, measurement.

Purpose: to explain the essence of the rheumatological diseases, the causes of its occurrence, the role of various factors in the etiopathogenesis, approaches to diagnosis, treatment and prevention.

Key words: 1 rheumatological diseases, structure of connective, cartilaginous and bone tissues, joint syndrome, the musculoskeletal system, the DAS28 index, the clinical disease activity index (CDAI), the simplified disease activity index (SDAI), the questionnaire for the assessment of the state of health (NAQ), the Laken index, the WOMAS index, the scale gout activity (GAS).

Equipment: laptop with a presentation, a multimedia projector, individual assignments on the topic of a practical lesson

Plan

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge (written work, written test, frontal survey, etc.)

2.1 Questions to test basic knowledge of the topic of the lesson:

1. Give definition of rheumatic diseases
2. Etiology and pathogenesis of rheumatic diseases
3. To know classification of rheumatic diseases
4. Risk-factors
5. Clinical manifestations of rheumatic diseases
6. Laboratory and instrumental diagnostics of rheumatic diseases
7. Complications of rheumatic diseases
8. Principles and methods of rheumatic diseases treatment.

3. Formation of professional abilities and skills (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

Case 1. 60 years old female patient complained of stiffness in small joints of both hands, duration for 2-3 hours, which accompanied by pain, swelling of the these joints, weight loss, decreased appetite, sweating, subfebrile body temperature in the evening. The skin over the joints hyperemic, hot to the touch. Additional research methods: CBC - Hb - 122 g / l, Er $4,3 \times 10^{12}$ / lL. 12×10^9 /л, e – 2, b- 5, s – 75, lym – 12, m – 6, ESR - 35 mm / h, RF (+), alpha 2 globulin - 14%, CRP ++, on X-rays of hands osteoporosis, subchondral destruction.

1. Primary clinical diagnosis.
2. Plan of additional investigation
3. Treatment.

Case 2. Patient with rheumatoid arthritis in history began to complain of retrosternal pain, shortness of breath on exertion, swelling of lower extremities in the evening. On ECG - a decrease in voltage of all waves.

What is the main complication of the disease have developed in a patient?

3.2 recommendations (instructions) for completing tasks:

#	Consequence of actions	Indications
1	Diagnosis of rheumatic diseases	Plan of patient examination
2	Basic clinical and instrumental laboratory data of rheumatic diseases	Criteria of EH diagnosis, tests
3	Practical actions in clinics	Clinical diagnosis, prescribe medicine

3.3 control materials for the final stage of the lesson

1. In the development of the inflammation processes glucocorticoids reduce the level of certain most important active enzyme. It results also in the reducing of the synthesis of prostaglandins and leukotrienes which have a key role in the development of inflammation processes. What is the exact name of this enzyme?
 - A. Phospholipase A2
 - B. Arachidonic acid
 - C. Lipoxygenase
 - D. Cyclooxygenase-1
 - E. Cyclooxygenase-2
2. A patient has an over a year-old history of fast progressive rheumatoid arthritis. X-raying confirms presence of marginal erosions. What basic drug would be the most appropriate in this case?
 - A. Prednisolone
 - B. Chloroquine
 - C. Methotrexate
 - D. Diclofenac sodium
 - E. Aspirin
3. A 35-year-old patient complains about pain and morning stiffness of hand joints and temporomandibular joints that lasts over 30 minutes. She has had these symptoms for 2 years. Objectively: edema of proximal interphalangeal digital joints and limited motions of joints. What examination should be administered?
 - A. Proteinogram
 - B. Complete blood count
 - C. Rose-Waaler's reaction
 - D. Immunnogram
 - E. Roentgenography of hands
4. A 31 y.o. woman has complained for 3 years of pain and swelling of radiocarpal and metacarpophalangeal articulations, morning stiffness that lasts up to 1,5 hours. Two weeks ago she felt pain, swelling and reddening of knee joints, body temperature raised up to 37,5⁰C. Examination of her internal organs revealed no pathologic changes. Her diagnosis was rheumatoid arthritis. What changes in X-ray pictures of her joints are the most probable?
 - A. Constriction of joint space, usura
 - B. Constriction of joint space, subchondral osteosclerosis
 - C. Cysts in subchondral bone
 - D. Multiple marginal osteophytes
 - E. Epiphysis osteolysis
5. A 38 year old female patient complains about body stiffness in the morning, especially in the articulations of her upper and lower limbs, that disappears 30-60 minutes later after active movements. She has also arthritis of metacarpophalangeal and proximal phalangeal articulations, subfebrile temperature. ESR- 45 mm/h. Roentgenography revealed osteoporosis and erosion of articular surface of small hand and foot articulations. What is the most probable diagnosis?
 - A. Psoriatic arthropathy
 - B. Rheumatoid arthritis
 - C. Osteoarthritis deformans
 - D. Systemic lupus erythematosus
 - E. Reactive polyarthritis

Recommended reading list

List of recommended literature source:

Basic:

1. 2021 American College of Rheumatology Guideline for the Treatment of Rheumatoid Arthritis / L. Fraenkel, J.M. Bathon, B.R. England et al. // Arthritis Care & Research Vol. 73, No. 7, July 2021, pp 924–939
2. EULAR points to consider for the management of difficult-to-treat rheumatoid arthritis / G.Nagy, N.M.T.Roodenrijs, P.M.J.Welsing et al. // Ann. Rheum. Dis. Published Online First: 18 August 2021. doi:10.1136/annrheumdis-2021-220973
3. EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs: 2016 update. Smolen JS, Landewé R, Bijlsma J, et al. Ann Rheum Dis 2017;76:960–977.
4. EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs: 2019 update. Smolen JS, Landewé RBM, Bijlsma JWJ, et al. Ann Rheum Dis 2020;79:685–699.

Additional:

1. Rheumatology: Principles and Practice. Ed.by S. Princeton. HAYLE MEDICAL, 2019. 248 p.
2. ABC of Rheumatology, 5th edition. Ed. by A.Adebajo and L.Dunkley. Hoboken, NJ : John Wiley & Sons, Inc., 2018. 209 p.
Rheumatology Secrets, 4th edition. Ed.by S.G. West, J. Kolfenbach. Elsevier, 2020.744 p.

Practical lessons

Practical lesson № 02

Topic: Interpretation of test results, assessment of disease activity. Evaluation of ECG and ECHO-CG data in rheumatological patients.

Purpose: to explain the essence of the rheumatological diseases, the causes of its occurrence, the role of various factors in the etiopathogenesis, approaches to diagnosis, treatment and prevention.

Key words: rheumatological diseases, structure of connective, cartilaginous and bone tissues, joint syndrome, the musculoskeletal system, the DAS28 index, the clinical disease activity index (CDAI), the simplified disease activity index (SDAI), the questionnaire for the assessment of the state of health (NAQ), the Laken index, the WOMAS index, the scale gout activity (GAS), ECG and ECHO-CG data in rheumatological patients

Equipment: laptop with a presentation, a multimedia projector, individual assignments on the topic of a practical lesson

Plan

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge(written work, written test, frontal survey, etc.)

2.1 Questions to test basic knowledge of the topic of the lesson:

1. Give definition of rheumatic diseases
2. Etiology and pathogenesis of rheumatic diseases
3. To know classification of rheumatic diseases
4. Risk-factors
5. Clinical manifestations of rheumatic diseases
6. Laboratory and instrumental diagnostics of rheumatic diseases
7. Complications of rheumatic diseases
8. Principles and methods of rheumatic diseases treatment.

3. Formation of professional abilities and skills (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

1. Male, 26 years old, turned to the clinic about pain in his lower back, buttocks and spine, lasting about 1 year. He complains of morning stiffness, with over 2 hours, which decreases after the various movements and exercises. Six months ago, suffered a sudden episode of pain in his right eye, which was regarded as iritis and docked with eye drops containing steroids. Patient's father had a similar pain in the back. On examination, the joints are not swollen. Tomayer's, Schober's symptoms are positive.

1. Primary diagnosis.
2. List diagnostic criteria of the disease.
3. Plan of investigation.
4. Treatment.

2. Male, 26 years old, turned to the clinic about pain in his lower back, buttocks and spine, lasting about 1 year. He complains of morning stiffness, with over 2 hours, which decreases after the various movements and exercises. Six months ago, suffered a sudden episode of pain in his right eye, which was regarded as iritis and docked with eye drops containing steroids. Patient's father had a similar pain in the back. On examination, the joints are not swollen. Tomayer's, Schober's symptoms are positive.

1. Primary diagnosis.
2. List diagnostic criteria of the disease.
3. Plan of investigation.
4. Treatment.

3.2 recommendations (instructions) for completing tasks:

#	Consequence of actions	Indications
1	Diagnosis of rheumatic diseases	Plan of patient examination
2	Basic clinical and instrumental laboratory data of rheumatic diseases	Criteria of EH diagnosis, tests
3	Practical actions in clinics	Clinical diagnosis, prescribe medicine

3.3 control materials for the final stage of the lesson

1. A 22-year-old male develops the insidious onset of low back pain improved with exercise and worsened by rest. There is no history of diarrhea, conjunctivitis, urethritis, eye problems, or nail changes. On exam the patient has loss of mobility with respect to lumbar flexion and extension. He has a kyphotic posture. A plain film of the spine shows widening and sclerosis of the sacroiliac joints. Some calcification is noted in the anterior spinal ligament. Which of the following best characterizes this patient's disease process?

- A. He is most likely to have acute lumbosacral back strain and requires bed rest
- B. The patient has a spondyloarthropathy, most likely ankylosing spondylitis
- C. The patient is likely to die from pulmonary fibrosis and extrathoracic restrictive lung disease
- D. A rheumatoid factor is likely to be positive
- E. A colonoscopy is likely to show Crohn's disease

2. A 22-year-old man presents with complaints of low back pain for 3 to 4 months and stiffness of the lumbar area, which worsen with inactivity. He reports difficulty in getting out of bed in the morning and may have to roll out sideways, trying not to flex or rotate the spine to minimize pain. A lumbosacral (LS) spine X-ray film would most likely show which of the following?

- A. Degenerative joint disease with spur formation
- B. Sacroiliitis with increased sclerosis around the sacroiliac joints
- C. Vertebral body destruction with wedge fractures

- D. Osteoporosis with compression fractures of L3-L5
- E. Diffuse osteonecrosis of the LS spine

3. A 23-year-old man with new-onset back and buttock pain presents to his primary care physician for evaluation. He states he has morning stiffness in his back that resolves over the course of the day. Further testing is negative for rheumatoid factor and positive for HLA-B27 surface antigen. For which of the following conditions is the patient at greatest risk?

- A. Aortitis
- B. Splenomegaly
- C. Thrombocytopenia
- D. Uveitis
- E. Xerostomia

4. A 35-year-old patient has been admitted to a hospital for pain in the left sternoclavicular and knee joints, lumbar area. The disease has an acute character and is accompanied by fever up to 38°C. Objectively: the left sternoclavicular and knee joints are swollen and painful. In blood: WBCs - $9,5 \times 10^9/l$, ESR - 40 mm/h, CRP - 1,5 mmol/l, fibrinogen - 4,8 g/l, uric acid - 0,28 mmol/l. Culture test of the urethra reveals *Chlamydia*. What is the most likely diagnosis?

