METHODOLOGICAL INSTRUCTIONS FOR PRACTICAL CLASSES

Discipline: "Urogenital system in pathology»
Discipline code: MPSP 3216
OP Title:6B10115 "Medicine"
Amount of study hours/credits: 150 hrs. (5 credits)
Course and semester of study: 3rd year, 6th semester
Practical (seminar) classes: 8 hours.

Shymkent, 2024

The methodological instructions for practical classes have been developed in accordance with the working curriculum of the discipline (syllabus) and discussed at the department meeting

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Practical lesson №1

1. Subject: Methods of examination of patients with pathology of the genitourinary system. Diagnostic value.Questioning patients with urinary system pathology. Data from physical examination of the urinary system. General examination: examination of the face, eyelids; examination of the lumbar region; assessment of the degree of kidney prolapse; palpation and percussion technique (tapping method) of the kidneys, percussion determination of the upper border of the bladder; auscultation - auscultation of the renal arteries

2. Objective: To teach students the principles of examining patients with diseases of the genitourinary system (questioning, examination and physical examination).

3. Learning Objectives:

The student should know:

1. Morphofunctional characteristics of the genitourinary system.
2. Histophysiology of the nephron.
3. Urine formation.

The student should be able to:

1. Correctly formulate questions when collecting complaints and anamnesis.
2. Establish a relationship of trust with patients.
3. To assess the general condition of a patient with pathology of the genitourinary system.

4. Main questions of the topic:

1. What are the main complaints of patients with diseases of the genitourinary system?
2. What is dysuria?
3. What are the main causes of pain syndrome?
4. How is kidney palpation performed?
5. What is the difference between renal edema and cardiac edema?
6. What information does auscultation of the renal arteries provide?
7. What is anuria?
8. What information does renal percussion provide?

5. Basic forms/methods/technologies of teaching to achieve the final RO of the discipline:

- Discussion of the lesson topic, acquisition of practical skills.

6. Forms of control for assessing the level of achievement of the final RO of the discipline:

- AKC/silent formula, testing.

7. Literature (primary and secondary): indicated on the last page of the syllabus

8. Control:(questions, tests)

Questions:

1. What types of dysuria do you know?
2. What is the reason for the change in skin?
3. What risk factors for developing kidney disease do you know?
4. What should you pay attention to when collecting anamnesis?
5. What do you know are the main reasons for the development of pain syndrome?

Test questions:

1. Attacks of headaches, palpitations, trembling in the body, a sharp increase in blood pressure, provoked by physical exertion, shaking - these are:
a) signs of renal eclampsia
b) manifestations of symptomatic arterial hypertension in pheochromocytoma
c) signs of acute left ventricular failure (pulmonary edema)
d) crisis in hypertension
e) signs of renal arterial hypertension
2. Nephroptosis of the 1st degree is characterized by:
a) the lower pole of the kidney is palpated
b) the entire kidney is palpated in a standing position
c) the entire kidney is palpated in a supine position
d) the kidney is palpable anywhere in the abdominal cavity
e) the upper pole of the kidney is palpated
3. Nephroptosis of the 2nd degree is characterized by:
a) the entire kidney is palpated in a standing position
b) half of the kidney is palpated
c) the entire kidney is palpated in a supine position
d) the kidney is palpable anywhere in the abdominal cavity
e) the upper pole of the kidney is palpated
4. Nephroptosis of the 3rd degree is characterized by:
a) the entire kidney is palpated in a standing and lying position
b) the lower pole of the kidney is palpated
c) the kidney is palpated only during exacerbation of the pathological process
d) half of the kidney is palpated
e) the kidney is not felt
5. The degree of nephroptosis is determined by:
a) by palpation according to Obraztsov - Strazhesko
b) Pasternatsky's symptom
c) in a lying position
d) in Botkin's position
e) only by ultrasound of the kidneys
6. Pasternatsky's symptom is determined by:
a) by percussion method
b) by inspection method
c) by palpation method
d) A/D measurements
e) by auscultation method
7. Pasternatsky's symptom can be sharply positive in the following cases:
a) paranephritis
b) pyelonephritis
c) urolithiasis
d) glomerulonephritis
e) radiculitis
8. Daily diuresis volume in healthy individuals:
a) about 1500 ml
b) 600 – 800 ml

c) 500 – 600 ml
d) 2000 ml or more
e) 800 – 1000 ml

9. Palpation of the kidneys cannot determine:
a) degree of renal impairment
b) mobility
c) kidney configuration
d) degree of nephroptosis
e) density