- A. Reiter's syndrome
- B. Rheumatic arthritis
- C. Gout
- D. Bechterew's disease
- E. Rheumatoid arthritis

5. A patient 61 y.old, complains of pain in hands. During examination a swelling and moderate painfulness of distal interphalangeal joints is detected. Diagnosis: Reuter's disease. What data from past history can help to specify the diagnosis?

- A. Conjunctivitis, pericarditis.
- B. Urethritis, cystitis, arthritis.
- C. Conjunctivitis, urethritis, arthritis.
- D. Conjunctivitis, myocarditis.
- E. Pericarditis, myocarditis, arthritis.

List of recommended literature source:

Basic:

- Fanouriakis A, Kostopoulou M, Alunno A, et al. 2019 update of the EULAR recommendations for the management of systemic lupus erythematosus. *Ann Rheum Dis* 2019;78:736–745.
- Aringer M., Costenbader K.H., Daikh D.I. et al. 2019 EULAR/ACR Classification Criteria for Systemic Lupus Erythematosus. *Arthritis Rheumatol.* 2019 September ; 71(9): 1400–1412.
- *Rheumatology: Principles and Practice*. Ed.by S. Princeton. HAYLE MEDICAL, 2019. 248 p.
- Sarwar A, Dydyk AM, Jatwani S. Polymyositis. [Updated 2021 Jul 25]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK563129/>
- Shu-Han Yang, Christopher Chang, Zhe-Xiong Lian, Polymyositis and dermatomyositis – challenges in diagnosis and management, *Journal of Translational Autoimmunity*, Volume 2, 2019, 100018

Additional:

- *Rheumatology: Principles and Practice*. Ed.by S. Princeton. HAYLE MEDICAL, 2019. 248 p.
- *ABC of Rheumatology*, 5th edition. Ed. by A.Adebajo and L.Dunkley. Hoboken, NJ : John Wiley & Sons, Inc., 2018. 209 p.
- *Rheumatology Secrets*, 4th edition. Ed.by S.G. West, J. Kolfenbach. Elsevier, 2020. 744 p.

- ABC of Rheumatology, 5th edition. Ed. by A.Adebajo and L.Dunkley. Hoboken, NJ : John Wiley & Sons, Inc., 2018. 209 p.
- Rheumatology Secrets, 4th edition. Ed.by S.G. West, J. Kolfenbach. Elsevier, 2020. 744 p.

Practical lessons

Practical lesson № 03

Topic: Modern approaches to the treatment of rheumatic diseases from the standpoint of evidence-based medicine. The concept of basic therapy. The main groups of basic drugs.

Purpose: to explain the essence of the rheumatological diseases, the causes of its occurrence, the role of various factors in the etiopathogenesis, approaches to diagnosis, treatment and prevention.

Key words: rheumatological diseases, structure of connective, cartilaginous and bone tissues, joint syndrome, the musculoskeletal system, the DAS28 index, the clinical disease activity index (CDAI), the simplified disease activity index (SDAI), the questionnaire for the assessment of the state of health (NAQ), the Laken index, the WOMAS index, the scale gout activity (GAS), ECG and ECHO-CG data in rheumatological patients, evidence-based medicine, basic drugs.

Equipment: laptop with a presentation, a multimedia projector, individual assignments on the topic of a practical lesson

Plan

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge(written work, written test, frontal survey, etc.)

2.1 Questions to test basic knowledge of the topic of the lesson:

1. Give definition of rheumatic diseases
2. Etiology and pathogenesis of rheumatic diseases
3. To know classification of rheumatic diseases
4. Risk-factors
5. Clinical manifestations of rheumatic diseases
6. Laboratory and instrumental diagnostics of rheumatic diseases
7. Complications of rheumatic diseases
8. Principles and methods of rheumatic diseases treatment.

3. Formation of professional abilities and skills (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

Clinical task №1.

Patient P., aged 32, female, was admitted to hospital in serious condition with complaints of pain in muscles and almost complete immobility, difficulty swallowing, general weakness.

A year ago, there were pain in the legs, then a feeling of weakness, gait became unsteady. A month later, an erythema on the face and neck. Suspected systemic lupus erythematosus. Treatment by prednisolone 15 mg per day without effect, the patient continued to progressively deteriorate, increasing intensity weakness, and soon the patient could not own up to the bus, self-rising from a chair. There were seals in the painful shoulder muscles, with difficulty turned in bed, there were difficulties in swallowing food, liquid food was poured through the nose, appeared hoarseness of voice.

Examination: temperature 37,50, observed seal shoulder muscles, thighs. On palpation painful muscles, there periorbital cyanotic edema, persistent erythema of the face and neck. Joints without visible changes. With great difficulty, raised her head from the bed, could not raise his hands up and hair. The heart was normal. Blood pressure 100/60 mmHg. Liver and spleen were not enlarged.

Blood tests: Er. - $4,0 \cdot 10^{12} / l$, Hb - 120 g / l, L - $9 \cdot 10^9 / l$, ESR - 60 mm / hour. Formula

normal. Total protein 80 g / l. Urine: no pathology. ECG: moderate muscle changes. Chest x-ray: signs of left-side exudative pleurisy.

Questions:

1. Primary clinical diagnosis?
2. Plan of additional investigation?
3. Differential diagnosis?
4. Treatment?

Clinical task №2.

Patient S., female, admitted to the clinic with complaints of weakness, weight loss, swelling of the skin hands, forearms, dark skin, chilliness in the tips of the fingers, blanching of fingers on a cold, pain in large joints. Sick for 3 years.

In the beginning appeared chill fingers, cyanosis and blanching in the cold. During the past 3 months, worried about weakness, dense swelling of hands, forearms, the temperature 37.5. The examination at the rheumatology center: CBC – E. $3,1 \times 10^{12} / l$, Hb 90 g / l, WBC $8,2 \times 10^9 / l$, ESR 53 mm / h. Total protein 86 g / l, globulins 40%, ANF + peripheral glow.

On examination: low-power, skin dark, tough. Enlargement of lymph. nodes PS 96 in 1 min., rhythm., Blood pressure 100/60 mmHg. Borders of the heart are normal. Cardiac sounds are muffled, short systolic sound on apex. Vesicular breathing in lungs. Abdomen: palpation- soft, the liver at the edge of the costal arch.

Questions:

1. Formulate diagnosis?
2. List diagnostic criteria of the disease. What is CREST-syndrome?
3. Standards of examination of patients with this pathology?
4. Standard treatment for patients with this pathology?

3.2 recommendations (instructions) for completing tasks:

#	Consequence of actions	Indications
1	Diagnosis of rheumatic diseases	Plan of patient examination
2	Basic clinical and instrumental laboratory data of rheumatic diseases	Criteria of EH diagnosis, tests
3	Practical actions in clinics	Clinical diagnosis, prescribe medicine

3.3 control materials for the final stage of the lesson

1. Patient P., 37 years old, complains of pain in buttocks, increasing after midnight, with irradiation to the rear surface of hips. Periodically felt pain and slight swelling of small joints of hands. During examination there's limitation of spine mobility, decrease of chest expansion. Your preliminary diagnosis?

- A. Osteoarthritis.
- B. Ankylosing spondylitis.
- C. Rheumatoid arthritis.
- D. Reactive arthritis.
- E. Psoriatic arthritis.

2. A 22-year-old man presents with complaints of low back pain for 3 to 4 months and stiffness of the lumbar area, which worsen with inactivity. He reports difficulty in getting out of bed in the morning and may have to roll out sideways, trying not to flex or rotate the spine to minimize pain. A lumbosacral (LS) spine X-ray film would most likely show which of the following?

- A. Degenerative joint disease with spur formation
- B. Sacroiliitis with increased sclerosis around the sacroiliac joints
- C. Vertebral body destruction with wedge fractures
- D. Osteoporosis with compression fractures of L3-L5
- E. Diffuse osteonecrosis of the LS spine

3. A 23-year-old man with new-onset back and buttock pain presents to his primary care physician for evaluation. He states he has morning stiffness in his back that resolves over the course of the day. Further testing is negative for rheumatoid factor and positive for HLA-B27 surface antigen. For which of the following conditions is the patient at greatest risk?
- Aortitis
 - Splenomegaly
 - Thrombocytopenia
 - Uveitis
 - Xerostomia
4. A patient, aged 40, has been ill during approximately 8 years, complains of pain in the lumbar part of the spine on physical exertion, in cervical and thoracic part (especially when coughing), pain in the hip and knee joints on the right. On examination: the body is fixed in the forward inclination with head down, gluteal muscles atrophy. Spine X-ray: ribs osteoporosis, longitudinal ligament ossification. What is the most likely diagnosis?
- Ankylosing spondylarthritis
 - Tuberculous spondylitis
 - Psoriatic spondylarthropatia
 - Spondylarthropatia on the background of Reiter's disease
 - Spread osteochondrosis of the vertebral column
5. A 32-year-old male patient has been suffering from pain in the sacrum and coxofemoral joints, pain and stiffness in the lumbar spine for a year. ESR - 56 mm/h. Roentgenography revealed signs of bilateral sacroileitis. The patient is positive of HLA-B27 antigen. What is the most likely diagnosis?
- Ankylosing spondylitis
 - Coxarthrosis
 - Rheumatoid arthritis
 - Reiter's disease
 - Spondylosis

Recommended reading list

List of recommended literature source:

Basic:

- Fanouriakis A, Kostopoulou M, Alunno A, et al. 2019 update of the EULAR recommendations for the management of systemic lupus erythematosus. *Ann Rheum Dis* 2019;78:736–745.
- Aringer M., Costenbader K.H., Daikh D.I. et al. 2019 EULAR/ACR Classification Criteria for Systemic Lupus Erythematosus. *Arthritis Rheumatol.* 2019 September ; 71(9): 1400–1412.
- *Rheumatology: Principles and Practice.* Ed. by S. Princeton. HAYLE MEDICAL, 2019. 248 p.
- Sarwar A, Dydyk AM, Jatwani S. Polymyositis. [Updated 2021 Jul 25]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK563129/>
- Shu-Han Yang, Christopher Chang, Zhe-Xiong Lian, Polymyositis and dermatomyositis – challenges in diagnosis and management, *Journal of Translational Autoimmunity*, Volume 2, 2019, 100018

Additional:

- *Rheumatology: Principles and Practice.* Ed. by S. Princeton. HAYLE MEDICAL, 2019. 248 p.
- *ABC of Rheumatology*, 5th edition. Ed. by A.Adebajo and L.Dunkley. Hoboken, NJ : John Wiley & Sons, Inc., 2018. 209 p.
- *Rheumatology Secrets*, 4th edition. Ed. by S.G. West, J. Kolfenbach. Elsevier, 2020. 744 p.
- *ABC of Rheumatology*, 5th edition. Ed. by A.Adebajo and L.Dunkley. Hoboken, NJ : John Wiley & Sons, Inc., 2018. 209 p.

– Rheumatology Secrets, 4th edition. Ed.by S.G. West, J. Kolfenbach. Elsevier, 2020. 744 p.

Practical lessons

Practical lesson № 04

Topic: Rules for prescribing and selecting adequate doses of glucocorticoids, rules for canceling therapy. Methodology of pulse therapy.

Purpose: to explain the essence of the rheumatological diseases, the causes of its occurrence, the role of various factors in the etiopathogenesis, approaches to diagnosis, treatment and prevention.

Key words: rheumatological diseases, structure of connective, cartilaginous and bone tissues, joint syndrome, the musculoskeletal system, the DAS28 index, the clinical disease activity index (CDAI), the simplified disease activity index (SDAI), the questionnaire for the assessment of the state of health (NAQ), the Laken index, the WOMAS index, the scale gout activity (GAS), ECG and ECHO-CG data in rheumatological patients, evidence-based medicine, basic drugs, pulse therapy, glucocorticoids.

Equipment: laptop with a presentation, a multimedia projector, individual assignments on the topic of a practical lesson

Plan

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge(written work, written test, frontal survey, etc.)

2.1 Questions to test basic knowledge of the topic of the lesson:

1. Give definition of rheumatic diseases
2. Etiology and pathogenesis of rheumatic diseases
3. To know classification of rheumatic diseases
4. Risk-factors
5. Clinical manifestations of rheumatic diseases
6. Laboratory and instrumental diagnostics of rheumatic diseases
7. Complications of rheumatic diseases
8. Principles and methods of rheumatic diseases treatment.

3. Formation of professional abilities and skills (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

1. Patient N., female, 43 years old, complaints with the growing general weakness and stiffness, marked limitation of motion in joints of hands and feet, shortness of breath at the slightest exertion and palpitation.

She is ill for 14 years. Disease was preceded by trauma and cooling, and then came the increased chilliness and cyanosis of the fingers, then trophic disorders and dense edema of hands and feet. Later joined by pain in joints and muscles, seal skin, deformity of joints and spine, growing, general stiffness and immobility. During the illness the patient had lost 30 kg in weight.

Examination: impairment of all the fingers: cold, covered with thick shiny skin, deformity ("bird legs"). A large deformation and shortening of the fingers, they are in palmar flexion. Atrophy of the muscles. Face without mimic, like mask with thinned glossy skin, thinning of the nose, lips, ears and mouth narrow slit.

X-ray of hands: sever deformation with flexion contracture, the narrowing of the joint cavity. Partial osteolysis of terminal phalanges. In the joints of the wrist joint narrowing of gaps. Moderate osteoporosis.

Questions:

1. Primary clinical diagnosis?
2. Plan of investigation for revealing visceral pathology?

3. Differential diagnosis?

4. Treatment?

2. Patient S., aged 48, female, fell ill acutely with increasing temperature to 38,80, progressive weakness, aches in shoulder and pelvic girdle muscle and arthralgia. Then joined purple periorbitale swelling of eyelid skin, erythema on her face, region of seals bluish purple color in the shoulders and hips. Because of the weakness in the muscles could not walk.

In the analysis of blood leukocytosis - $13,6 * 10^9 / L$, moderate anemia (Hb 114 g / l), ESR 32 mm / hour.

In the history: mastopathy within 4 years. Is registered in the Oncology Center.

Questions:

1. Primary clinical diagnosis?

2. Plan of additional investigation?

3. Differential diagnosis?

4. Treatment?

5. Does your patient in the dispensary observation? What experts?

3.2 recommendations (instructions) for completing tasks:

#	Consequence of actions	Indications
1	Diagnosis of rheumatic diseases	Plan of patient examination
2	Basic clinical and instrumental laboratory data of rheumatic diseases	Criteria of EH diagnosis, tests
3	Practical actions in clinics	Clinical diagnosis, prescribe medicine

3.3 control materials for the final stage of the lesson

1. Patient 25 years old 2 weeks after pharyngitis began to complain of increasing temperature to 38 ° C, general weakness, dyspnea , swelling and pain of joints with changeable nature. OBJECTIVE: cyanosis of the lips. Pulse weak filling, rhythmic, 100bpm. Cardiomegaly (the left border of the heart +1 from midclavicular line), apex tone weakened, soft systolic murmur is heard. What is the most likely etiological factor leads to the disease process?

A. β -hemolytic streptococcus

B. herpes virus

C. pneumococcus

D. staphylococcus

E. Fungi

2. Female 19 years, complains of pain in the large joints of the upper and lower extremities, fever up to 38,6 ° C. 2 weeks ago, had been ill with angina. Mother suffers rheumatic heart disease. Objectively: in affected joints hyperemia, with light swelling ; t = 37,3°C, pulse 84 bpm, BP 120/70 mmHg. Enlarged left heart border +2 cm, 1 sound on apex of the heart is weakened, systolic murmur; Hb-126g/l, L-9, 2×10^9 , ESR-47 mm/h. ECG - regular rhythm, PQ- 0,24 ". What is the etiology of this disease?

A. Herpes simplex virus.

B. Viral and bacterial .

C. Staphylococcus aureus

D. Beta-hemolytic streptococcus.

E. Genetically determined.

3. In the patient on echocardiography was revealed: left atrium 5.0cm, mitral valve fibrotic changed movement valves "P-shaped" back valve - tightened to the front. What kind of change it is?

A. Mitral Valve Prolapse

B. Mitral valve insufficiency

- C. Stenosis of the mitral valve orifice
- D. Ventricular septal defect
- E. Atrial septal defect

4. In a woman at the age of 55 during medical examination weakening of the 1st sound over aorta and in the same place rough systolic murmur which irradiated to carotid arteries and to Botkin's point were revealed on auscultation. What valvular heart disease may be suspected?

- A. Mitral stenosis
- B. Combined mitral defect
- C. Mitral regurgitation
- D. Aortic stenosis
- E. Aortic regurgitation

5. Woman 42 years old was admitted to hospital with complaints of dyspnoea and palpitation on exertion. Heart borders were expanded up and to the right, loud I tone at the apex and diastolic thrill were auscultated. Liver was lowered below the costal arch by 5 cm, legs were swollen. What is the reason of heart failure?

- A. Mitral regurgitation
- B. Mitral stenosis
- C. Tricuspid regurgitation
- D. Tricuspid stenosis
- E. Ventricular septal defect

Recommended reading list

Basic:

- Fanouriakis A, Kostopoulou M, Alunno A, et al. 2019 update of the EULAR recommendations for the management of systemic lupus erythematosus. *Ann Rheum Dis* 2019;78:736–745.
- Aringer M., Costenbader K.H., Daikh D.I. et al. 2019 EULAR/ACR Classification Criteria for Systemic Lupus Erythematosus. *Arthritis Rheumatol.* 2019 September ; 71(9): 1400–1412.
- *Rheumatology: Principles and Practice.* Ed. by S. Princeton. HAYLE MEDICAL, 2019. 248 p.
- Sarwar A, Dydik AM, Jatwani S. Polymyositis. [Updated 2021 Jul 25]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK563129/>
- Shu-Han Yang, Christopher Chang, Zhe-Xiong Lian, Polymyositis and dermatomyositis – challenges in diagnosis and management, *Journal of Translational Autoimmunity*, Volume 2, 2019, 100018

Additional:

- *Rheumatology: Principles and Practice.* Ed. by S. Princeton. HAYLE MEDICAL, 2019. 248 p.
- *ABC of Rheumatology*, 5th edition. Ed. by A. Adebajo and L. Dunkley. Hoboken, NJ : John Wiley & Sons, Inc., 2018. 209 p.
- *Rheumatology Secrets*, 4th edition. Ed. by S.G. West, J. Kolfenbach. Elsevier, 2020. 744 p.
- *ABC of Rheumatology*, 5th edition. Ed. by A. Adebajo and L. Dunkley. Hoboken, NJ : John Wiley & Sons, Inc., 2018. 209 p.
- *Rheumatology Secrets*, 4th edition. Ed. by S.G. West, J. Kolfenbach. Elsevier, 2020. 744 p.

Practical lessons

Practical lesson № 05

Topic: Nonsteroidal anti-inflammatory drugs in rheumatology. Classification, main groups of drugs, indications, contraindications, principles of rational drug selection. Local therapy for rheumatic diseases. Methodology of joint puncture and intra-articular administration of

drugs.

Purpose: to explain the essence of the rheumatological diseases, the causes of its occurrence, the role of various factors in the etiopathogenesis, approaches to diagnosis, treatment and prevention.

Key words: rheumatological diseases, structure of connective, cartilaginous and bone tissues, joint syndrome, the musculoskeletal system, the DAS28 index, the clinical disease activity index (CDAI), the simplified disease activity index (SDAI), the questionnaire for the assessment of the state of health (NAQ), the Laken index, the WOMAS index, the scale gout activity (GAS), ECG and ECHO-CG data in rheumatological patients, evidence-based medicine, basic drugs, pulse therapy, glucocorticoids, nonsteroidal anti-inflammatory drugs

Equipment: laptop with a presentation, a multimedia projector, individual assignments on the topic of a practical lesson

Plan

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge (written work, written test, frontal survey, etc.)

2.1 Questions to test basic knowledge of the topic of the lesson:

1. Give definition of rheumatic diseases
2. Etiology and pathogenesis of rheumatic diseases
3. To know classification of rheumatic diseases
4. Risk-factors
5. Clinical manifestations of rheumatic diseases
6. Laboratory and instrumental diagnostics of rheumatic diseases
7. Complications of rheumatic diseases
8. Principles and methods of rheumatic diseases treatment.

3. Formation of professional abilities and skills (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

1. Patient P., female, aged 26, was admitted to the cardiology department complaining of pain in the joints, muscles, raising the temperature to 39° , headache, edema, shortness of breath. This condition occurred after insolation.

Objective: the state of medium gravity, hyperemic cheeks, his face puffy, there is edema of the lower extremities, ascites. Blood pressure 160/100 mmHg Pulse 94 per minute. Cardiac sounds weakened. In the lower parts of lungs during percussion shortening of lung sound.

Urinalysis: the relative density 1018, protein 16.2 g / l, red blood cells cover the entire field of view, leucocytes 10 in f/v, cylinders: hyaline and granular 2-3 in f/v

Total protein 56 g / l, cholesterol 8 mmol / l, urea 12 mmol / l, creatinine 0.16 mmol / L, glomerular filtration, 42 ml / min.

Radiologically: the fluid in the pleural cavity, lung fields clear.

Questions:

1. Highlight the main symptoms?
2. What diseases have you suspect?
3. Formulate a primary diagnosis, justify it?
4. What investigation you need for verify the diagnosis?

2. Patient S., aged 28, was admitted to regional hospital with complaints of pain in small joints of hands, low-grade fever, weight loss, hair loss. She felt ill for 10 months. After pregnancy, there were pains in all joints of the hands and feet without swelling, weakness, recurrent episodes of rising temperatures, worsened appetite, was losing weight. When appeared hyperemia of face, swelling of the legs and face, shortness of breath, pain in the lower regions of the thorax visited the doctor.

Objectively: the temperature of $37,7$, swelling hands, defiguration of proximal interphalangeal joints, hyperemia of the cheeks, enlargement of the heart to the left, the deaf sounds, tachycardia,

systolic murmur on apex. Blood pressure 150/100 mmHg. Vesicular breathing.