10. The kidneys are not detected by palpation in the following cases:
a) glomerulonephritis
b) nephroptosis 2 degrees
c) the presence of large cysts
d) pyelonephritis
e) enlargement of the kidneys

11.The site of renin formation is:
a) juxtaglomerular apparatus of the kidneys
b) islets of Langerhans of the pancreas
c) renal tubular apparatus
d) Kupffer cells of the liver
e) adrenal glands

12. The mechanism of renal arterial hypertension is associated with:
a) hypersecretion of renin
b) hypersecretion of adrenaline
c) left ventricular hypersecretion
d) primary hyperaldosteronism
e) renin hyposecretion

13. Palpation of the kidneys of a patient with chronic kidney disease revealed enlargement of both kidneys, which are dense and painful. Select a study to clarify the diagnosis:
a) ultrasound examination of the kidneys
b) X-ray of the kidneys
c) kidney biopsy
d) Zimnitsky test
e) Nechiporenko test

14. A 25-year-old patient complains of pain in the lumbar region, changes in urine color, and general weakness. When palpating the kidneys, the doctor determines pain, but no enlargement is observed. Select additional symptoms confirming the diagnosis of acute pyelonephritis:
a) fever and chills
b) facial swelling
c) nausea, vomiting
d) skin hydration
e) tachycardia

15. Dysuria:
a) frequent, painful and difficult urination
b) frequent urination
c) painful urination

d) increase in daily urine output
e) decrease in daily urine output

16. The main cause of true leukocyturia:
a) inflammation of the renal pelvis and calyces
b) inflammatory diseases of the appendages
c) inflammation of the prostate gland
d) inflammatory diseases of the uterus
e) inflammatory diseases of the bladder

17. Hematuria is characteristic of:
a) glomerulonephritis
b) cystitis
c) pyelonephritis
d) urethritis
e) inflammatory disease of the bladder

18. The content of leukocytes in urine is not subject to counting in the following cases:
a) pyuria
b) leukocyturia
c) hyperleukocyturia
d) leukocytosis
e) cystitis

19. The place of formation of renin is:
a) juxtaglomerular apparatus of the kidneys
b) islets of Langerhans of the pancreas
c) renal tubular apparatus
d) Kupffer cells of the liver
e) adrenal glands

20. The mechanism of renal arterial hypertension is associated with:
a) hypersecretion of renin
b) hypersecretion of adrenaline
c) left ventricular hypersecretion
d) primary hyperaldosteronism
e) renin hyposecretion

21. Select the leading symptoms of nephrotic syndrome:
a) massive edema
b) hypertension
c) leukocyturia up to pyuria
d) edema
e) pain in the lumbar region

22. Indicate the main causative agent of pyelonephritis in adults:
a) escherichia coli
b) Staphylococcus aureus
c) streptococcus pyogenes
d) klebsiella pneumoniae
e) chlamydia

23. Characteristic data of general urine analysis in acute pyelonephritis:
a) leukocyturia

b) hematuria
c) proteinuria more than 3 g/day
d) no change
e) dysuria

24. Ultrasound examination of the kidneys in pyelonephritis shows:
a) dilation of the renal pelvis and calyces
b) reduction in kidney size
c) cyst formation
d) normal echostructure
e) renal capsule changes

25. Name the main complication of chronic pyelonephritis:
a) chronic renal failure
b) heart failure
c) anemia
d) urolithiasis
e) thrombocytopenia

26. Indicate the antibodies involved in the pathogenesis of glomerulonephritis:
a) IgA
b) IgE
c) IgG
d) IgM
e) IgB

27. Specify the syndrome observed in acute glomerulonephritis:
a) nephritic syndrome
b) nephrotic syndrome
c) hypernatremia
d) hypokalemia
e) hyperkalemia

28. Indicate an elevated laboratory indicator in glomerulonephritis:
a) creatinine
b) uric acid
c) glucose
d) lipids
e) cholesterol

29. Specify an informative method for diagnosing glomerulonephritis:
a) kidney biopsy
b) general urine analysis
c) Ultrasound of the kidneys
d) MRI of the kidneys
e) X-ray of the kidneys

30. Specify the form of glomerulonephritis that develops after an infection:
a) Postinfectious glomerulonephritis
b) IgA nephropathy
c) Membranous glomerulonephritis
d) amyloidosis
e) nephroptosis