Blood tests: Er. - 3.2×10^{12} / l, Hb - 106 g / l, L. - 3.4×10^9 / l, ESR - 60 mm / hour.

Urine: 1016, protein 1.65 g / l, L. - 8-10 in f / v, hyaline cylinders 4-5 f / v.

X-rays of the chest: thickening of the interlobar pleura, high standing of the diaphragm on the right.

Questions:

1. Primary clinical diagnosis?
2. Plan of additional investigation?
3. Differential diagnosis?
4. Treatment?
5. Whether physiotherapy treatment indicated?

3.2 recommendations (instructions) for completing tasks:

#	Consequence of actions	Indications
1	Diagnosis of rheumatic diseases	Plan of patient examination
2	Basic clinical and instrumental laboratory data of rheumatic diseases	Criteria of EH diagnosis, tests
3	Practical actions in clinics	Clinical diagnosis, prescribe medicine

3.3 control materials for the final stage of the lesson

1. 35 years old patient admitted to the hospital with complaints on pain in the left sternoclavicular and knee joints, lower back. Acutely ill, with a temperature rising to 38.0C. Objective: left sternoclavicular and knee joints are swollen, painful on palpation. In CBC L.- 9,5G/l, ESR-40 mm/h, fibrinogen - 4.8 g/l, uric acid - 0.28 mmol/l. In scrapings from the urethra - chlamydia. What is the diagnosis in this case?

- A. rheumatoid arthritis
- B. Ankylosing spondylitis
- C. gout
- D. Reiter's syndrome
- E. rheumatic arthritis

2. Youth 16 years old admitted to the rheumatology department with complaints on pain in the large joints, swelling and redness of the left knee joint, temperature 37.90C. The abovementioned complaints appeared 5 days ago, after suffering quinsy. What is the most likely diagnosis?

- A. Reactive arthritis
- B. Rheumatoid arthritis
- C. Deforming arthrosis
- D. Gout
- E. Rheumatoid arthritis.

3. 34 years old patient complains on pain in the knee and ankle joints in motion, burning eyes and cramps when urinating. Objectively: the left knee joint increased in volume, the skin over it hyperemic, hot to the touch, movement in the joint is limited due to pain. Conjunctival hyperemia, urethral mucous and serous discharge. What type of pathogen is most likely to be determined in the study of scrapings from the urethra?

- A. gonococcus
- B. chlamydia
- C. staphylococcus
- D. mycoplasma
- E. Trichomonas

4. 25 years old patient noted burning in the urethra, which increased when urinating. After playing football there was a sharp pain in the Achilles tendon and in right knee, it's swelling, subfebrile temperature. In the CBC was revealed: elevated ESR, leukocytosis with a left shift. The most likely diagnosis?

- A. traumatic arthritis
- B. tubercular arthritis
- C. Rheumatic arthritis of the knee
- D. rheumatoid arthritis
- E. reactive arthritis

5. The patient, 25 years old, complains on pain in the tibial joints, increasing the temperature to 38°C, discomfort sensations in the eyes, "the eyes are full of sand." Objective: increased tibial joints, restricted movement in them. What is the diagnosis in the patient?

- A. Reiter's disease
- B. rheumatism
- C. rheumatoid arthritis
- D. osteoarthritis
- E. gout

Recommended reading list

Basic:

- Fanouriakis A, Kostopoulou M, Alunno A, et al. 2019 update of the EULAR recommendations for the management of systemic lupus erythematosus. *Ann Rheum Dis* 2019;78:736–745.
- Aringer M., Costenbader K.H., Daikh D.I. et al. 2019 EULAR/ACR Classification Criteria for Systemic Lupus Erythematosus. *Arthritis Rheumatol.* 2019 September ; 71(9): 1400–1412.
- *Rheumatology: Principles and Practice.* Ed.by S. Princeton. HAYLE MEDICAL, 2019. 248 p.
- Sarwar A, Dydyk AM, Jatwani S. Polymyositis. [Updated 2021 Jul 25]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK563129/>
- Shu-Han Yang, Christopher Chang, Zhe-Xiong Lian, Polymyositis and dermatomyositis – challenges in diagnosis and management, *Journal of Translational Autoimmunity*, Volume 2, 2019, 100018

Additional:

- *Rheumatology: Principles and Practice.* Ed.by S. Princeton. HAYLE MEDICAL, 2019. 248 p.
- *ABC of Rheumatology*, 5th edition. Ed. by A.Adebajo and L.Dunkley. Hoboken, NJ : John Wiley & Sons, Inc., 2018. 209 p.
- *Rheumatology Secrets*, 4th edition. Ed.by S.G. West, J. Kolfenbach. Elsevier, 2020. 744 p.
- *ABC of Rheumatology*, 5th edition. Ed. by A.Adebajo and L.Dunkley. Hoboken, NJ : John Wiley & Sons, Inc., 2018. 209 p.
- *Rheumatology Secrets*, 4th edition. Ed.by S.G. West, J. Kolfenbach. Elsevier, 2020. 744

Practical lessons

Practical lesson № 06

Topic: X-ray examination of joints, specific X-ray signs in various rheumatic diseases. X-ray stages of rheumatological diseases. Magnetic resonance imaging, computer tomography in rheumatology

Purpose: to explain the essence of the rheumatological diseases, the causes of its occurrence, the role of various factors in the etiopathogenesis, approaches to diagnosis, treatment and prevention.

Key words: rheumatological diseases, structure of connective, cartilaginous and bone tissues, joint syndrome, the musculoskeletal system, the DAS28 index, the clinical disease activity index

(CDAI), the simplified disease activity index (SDAI), the questionnaire for the assessment of the state of health (NAQ), the Laken index, the WOMAS index, the scale gout activity (GAS), ECG and ECHO-CG data in rheumatological patients, evidence-based medicine, basic drugs, pulse therapy, glucocorticoids, nonsteroidal anti-inflammatory drugs

Equipment: laptop with a presentation, a multimedia projector, individual assignments on the topic of a practical lesson

Plan

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge(written work, written test, frontal survey, etc.)

2.1 Questions to test basic knowledge of the topic of the lesson:

1. Give definition of rheumatic diseases
2. Etiology and pathogenesis of rheumatic diseases
3. To know classification of rheumatic diseases
4. Risk-factors
5. Clinical manifestations of rheumatic diseases
6. Laboratory and instrumental diagnostics of rheumatic diseases
7. Complications of rheumatic diseases
8. Principles and methods of rheumatic diseases treatment.

3. Formation of professional abilities and skills (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

1. The patient, 58 years old, overweight. Complains of pain in the knee joints, aggravated by walking, particularly on stairs .Ill about 7 years. Last 10 days indicated moderate redness of the skin in the area of the knee, swelling, more pronounced dysfunction. OBJECTIVE. Knee joints are deformed, swollen, active and passive movements of the joints is limited by pain, mild muscle atrophy. Uric acid levels are not elevated. In blood indicated a slight leukocytosis, elevated ESR 18 mm/h. Radiological: joint space narrowing in 2-3 times, subchondral sclerosis, osteophytes expressed .

Questions.

1. To formulate the diagnosis.
2. Identify plan of treatment.

2. A 60-year-old woman presents complaining of bilateral knee pain on most days of the past few months. The pain was gradual in onset. The pain is over the anterior aspect of the knee and gets worse with walking and going up and down stairs. She complains of stiffness in the morning that lasts for a few minutes and a buckling sensation at times in the right knee. On examination, there is a small effusion, diffuse crepitus, and limited flexion of both knees. Joint tenderness is more prominent over the medial joint line bilaterally. She has a steady but slow gait, slightly favouring the right side.

Questions:

1. Specify the preliminary diagnosis
2. Assign adiagnosticinvestigations
3. Differential diagnosis
4. Assign treatment
- 5.
6. 3.2 recommendations (instructions) for completing tasks:

#	Consequence of actions	Indications
1	Diagnosis of rheumatic diseases	Plan of patient examination
2	Basic clinical and instrumental laboratory data of rheumatic diseases	Criteria of EH diagnosis, tests
3	Practical actions in clinics	Clinical diagnosis, prescribe medicine

7.

8. *3.3 control materials for the final stage of the lesson*

1. A 60-year-old male complains of pain in both knees coming on gradually over the past 2 years. The pain is relieved by rest and worsened by the movement. There is bony enlargement of the knees with mild inflammation. Crepitation is noted on motion of the knee joint. There are no other findings except for bony enlargement at the distal interphalangeal joint. The patient is 167 cm tall and weighs 101 kg. The best way to prevent disease progression is

- A. Weight reduction
- B. Calcium supplementation
- C. Total knee replacement
- D. Aspirin
- E. Oral prednisone

2. A 72-year-old man complains of painful joints in his hips and knees, which you have diagnosed as osteoarthritis. Which of the following is the best agent to prescribe for this patient?

- A. Naproxen sodium
- B. Celecoxib
- C. Oral prednisone
- D. Intra-articular prednisone
- E. Acetaminophen

3. A 58-year-old woman has pain and stiffness in her hands that increases throughout the day. Physical examination shows bony enlargement of the distal interphalangeal joints. X-rays of the hands show joint space narrowing with subchondral sclerosis.

- A. Ankylosing spondylitis
- B. Fibromyalgia
- C. Gonococcal arthritis
- D. Gout
- E. Osteoarthritis

4. A patient 50 y.old, having super nutrition, alcohol abusing, complains of periodical pain in knee and hip joints. Pain increases at walking, flexion of legs. No changes from internal organs revealed. Indicate the most probable diagnosis:

- A. Bechterew's disease.
- B. Osteoarthritis/
- C. Rheumatoid joint inflammation.
- D. Gouty arthritis.
- E. Rheumatic arthritis.

5. A patient 66 y.old, complains of pains in knee joints at descent down the stairs. Except this, is disturbed by pains in distal parts of fingers, mainly at motion. During examination there are indurations and deformation in finger phalanxes. Indicate the preliminary diagnosis of a patient

- A. Osteoarthritis deformans.
- B. Gout arthritis.
- C. Rheumatic arthritis.
- D. Bechterew's disease.
- E. Reactive arthritis.

Recommended reading list

Basic:

1. Nikiphorou E, Santos EJF, Marques A, et al. 2021 EULAR recommendations for the implementation of self-management strategies in patients with inflammatory arthritis. *Annals of the Rheumatic Diseases* 2021; 80: 1278-1285.
2. Uson J, Rodriguez-García SC, Castellanos-Moreira R, et al. EULAR recommendations for intra-articular therapies. *Annals of the Rheumatic Diseases* 2021; 80: 1299-1305.
3. Kloppenburg M, Kroon FP, Blanco FJ, et al. 2018 update of the EULAR recommendations for the management of hand osteoarthritis. *Annals of the Rheumatic Diseases* 2019; 78: 16-24.
4. Kolasinski, S.L., Neogi, T., Hochberg, M.C. et al. 2019 American College of Rheumatology/Arthritis Foundation Guideline for the Management of Osteoarthritis of the Hand, Hip, and Knee. *Arthritis Rheumatol*, 72: 220-233.
5. *Rheumatology: Principles and Practice*. Ed. by S. Princeton. HAYLE MEDICAL, 2019. 248 p.
6. *ABC of Rheumatology*, 5th edition. Ed. by A.Adebajo and L.Dunkley. Hoboken, NJ : John Wiley & Sons, Inc., 2018. 209 p.
7. *Rheumatology Secrets*, 4th edition. Ed. by S.G. West, J. Kolfenbach. Elsevier, 2020. 744 p.

Additional:

1. *Kelley and Firestein's Textbook of Rheumatology*. 10th ed. / G.S. Firestein, I.B.McInnes et al. – Elsevier Health Sciences, 2017. - 1794 p.
2. *Therapeutic Guidelines Rheumatology*. – Therapeutic Guidelines Limited, 2017. – 335 p.
3. *USMLE Step 2 CK Lecture Notes 2017: Internal Medicine*. – Kaplan Inc., 2016. – 473 p.

Practical lessons

Practical lesson № 07

Topic: Osteoarthritis. Main links of etiology and pathogenesis. Diagnosis and treatment according to modern protocols and clinical guidelines.

Purpose: to explain the essence of the rheumatological diseases, the causes of its occurrence, the role of various factors in the etiopathogenesis, approaches to diagnosis, treatment and prevention.

Key words: rheumatological diseases, structure of connective, cartilaginous and bone tissues, joint syndrome, the musculoskeletal system, the DAS28 index, the clinical disease activity index (CDAI), the simplified disease activity index (SDAI), the questionnaire for the assessment of the state of health (NAQ), the Laken index, the WOMAS index, the scale gout activity (GAS), ECG and ECHO-CG data in rheumatological patients, evidence-based medicine, basic drugs, pulse therapy, glucocorticoids, nonsteroidal anti-inflammatory drugs

Equipment: laptop with a presentation, a multimedia projector, individual assignments on the topic of a practical lesson

Plan

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge (written work, written test, frontal survey, etc.)

2.1 Questions to test basic knowledge of the topic of the lesson:

1. Give definition of rheumatic diseases
2. Etiology and pathogenesis of rheumatic diseases
3. To know classification of rheumatic diseases
4. Risk-factors
5. Clinical manifestations of rheumatic diseases
6. Laboratory and instrumental diagnostics of rheumatic diseases
7. Complications of rheumatic diseases
8. Principles and methods of rheumatic diseases treatment.

3. Formation of professional abilities and skills (mastery of skills, conducting curation, deter-

mining the treatment scheme, conducting laboratory research, etc.):

1. A 55-year-old woman has been complaining of pain and swelling in several fingers of both hands for the past 2 months. She describes morning stiffness lasting for 30 minutes. Her mother tells her that she had a similar condition at the same age. She denies any other joint pain or swelling. On examination, she has tenderness, slight erythema, and swelling in one PIP joint and two DIP joints in each hand. She has squaring at the base of her right thumb (the first carpometacarpal joint). There is no swelling or tenderness in her MCP joints.

Questions:

1. Specify the preliminary diagnosis
2. Differential diagnosis
3. Assign treatment
4. Does patient need physiotherapy?

2 Patient P., female, aged 26, was admitted to the cardiology department complaining of pain in the joints, muscles, raising the temperature to 39⁰, headache, edema, shortness of breath. This condition occurred after insolation.

Objective: the state of medium gravity, hyperemic cheeks, his face puffy, there is edema of the lower extremities, ascites. Blood pressure 160/100 mmHg Pulse 94 per minute. Cardiac sounds weakened. In the lower parts of lungs during percussion shortening of lung sound.

Urinalysis: the relative density 1018, protein 16.2 g / l, red blood cells cover the entire field of view, leucocytes 10 in f/v, cylinders: hyaline and granular 2-3 in f/v

Total protein 56 g / l, cholesterol 8 mmol / l, urea 12 mmol / l, creatinine 0.16 mmol / L, glomerular filtration, 42 ml / min.

Radiologically: the fluid in the pleural cavity, lung fields clear.

Questions:

1. Highlight the main symptoms?
2. What diseases have you suspect?
3. Formulate a primary diagnosis, justify it?
4. What investigation you need for verify the diagnosis?

3.2 recommendations (instructions) for completing tasks:

#	Consequence of actions	Indications
1	Diagnosis of rheumatic diseases	Plan of patient examination
2	Basic clinical and instrumental laboratory data of rheumatic diseases	Criteria of EH diagnosis, tests
3	Practical actions in clinics	Clinical diagnosis, prescribe medicine

3.3 control materials for the final stage of the lesson

1. Patient P., 37 years old, complains of pain in buttocks, increasing after midnight, with irradiation to the rear surface of hips. Periodically felt pain and slight swelling of small joints of hands. During examination there's limitation of spine mobility, decrease of chest expansion. Your preliminary diagnosis?

- A. Osteoarthritis.
- B. Ankylosing spondylitis.
- C. Rheumatoid arthritis.
- D. Reactive arthritis.
- E. Psoriatic arthritis.

2. A 22-year-old man presents with complaints of low back pain for 3 to 4 months and stiffness of the lumbar area, which worsen with inactivity. He reports difficulty in getting out of bed in the morning and may have to roll out sideways, trying not to flex or rotate the spine to minimize pain. A lum-

lumbosacral (LS) spine X-ray film would most likely show which of the following?

- A. Degenerative joint disease with spur formation
- B. Sacroiliitis with increased sclerosis around the sacroiliac joints
- C. Vertebral body destruction with wedge fractures
- D. Osteoporosis with compression fractures of L3-L5
- E. Diffuse osteonecrosis of the LS spine

3. A 23-year-old man with new-onset back and buttock pain presents to his primary care physician for evaluation. He states he has morning stiffness in his back that resolves over the course of the day. Further testing is negative for rheumatoid factor and positive for HLA-B27 surface antigen. For which of the following conditions is the patient at greatest risk?

- A. Aortitis
- B. Splenomegaly
- C. Thrombocytopenia
- D. Uveitis
- E. Xerostomia

4. A patient, aged 40, has been ill during approximately 8 years, complains of pain in the lumbar part of the spine on physical exertion, in cervical and thoracic part (especially when coughing), pain in the hip and knee joints on the right. On examination: the body is fixed in the forward inclination with head down, gluteal muscles atrophy. Spine X-ray: ribs osteoporosis, longitudinal ligament ossification. What is the most likely diagnosis?

- A. Ankylosing spondylitis
- B. Tuberculous spondylitis
- C. Psoriatic spondyloarthropathy
- D. Spondyloarthropathy on the background of Reiter's disease
- E. Spread osteochondrosis of the vertebral column

5. A 32-year-old male patient has been suffering from pain in the sacrum and coxofemoral joints, pain and stiffness in the lumbar spine for a year. ESR - 56 mm/h. Roentgenography revealed signs of bilateral sacroileitis. The patient is positive of HLA-B27 antigen. What is the most likely diagnosis?

- A. Ankylosing spondylitis
- B. Coxarthrosis
- C. Rheumatoid arthritis
- D. Reiter's disease
- E. Spondylosis

Recommended reading list

Basic:

- Nikiphorou E, Santos EJF, Marques A, et al. 2021 EULAR recommendations for the implementation of self-management strategies in patients with inflammatory arthritis. *Annals of the Rheumatic Diseases* 2021; 80: 1278-1285.
- Uson J, Rodriguez-García SC, Castellanos-Moreira R, et al. EULAR recommendations for intra-articular therapies. *Annals of the Rheumatic Diseases* 2021; 80: 1299-1305.
- Kloppenburg M, Kroon FP, Blanco FJ, et al. 2018 update of the EULAR recommendations for the management of hand osteoarthritis. *Annals of the Rheumatic Diseases* 2019; 78: 16-24.
- Kolasinski, S.L., Neogi, T., Hochberg, M.C. et al. 2019 American College of Rheumatology/Arthritis Foundation Guideline for the Management of Osteoarthritis of the Hand, Hip, and Knee. *Arthritis Rheumatol*, 72: 220-233.
- *Rheumatology: Principles and Practice*. Ed. by S. Princeton. HAYLE MEDICAL, 2019. 248 p.
- *ABC of Rheumatology*, 5th edition. Ed. by A. Adebajo and L. Dunkley. Hoboken, NJ : John Wiley & Sons, Inc., 2018. 209 p.

- Rheumatology Secrets, 4th edition. Ed.by S.G. West, J. Kolfenbach. Elsevier, 2020. 744 p.

Additional:

- Kelley and Firestein's Textbook of Rheumatology. 10th ed. / G.S. Firestein, I.B.McInnes et al. – Elsevier Health Sciences, 2017. - 1794 p.
- Therapeutic Guidelines Rheumatology. – Therapeutic Guidelines Limited, 2017. – 335 p.
- USMLE Step 2 CK Lecture Notes 2017: Internal Medicine. – Kaplan Inc., 2016. – 473 p.

Practical lessons.

Topic 8. Gout. Etiology and pathogenesis. Criteria for making a diagnosis. Features of treatment of an acute gout attack. Medical control of uric acid level.

Purpose: to indicate the relevance of the topic, know the peculiarities of etiology and pathogenesis of gout, know the risk factors for the development of gout, know the diagnostic criteria, know clinical classification, clinical manifestations of various forms, be able to provide differential diagnosis, learn main methods of treatment.

Key words: gout, joints syndrome, uric acid metabolism.

Equipment: laptop with a presentation, a multimedia projector, individual assignments on the topic of a practical lesson

Plan:

1. **Organizational measures** (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. **Control of the reference level of knowledge** (written work, written test, frontal survey, etc.)

2.1 Questions to test basic knowledge of the topic of the lesson:

- 1) Gout: the prevalence of gout in the world and in Ukraine among people of different ages and sexes.
- 2) The main issues of etiology, phases of gout pathogenesis.
- 3) Uric acid metabolism.
- 4) Pathomorphological changes in acute gouty arthritis and chronic gout.
- 5) Clinical classification of gout.
- 6) Variants of the onset of gout, clinical picture of acute gouty arthritis, inter-attack and chronic gout.
- 7) Classification criteria for the diagnosis of gout.
- 8) Laboratory and instrumental methods of examining a patient with gout.
- 9) General principles of gout treatment, treatment of acute gouty arthritis and recommendations for hypouricemic therapy.
- 10) Criteria for the effectiveness of basic therapy.

3. **Formation of professional abilities and skills** (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

3.1 *task content:*

Clinical task 1:

Patient R., 45 years old, was admitted to the rheumatology department with complaints of swelling and sharp pain in the first toe of the right foot. I became acutely ill 2 days ago: after visiting the sauna and eating a large meal at night, I experienced very severe pain in the first toe of my right foot. The pain was perceived as unbearable even from the touch of a blanket. In the morning, the patient noticed

swelling of the first toe of the right foot and a purple discoloration of the skin over it. Over the next 24 hours, I couldn't even walk to the toilet because of the severe pain. The body temperature increased to 37.8 °C, and therefore he went to the clinic at his place of residence. Hospitalized at the direction of the clinic. From the anamnesis it is known that over the past 3 years there have been occasional rises in blood pressure up to 160/100 mm Hg; he has not received constant antihypertensive therapy. Upon examination, the condition is satisfactory, the constitution is hypersthenic, and there is increased nutrition. Height - 172 cm. Weight - 90 kg. In the lungs there is vesicular breathing, no wheezing. BH - 18 per minute. Heart sounds are slightly muffled, the rhythm is correct. Heart rate - 84 per minute. Blood pressure - 150/105 mm Hg. The belly is round; increased in volume due to excessive development of subcutaneous fatty tissue; soft, painless. The left lobe of the liver protrudes 1.5 cm from under the costal arch; the edge of the liver is soft and painless. Dimensions of the liver according to Kurlov: 10 x 9 x 9.5 cm. The spleen is not enlarged. The kidney area is not visually changed. The effleurage symptom is negative on both sides. Physiological functions are normal. There is no peripheral edema. The thyroid gland is not enlarged. In neurological status –without features. Severe deformation of the first metatarsophalangeal joint of the right foot due to exudative phenomena; sharp pain on palpation of this joint (the patient withdraws the leg), hyperemia of the skin over it and an increase in local temperature, the range of movements in the first metatarsophalangeal joint on the right is sharply limited. Other joints were not changed upon examination, their palpation was painless, movements in other joints were preserved in full. Subcutaneous and intradermal nodules are not detected.

1. Formulate a diagnosis.
2. What additional examination methods are necessary in this situation and what results do you expect to receive?
3. Based on what diagnostic criteria was the diagnosis made?
4. What are the most likely factors, in your opinion, that provoke the development of acute arthritis?
5. Name the associated diseases/conditions.
6. What are the tactics for further management of the patient?

Clinical task 2:

Patient S., 65 years old, was admitted to the therapeutic department with complaints of periodic dizziness, increased blood pressure to 180/110 mm Hg, pain and swelling of the small joints of the hands. Considers himself sick over the past 20 years, when blood pressure began to rise to 180-190/100-110 mm Hg, accompanied by headache, dizziness and nausea. For the last 15 years, he has been constantly using hypothetical drugs, mainly diuretics (hypothiazide, occasionally furosemide). In the last 4-5 years, I have been bothered by pain in the small joints of the hands and knee joints; Occasionally, short-term swelling of the joints and redness of the skin over them are observed. She took NSAIDs (mainly ortofen*) on her own and was not examined. Upon examination, the condition is satisfactory, the constitution is normosthenic, and the patient has increased nutrition. Height - 164 cm. Weight - 82 kg. In the lungs there is vesicular breathing, no wheezing. BH -18 per minute. Heart sounds are slightly muffled, the rhythm is correct. Heart rate - 84 per minute. Blood pressure - 185/110 mm Hg. The abdomen is slightly enlarged in volume (due to excessive development of subcutaneous fatty tissue), soft and painless on palpation. The edge of the liver does not protrude from under the costal arch. Dimensions of the liver according to Kurlov: 10x8x7 cm. The spleen is not enlarged. The stool is normal. The kidney area is not visually changed. The effleurage symptom is negative on both sides. Frequent urination up to 10-15 times a day, nocturia (3-4 times a night). Pastiness of the lower third of the legs and feet. The thyroid gland is not enlarged. Neurological status without features. Deformation of the 2nd, 3rd and 4th proximal interphalangeal joints of the left hand due to exudative and proliferative phenomena, pain on palpation of these joints, hyperemia of the skin over them and an increase in local temperature. Other joints were not changed upon examination, their palpation was painless, and movements in the joints were preserved in full. A subcutaneous nodule with a diameter of about 0.5 cm on the extensor surface of the left elbow joint.

1. Formulate a diagnosis.

2. What additional examination methods does the patient need and what results do you expect to receive?
3. What are the pathomorphological changes in the tissue of the subcutaneous nodule?
4. What are the mechanisms of arthritis formation in this case?
5. What caused the kidney damage in this patient?
6. What are the tactics for further management of the patient?

3.2 *recommendations (instructions) for completing tasks:*

Gout	
Uric acid	
Gouty nephropathy	
Tophi	
Acute gouty arthritis	
Nephrolithiasis	
"punch" symptom	

3.3 *control materials for the final stage of the lesson:*

1. What diseases can cause hyperuricemia?
 - A. Polycythemia.
 - B. Primary hyperparathyroidism.
 - B. Thyrotoxicosis.
 - G. Fasting.
 - D. Psoriasis.

2. Select the correct statements about gout:
 - A. Men and women get sick with the same frequency.
 - B. The peak incidence occurs at 25-35 years.
 - B. Fever is possible during gout attacks.
 - D. The severity of gout attacks correlates with the concentration of uric acid in the blood.
 - D. The action of all opurinolis based on increasing the excretion of uric acid.

3. Select the correct statement regarding the concentration of uric acid in the blood serum:
 - A. Decreases during fasting.
 - B. Higher levels in men than in women.
 - B. Increases during treatment with glucocorticoids.
 - D. Decreases while taking colchicine.
 - D. Increases in polycythemia

4. Select the reasons that can lead to the development of gout:
 - A. Polycythemia.
 - B. Taking thiazide diuretics.
 - B. Cirrhosis of the liver.
 - D. Chronic renal failure.

5. Which of the following drugs increases renal excretion of uric acid?
 - A. Diuretics.
 - B. Low dose aspirin.

- B. Allopurinol.
- D. Drinking alcohol.
- D. Uricosuric drugs.

6. When treating arterial hypertension in patients with gout, the following should not be prescribed:

- A. Clonidine
- B. Verapamil.
- C. β -blockers.
- D. ACE inhibitors.
- E. Thiazide derivatives.

7. Tophi are deposits of crystals in tissues:

- A. Sodium urate.
- B. Calcium oxalates.
- B. Calcium pyrophosphate.
- G. Calcium hydroxyapatite.
- D. Urea.

8. Urate crystals under polarization microscopy have the following properties:

- A. Needle shape.
- B. Wedge-shaped.
- C. Birefringence.
- D. They do not have characteristic optical properties.
- E. They do not unite into conglomerates.

9. The most common localization of tophi:

- A. On the elbows.
- B. Ears.
- C. In the area of the knee joints.
- D. In the area of the metatarsophalangeal joints.
- E. Scalp.

10. Choose the correct statements regarding the characteristics of the clinical course of gout in women?

- A. Onset of the disease at a younger age.
- B. Tendency to polyarticular lesions.
- B. Early formation of tophi.
- D. Prolonged course of arthritis.
- E. All statements are correct.

4. **Summary:**

5. **Recommended reading list:**

Basic:

1. Rheumatology [Text]: teaching. manual / V. G. Psaryova, N. M. Kyrychenko, O. S. Pogorelova [and others]; in general ed. L. N. Prystupy, G. A. Fadeeva. - Sumy: Sumy State University, 2019. - 235 p. - 175-80
2. Internal medicine: Rheumatology: study guide (University of postgraduate education) /V.E.Kondratyuk, M.B.Jus. - K.: Medicine. 2017. - 272 p.
3. Diagnosis and treatment of rheumatic diseases: study guide / A.S. Svintsitskyi. - K.: Medknyga Publishing House, 2017.–372 p.
4. Perederii V.G. Basics of internal medicine: a textbook. Volume 2. Diseases of the circulatory

system. Rheumatic diseases. Kidney disease. General questions of internal medicine / Perederii V.G., Tkach S.M.– Vinnytsia: New book. 2018. – 640 p.

5. Internal diseases: national. textbook. in 2 parts. Part 1. Chapters 1-8 / L.V. Glushko, S.F. Fedorov, I.M. Skrypnyk, M.M. Ostrovsky // edited by L.V. Glushka-K.: Medicine. 2019. - 680 p.

Additional:

1. Internal medicine: Part 1: textbook for English-speaking students of higher medical schools / ed. by M. A. Stanislavchuk, V. K. Sierkova. - Vinnytsya: Nova Knyha, 2019. - P. 1: Cardiology. Rheumatology. Hematology. - 407 p.
2. Family Medicine in 3 books. Book 2. Symptoms and syndromes in the clinical course of Internal Diseases. / edited by O.M. Hyrina, professor L.M. Pasiyeshvili. Medicine, 2018. - 376
3. Harrison's Principles of Internal Medicine Self-Assessment and Board Review, 19th Edition by Stephen L. Hauser, Charles Wiener, Anthony S. Fauci, Cynthia Brown and Dennis L. Kasper. 2017. 672

Practical lessons.

Topic 9. Rheumatoid arthritis. Etiology and pathogenesis of the disease. Current principles of diagnosis and treatment.

Purpose: to indicate the relevance of the topic, know the peculiarities of etiology and pathogenesis of rheumatoid arthritis, know the risk factors for the development of rheumatoid arthritis, know the diagnostic criteria, know clinical classification, clinical manifestations of various forms, be able to provide differential diagnosis, learn main methods of treatment.

Key words: rheumatoid arthritis, joints syndrome, autoimmune process.

Equipment: laptop with a presentation, a multimedia projector, individual assignments on the topic of a practical lesson

Plan:

1. **Organizational measures** (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).
2. **Control of the reference level of knowledge** (written work, written test, frontal survey, etc.)
 - 2.1 Questions to test basic knowledge of the topic of the lesson:
 - 1) Pervasiveness, etiological and trigger factors for the development of RA.
 - 2) Pathomorphological changes in organs in RA, the main pathogenesis.
 - 3) Diagnostic criteria of the American College of Rheumatology ACR and the European League Against Rheumatism ACR/EULAR.
 - 4) Clinical classification of RA (ARU) and detailed clinical picture of RA.
 - 5) Features of subglobular syndrome and manifestations.
 - 6) Particular forms of RA: Still and Felt syndrome, their diagnostic criteria.
 - 7) Clinical, laboratory and instrumental diagnostics of RA.
 - 8) X-ray stages of RA.
 - 9) The main provisions for the management of RA are consistent with the recommendations of the European Anti-Rheumatic League and the American College of Rheumatology.

3. **Formation of professional abilities and skills** (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

3.1 *task content:*

Clinical task 1:

Patient L., 35 years old, complains of constant pain in the joints of the arms and legs at rest and during movement, and a significant limitation in the range of movements in the limbs, especially before

noon. Ill for 10 years. Objectively: pronounced deformation and deformation of the joints. Ankylosis of the elbow joints. Ulnar deviation of the hand, atrophy of the interosseous muscles. On palpation, pain and swelling are noted. Complete blood count: leukocytes $9.0 \times 10^9/l$, ESR 31 mm/h
 Blood test: protein - 75 g/l, cholesterol 4.8 mmol/l, fibrinogen - 6 g/l CRP ++.

1. Which hormonal drug, which is the most active and long-acting corticosteroid, can be recommended to the patient?
2. Which hormonal drug does not have mineralocorticoid activity and can be recommended to the patient?
3. What drug with anti-inflammatory and immunosuppressive activity should be prescribed to the patient?
4. What basic drug, the mechanism of action of which is associated with the inhibition of NFAT, can be recommended to the patient?
5. What basic drug, a purine synthesis inhibitor, should be prescribed to the patient? (azathioprine)

Clinical task 2:

Patient S., 32 years old, consulted a rheumatologist. He complains of aching, almost constant pain in the knee joints, which intensifies when walking, an increase in body temperature up to 38°C, general weakness. He has been sick for 3 years. The disease began gradually with pain in the knee joints when walking. Exacerbation of the disease was noted 2-3 times a year, usually during cold weather and dampness. With each aggravation, the intensity of the pain increased. He noticed in the mornings the appearance of stiffness in the knee joints, weight loss. Observed by a rheumatologist, but treated irregularly. During the examination: slight swelling of the knee joints, their tenderness during palpation. The skin over the knee joints is hyperemic, there is a slight deformation of the joints and some limitation of their mobility. The pulse is rhythmic, 84 in 1 minute. Blood pressure 140/70 mm Hg. Heart tones of normal sonority. Noises are not heard. No changes were detected in the lungs and organs of the abdominal cavity. Blood analysis: l. 10.2-109/l., ESR 19 mm/h, Waaler-Rose reaction — 1 : 256. The results of radiography of the knee joints: osteoporosis in the epiphyses, single marginal patterns on the articular surfaces, the joint space is narrowed.

1. Your diagnosis (justify it)?
2. What is the diagnostic significance of the Waaler-Rose reaction?
3. Your medical tactics?

3.2 *recommendations (instructions) for completing tasks:*

Rheumatoid arthritis	
Monoarthritis	
Polyarthritis	
Oligoarthritis	
Morning stiffness	
Erosions and patterns of articular surfaces	
Felty syndrome	
Juvenile rheumatoid arthritis	
Steele's syndrome	
Rheumatoid factor (RF)	

3.3 *control materials for the final stage of the lesson:*

1. Rheumatoid arthritis is not characterized by:
 1. damage to the knee, elbow, ankle-foot and radio-carpal joints
 2. absence of joint deformation and complete reversibility of joint manifestations
 3. duration of inflammation in the joints no more than 2-3 weeks
 4. symmetric damage to the small joints of the brushes

2. Deformation of the tassels in rheumatoid arthritis:
 1. "swan neck"
 2. Heberden's nodules
 3. radish-like deformity of the fingers
 4. deformationofthejointsofthe 5th finger

3. Joints of "exclusion" in rheumatoid arthritis are:
 1. metatarsal-phalangeal joints of II-IV fingers
 2. interphalangeal proximal joints
 3. metacarpal-phalangeal joint of I finger, proximal m/f of V finger
 4. carpal joints

4. In a patient with rheumatoid arthritis, an X-ray showed osteoporosis around the joints and multiple patterns. For which Rx stage is this characteristic:
 1. I
 2. II
 3. III
 4. IV

5. Biopsy of the synovial membrane in rheumatoid arthritis reveals every thing except:
 1. hypertrophy of villi with proliferation of synoviocytes
 2. proliferation of capillary endothelium
 3. lymphohistocytic infiltration of villi
 4. atrophy of villi and fibrosis

6. In a patient with rheumatoid arthritis, in the blood test: ESR - 25 mm/h, CRP ++, morning stiffness lasts about an hour. What level of activity does this refer to?
 1. 0
 2. I
 3. II
 4. III

7. High titers of rheumatoid factor (1:128) were found in a patient with rheumatoid arthritis. What does this say?
 1. III degree activity
 2. seropositin type of RA
 3. transferred streptococcalin fection
 4. seronegative type of RA

8. Destruction of cartilage and bone in RA is due to:
 - 1 osteophytes.
 - 2 deposition of uric acid salts
 - 3 panus
 - 4 immune complexes

9. A patient with rheumatoid arthritis was found to have: latex - test 1:20. This tells about:

- 1 II activity of rheumatoid arthritis
- 2 seropositive rheumatoid arthritis
- 3 Felty's syndrome
- 4 seronegative rheumatoid arthritis

10. Which of the following external factors is not the cause of osteoarthritis

1. injuries and microtraumas of the joint
2. functional overload
3. joint hypermobility
4. Violation of purine metabolism

4. Summary:

5. Recommended reading list:

Basic:

1. Rheumatology [Text]: teaching. manual / V. G. Psaryova, N. M. Kyrychenko, O. S. Pogorelova [and others]; in general ed. L. N. Prystupy, G. A. Fadeeva. - Sumy: Sumy State University, 2019. - 235 p. - 175-80
2. Internal medicine: Rheumatology: study guide (University of postgraduate education) /V.E.Kondratyuk, M.B.Jus. - K.: Medicine. 2017. - 272 p.
3. Diagnosis and treatment of rheumatic diseases: study guide / A.S. Svintsitskyi. - K.: Medknyga Publishing House, 2017.–372 p.
4. Perederii V.G. Basics of internal medicine: a textbook. Volume 2. Diseases of the circulatory system. Rheumatic diseases. Kidney disease. General questions of internal medicine / Perederii V.G., Tkach S.M.– Vinnytsia: New book. 2018. – 640 p.
5. Internal diseases: national. textbook. in 2 parts. Part 1. Chapters 1-8 / L.V. Glushko, S.F. Fedorov, I.M. Skrypnik, M.M. Ostrovsky // edited by L.V. Glushka-K.: Medicine. 2019. - 680 p.

Additional:

1. Internal medicine: Part 1: textbook for English-speaking students of higher medical schools / ed. by M. A. Stanislavchuk, V. K. Sierkova. - Vinnytsya: Nova Knyha, 2019. - P. 1: Cardiology. Rheumatology. Hematology. - 407 p.
2. Family Medicine in 3 books. Book 2. Symptoms and syndromes in the clinical course of Internal Diseases. / edited by O.M. Hyrina, professor L.M. Pasiyeshvili. Medicine, 2018. - 376
3. Harrison's Principles of Internal Medicine Self-Assessment and Board Review, 19th Edition by Stephen L. Hauser, Charles Wiener, Anthony S. Fauci, Cynthia Brown and Dennis L. Kasper. 2017. 672

Practical lessons.

Topic 10. Ankylosingspondyloarthritis. Peculiarities of etiology and pathogenesis. Clinical picture of lesions of the spine and peripheral joints. Differential diagnosis and main methods of treatment.

Purpose: to indicate the relevance of the topic, know the peculiarities of etiology and pathogenesis of ankylosing spondyloarthritis, know the risk factors for the development of ankylosing spondyloarthritis, know the diagnostic criteria, know clinical classification, clinical manifestations of various forms, be able to provide differential diagnosis, learn main methods of treatment.

Key words: ankylosing spondyloarthritis, joints syndrome, autoimmune process.

Equipment: laptop with a presentation, a multimedia projector, individual assignments on the topic of a practical lesson

Plan:

1. **Organizational measures** (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. **Control of the reference level of knowledge** (written work, written test, frontal survey, etc.)

2.1 Questions to test basic knowledge of the topic of the lesson:

- 1) Etiopathogenesis of ankylosing spondylitis.
- 2) Diagnostic criteria.
- 3) Clinical manifestations of various forms of AS.
- 4) Extraskeletal manifestations.
- 5) Functional tests to determine mobility in different parts of the spine in AS.
- 6) Clinical and laboratory instrumental diagnostics.
- 7) X-ray stages of AS.
- 8) Scales for determining activity and functional-structural state in AS.
- 9) X-ray positive and X-ray negative AS:
- 10) Eye damage in seronegative spondyloarthritis. Features of clinical manifestations, diagnosis and treatment.
- 11) Damage to the heart, lungs and kidneys in ankylosing spondylitis, clinical manifestations, approaches to diagnosis and treatment.
- 12) Clinical pharmacology of drugs for the treatment of patients with AS (indications, contraindications, side effects of NIIZP, GC, biological drugs).
- 13) Monitoring of side effects of medicines.
- 14) Modern approaches to the treatment of AS according to modern international recommendations.

3. **Formation of professional abilities and skills** (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

3.1 *task content:*

Clinical task 1:

Patient 53 years old, complains of weakness, pain all over spine (mainly at night), in both hip and knee joints, morning stiffness for up to 40 minutes, which goes away after exercise. Sick with 35 years, pain in the lower back and sacrum appeared (especially at night), later joined morning stiffness, which goes away after a short exercise, increased temperatures up to 37-37.5°C. Objectively: the condition is satisfactory, the position is active. BP=150/100 mm Hg. Heart rate-74 beats/min . BR-18 per min. t-37.3°C. There is pronounced thoracic kyphosis and cervical hyperlordosis, smoothness of lumbar lordosis, pain on palpation along the spine, paravertebral lines and hip joints. Active and passive movements cause pain.

X-ray of the spine and iliosacral joints: Deforming spondylosis, bilateral sacroiliitis, St 3.

Questions:

1. Your diagnosis. Carry out differential diagnosis.
2. What is the nature of the patient's pain syndrome?
3. What complications are possible in patients with this pathology?
4. Prescribe treatment to the patient

Clinical task 2:

Patient 49 years old, complains of pain, restriction of movement in the cervical, lumbosacral regions of the spine, redness of the eyes, general weakness. From the history of life:

- From transferred diseases – frequent colds
- Menstruation from the age of 13, sexual life from the age of 20, pregnancy -1, childbirth -1.
- Allergy to medicines and food products was not noted.
- Family / social. history: married, works as a nurse. There are no bad habits.

Epid. anamnesis:

- She was not in contact with infectious patients,
- She did not receive blood preparations
- Denies injection therapy

Objectively: general condition of moderate severity. The skin is pale, without rashes. Out of the "beggar" pose. Rigidity of the chest. Limitation of the respiratory excursion of the chest. Lumbar section of the spine in the form of an ironing board. Forestier's, Thomayer's and Kushelevskii's symptoms 1, 2, 3 are positive. Vesicular breathing in the lungs. Heart: Tones are muffled. Blood pressure 110/75 mmHg. Pulse 70 beats in 1 minute. Abdomen is soft, painless.

Laboratory studies: General blood analysis: H - 90 g / l, leukocytes - 7.0×10^9 , ESR - 25 mm / h. General analysis of urine: specific gravity 1015, protein --, leukocytes - 3-4 / p/z, epithelium - 1-2 / fov, CRP +, RF negative.

1. What additional methods of research need to be carried out to make a diagnosis?
2. In your opinion, which pathologies should be differentially diagnosed?
3. List the criteria for diagnosis.
4. What is your diagnosis and justify it.
5. Make a treatment plan.

3.2 *recommendations (instructions) for completing tasks:*

Ankylosing spondylitis	
Rheumatoid factor (RF)	
Antinuclear antibodies	
HLA-B27 allele	
Sacroiliitis	
ASAS criteria	
<u>Uveitis</u>	
Dactylitis	
Enthesitis of the heel	
Bamboo spine	

3.3 *control materials for the final stage of the lesson:*

1. Ankylosing spondylitis is characterized by all but?

- A. night pains in the back
- B. female sex
- B. reduction of pain after physical exercises
- D. presence of back pain in relatives of patients
- D. young age

2. Which of the listed manifestations are not characteristic of ankylosing spondylitis?

- A. apical pulmonary fibrosis
- B. kyphosis
- B. aortic insufficiency
- G. peripheral arthritis
- D. chronic conjunctivitis

3. Changes in which laboratory indicators are observed only in seronegative spondyloarthritis?

- A. none of the above
- B. SHOE
- B. HLA B -27
- D. antinuclear factor
- D. all of the above

4. Mark the most characteristic signs of seronegative spondyloarthritis:

- A. lack of rheumatoid factor
- B. develops more often in women than in men
- B. subcutaneous nodules
- G. presence of rheumatoid factor

5. What clinical manifestations occur in seronegative spondyloarthropathies?

- A. damage to the eyes
- B. ulceration of the skin and mucous membranes
- B. damage to nails
- D. damage to the distal interphalangeal joints

6. Which of the following is not characteristic of ankylosing spondylitis:

- A. develops more often in young people
- B. develops more often in women
- B. higher mortality from pulmonary heart and kidney diseases than in the population
- D. damage to the eyes can be the first manifestation of the disease
- D. there are difficulties in driving the car

7. Which of the listed signs do not often occur in ankylosing spondylitis?

- A. increase in ESR
- B. HLA-B27
- B. sacroiliitis
- G. rheumatoid factor
- D. gastropathy

8. Ankylosing spondylitis is characterized by all but?

- A. night pains in the back
- B. female sex
- B. reduction of pain after physical exercises
- D. presence of back pain in relatives of patients
- D. young age

9. Which of the listed manifestations are not characteristic of ankylosing spondylitis?

- A. apical pulmonary fibrosis
- B. kyphosis
- B. aortic insufficiency
- G. peripheral arthritis
- D. chronic conjunctivitis

10. In Bekhterev's disease, the frequency of HLA B27 histocompatibility antigen detection is:

- A. less than 50%
- B. 50%
- B. more than 70%

11. In Bekhterev's disease, laboratory indicators reflect the activity of the inflammatory process:
A. adequately
B. NOT adequately

4. Summary:

5. Recommended reading list:

Basic:

1. Rheumatology [Text]: teaching. manual / V. G. Psaryova, N. M. Kyrychenko, O. S. Pogorelova [and others]; in general ed. L. N. Prystupy, G. A. Fadeeva. - Sumy: Sumy State University, 2019. - 235 p. - 175-80
2. Internal medicine: Rheumatology: study guide (University of postgraduate education) / V.E.Kondratyuk, M.B.Jus. - K.: Medicine. 2017. - 272 p.
3. Diagnosis and treatment of rheumatic diseases: study guide / A.S. Svintsitskyi. - K.: Medknyga Publishing House, 2017. - 372 p.
4. Perederii V.G. Basics of internal medicine: a textbook. Volume 2. Diseases of the circulatory system. Rheumatic diseases. Kidney disease. General questions of internal medicine / Perederii V.G., Tkach S.M. - Vinnytsia: New book. 2018. - 640 p.
5. Internal diseases: national. textbook. in 2 parts. Part 1. Chapters 1-8 / L.V. Glushko, S.F. Fedorov, I.M. Skrypyuk, M.M. Ostrovsky // edited by L.V. Glushka-K.: Medicine. 2019. - 680 p.

Additional:

1. Internal medicine: Part 1: textbook for English-speaking students of higher medical schools / ed. by M. A. Stanislavchuk, V. K. Sierkova. - Vinnytsya: Nova Knyha, 2019. - P. 1: Cardiology. Rheumatology. Hematology. - 407 p.
2. Family Medicine in 3 books. Book 2. Symptoms and syndromes in the clinical course of Internal Diseases. / edited by O.M. Hyrina, professor L.M. Pasiyeshvili. Medicine, 2018. - 376
3. Harrison's Principles of Internal Medicine Self-Assessment and Board Review, 19th Edition by Stephen L. Hauser, Charles Wiener, Anthony S. Fauci, Cynthia Brown and Dennis L. Kasper. 2017. 672

Practical lessons.

Topic 11. Systemic lupus erythematosus. Modern recommendations for the management of patients. New aspects of effective therapy.

Purpose: to indicate the relevance of the topic, know the peculiarities of etiology and pathogenesis of systemic lupus erythematosus, know the risk factors for the development, know the diagnostic criteria, know clinical classification, clinical manifestations of various forms, be able to provide differential diagnosis, learn main methods of treatment.

Key words: systemic lupus erythematosus, joints syndrome, autoimmune process.

Equipment: laptop with a presentation, a multimedia projector, individual assignments on the topic of a practical lesson

Plan:

1. **Organizational measures** (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).
2. **Control of the reference level of knowledge** (written work, written test, frontal survey, etc.)
 - 2.1 Questions to test basic knowledge of the topic of the lesson:

- 1) Epidemiology of SLE.
- 2) Causes and mechanisms of development of SLE.
- 3) Features of damage to the skin, joints, muscles, lungs, heart and blood vessels, gastrointestinal tract, central nervous system, kidneys.
- 4) Morphological classes and severity criteria of lupus nephritis.
- 5) Clinical classification.
- 6) Diagnostic criteria of SLE.
- 7) Laboratory diagnosis of SLE using general clinical, biochemical and specific immunological research methods.
- 8) Approaches to non-drug and drug treatment of SLE.
- 9) SLE therapy.
- 10) Peculiarities of treatment of lupus nephritis.
- 11) Prognosis in patients with HF.

3. Formation of professional abilities and skills (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

3.1 *task content:*

Clinical task 1.

A 32-year-old patient came to see a dermatologist complaining of rashes on her face. FROM THE ANAMNESIS. Rashes on the skin of the face appeared a month ago after prolonged exposure to the sun. She treated herself. She used various creams and ointments, but there was no effect from the treatment.

LOCAL STATUS. The skin process is localized on the skin of the bridge of the nose and cheeks "in the form of a butterfly". Eruptions are represented by infiltrating erythematous plaques covered with densely seated horny scales. Removal of scales is accompanied by pain. Characteristic spines are found on the reverse side of the scales.

QUESTIONS:

1. Your presumptive diagnosis.
2. What are the symptoms characteristic of this disease in this case?
3. Plan of examination and treatment of the patient.
4. Your recommendations to the patient after treatment.

Clinical task 2.

The girl is 14 years old. Complaints of fever during the month. Objectively: exudative erythema on the skin of the limbs, chest. Signs of photodermatitis on exposed parts of the body. From the side of the heart - pericarditis. Arthritis. UAC - Erythrocytes – $2.8 \cdot 10^{12}/l$, Hb-96 g/l, leukocytes – $3.2 \cdot 10^{12}/l$, Platelets – 120 thousand ESR-56 mm/hour. Antinuclear factor in high titer.

Of the listed diseases, the most likely are:

- a) Wissler-Fanconi syndrome
- b) acute myocarditis
- c) systemic scleroderma
- d) rheumatic fever
- e) systemic lupus erythematosus

3.2 *recommendations (instructions) for completing tasks:*

Systemic Lupus Erythematosus	
<u>systemic sclerosis</u>	
malar butterfly erythema	

<u>panniculitis</u>	
<u>Raynaud syndrome</u>	
<u>Lupus Nephritis</u>	
antiphospholipid antibodies	
antinuclear antibodies	
anti-double-stranded (ds) DNA (anti-dsDNA)	
anticytoplasmic antibodies	

3.3 control materials for the final stage of the lesson:

1. The diagnostic criteria for SLE include the following signs listed below:

- a) ankylosis, flexion contractures
- b) morning stiffness, arthritis
- c) nephritis, dermatitis, carditis
- d) pustular rash, muscle atrophy
- e) myositis, Raynaud's phenomenon

2. The picture of lupus pneumonitis includes all symptoms EXCEPT:

- a) dry cough
- b) shortness of breath
- c) chest pains
- d) wet cough
- e) weakened breathing

3. Immunological confirmation of lupus nephritis includes the presence of the following factor in the blood from the list below:

- a) antibodies to native DNA
- b) increase in CRP
- c) increase in antistreptolysin O,
- d) low level of CEC,
- e) increase in complement level

4. With systemic lupus erythematosus, the following indicators from the list below have the greatest diagnostic significance:

- a) increase in immunoglobulins A, M
- b) LE cells, antinuclear factor
- c) positive rheumatoid factor
- d) positive CRP, an increase in the sial test
- e) increase in ESR, leukopenia

5. Nephritis in SLE proceeds according to all the options listed below, EXCEPT:

- a) isolated urinary syndrome
- b) nephrotic syndrome
- c) rapidly progressing nephritis
- d) mixed form
- e) nephritic syndrome

6. The diagnosis of systemic lupus erythematosus is immunologically con-

firmed by the presence of the following factors in the blood from the following:

- a) increase in complement level
- b) antinuclear factor
- c) increase in antistreptolysin O,
- d) low level of factor VIII
- e) rheumatoid factor

7. Clinical manifestations of systemic lupus erythematosus may include the following syndromes:

- a) broncho-obstructive, eye damage
- b) cutaneous, articular, visceral
- c) arterial hypertension syndrome
- d) urogenital, hemorrhagic
- e) meningeal, damage to the organ of hearing

8. The diagnostic criteria of SLE include:

- a) arthritis, hematomas, bleeding
- b) Raynaud's phenomenon, necrosis
- c) hemarthrosis, myositis, hemorrhages
- d) serositis, nephritis, dermatitis
- e) myositis, arterial hypertension

9. With SLE, all skin changes are observed, EXCEPT:

- a) pyoderma
- b) exanthema on the face
- c) erythematous spots
- d) capillaries
- e) hemorrhagic rash

10. An unfavorable prognosis factor in SLE is the presence of:

- a) exanthema
- b) jade
- c) photosensitization
- d) arthritis
- e) cheilitis, gingivitis

4. Summary:

5. Recommended reading list:

Basic:

1. Rheumatology [Text]: teaching. manual / V. G. Psaryova, N. M. Kyrychenko, O. S. Pogorelova [and others]; in general ed. L. N. Prystupy, G. A. Fadeeva. - Sumy: Sumy State University, 2019. - 235 p. - 175-80
2. Internal medicine: Rheumatology: study guide (University of postgraduate education) / V. E. Kondratyuk, M. B. Jus. - K.: Medicine. 2017. - 272 p.
3. Diagnosis and treatment of rheumatic diseases: study guide / A. S. Svintsitskyi. - K.: Medknyga Publishing House, 2017. - 372 p.
4. Perederii V. G. Basics of internal medicine: a textbook. Volume 2. Diseases of the circulatory system. Rheumatic diseases. Kidney disease. General questions of internal medicine / Perederii V. G., Tkach S. M. - Vinnytsia: New book. 2018. - 640 p.
5. Internal diseases: national. textbook. in 2 parts. Part 1. Chapters 1-8 / L. V. Glushko, S. F. Fedorov, I. M. Skrypnyk, M. M. Ostrovsky // edited by L. V. Glushka - K.: Medicine. 2019. - 680 p.

Additional:

1. Internal medicine: Part 1: textbook for English-speaking students of higher medical schools / ed. by M. A. Stanislavchuk, V. K. Sierkova. - Vinnytsya: Nova Knyha, 2019. - P. 1: Cardiology. Rheumatology. Hematology. - 407 p.
2. Family Medicine in 3 books. Book 2. Symptoms and syndromes in the clinical course of Internal Diseases. / edited by O.M. Hyrina, professor L.M. Pasiyeshvili. Medicine, 2018. - 376
3. Harrison's Principles of Internal Medicine Self-Assessment and Board Review, 19th Edition by Stephen L. Hauser, Charles Wiener, Anthony S. Fauci, Cynthia Brown and Dennis L. Kasper. 2017. 672