31. Diet recommended for patients with glomerulonephritis:
a) low in protein and salt
b) high protein
c) low carb
d) high fat
e) low amino acid
32. Specify the mechanism of immune damage in glomerulonephritis:
a) Formation of immune complexes and their deposition in the glomeruli
b) Direct infection of the glomeruli by bacteria
c) Degradation of glomeruli by enzymes
d) Impaired blood supply to the kidneys
e) reabsorption disorder
33. A fruity odor (or the smell of rotting apples) is characteristic of urine containing:
a) urates
b) ketone bodies
c) large amounts of protein
d) leukocytes
e) blood
34. Specify the complication developing with nephritic syndrome:
a) chronic renal failure
b) urolithiasis
c) kidney cancer
d) anemia
e) jaundice
35. Indicate laboratory changes indicating progression of renal failure:
a) increased levels of creatinine and urea in the blood
b) increase in the number of red blood cells in the urine
c) increased blood glucose levels
d) decreased blood electrolyte levels
e) decrease in white blood cells
36. Nocturia:
a) predominance of nocturnal diuresis over daytime
b) no urination
c) frequent urge to urinate during the day
d) painful urination
e) decreased electrolytes
37. Specify the syndrome observed in acute glomerulonephritis:
a) nephritic
b) nephrotic
c) hyperthyroidism
d) hyperglycemia
e) hypoglycemia
38. Select an elevated laboratory indicator in glomerulonephritis:
a) creatinine
b) uric acid
c) glucose

d) potassium
e) cholesterol
39. What is the purpose of the Zimnitsky test?
a) To assess the concentrating ability of the kidneys
b) To assess glomerular filtration function
c) To determine the presence of a urinary tract infection
d) For the diagnosis of diabetes mellitus
e) To detect uric acid levels
40. Specify the amount of urine collected for the Zimnitsky test:
a) 8
b) 6
c) 10
d) 12
e) 24

1. Topic N2. Leading clinical syndromes (dysuric, nephrotic, nephritic) in nephrology. Diagnostic value (Predisposing factors and causes leading to the development of dysuric, nephrotic, nephritic syndromes. Clinical features)

2. Objective: To familiarize students with the leading clinical syndromes (dysuric, nephrotic, nephritic) in nephrology, to learn clinical signs and the basics of diagnostics, to become familiar with instrumental research methods, and to give them a diagnostic interpretation.

3. Learning Objectives:

The student should know:

1. The mechanism of development of leading syndromes of diseases of the urinary system.
2. The main complaints of patients with urinary system disease syndromes.
3. Causes of development of nephritic syndrome.

The student should be able to:

1. Conduct a survey of patients with dysuric syndromes,nephrotic, nephriticsyndrome.
2. Conduct an examination of the patient and identify changes in the general status characteristic of

of this syndrome.

3. Conduct a physical examination of patients with dysuric syndromes.

4. Main questions of the topic:

1. What predisposing factors do you know that lead to the development of dysuric syndrome?
2. What complaints do patients with nephrotic syndrome present?
3. What palpatory changes can be detected in dysuric syndrome?
4. What is proteinuria?
5. What laboratory and instrumental research methods are used for diagnosis of nephritic syndrome?
6. What are the main symptoms of nephrotic syndrome?
7. What are the main symptoms of nephritic syndrome?
8. What laboratory and instrumental research methods are used for diagnosis of nephrotic syndrome?
9. What complaints do patients with dysuric syndrome present?

5. Methods/technologies of learning and teaching:

- Discussion of the topic of the lesson, Sbl

6. Massessment methods/technologies (discussion of the topic of the lesson, solving situational problems, acquiring practical skills):

- AKC/silent formula.

7. Literature (primary and secondary):indicated on the last page of the syllabus

8. Control:(questions, situational task)

Questions:

1. What objective ones do you know?features characteristic of nephrotic syndrome?
2. What percussion changes can be detected in nephritic syndrome?
3. What types of nephrotic syndrome do you know?
4. What is poly-oligo-anuria?
5. What predisposing factors do you know that lead to the development of nephritic syndrome?
6. What laboratory tests are used to diagnose nephrotic syndrome?
7. What complaints do patients with nephritic syndrome present?
8. What objective features are characteristic of nephrotic syndrome?
9. What is the main indicator for assessing the concentration function of the kidneys?
10. What is the mechanism of immune damage in glomerulonephritis?

Situational tasks:

1. A 36-year-old patient is in the nephrology department. Complains of severe weakness, fatigue, thirst and dry mouth, nausea, periodic vomiting, loss of appetite, poor sleep. Does not tolerate fluid restriction well, often cannot resist and drinks water from the tap in the ward. Constantly asks why he is not getting better. Consciousness is clear, position in bed is active. Skin is pale, face is puffy, slight swelling in the feet and shins. Height 166 cm, weight 58 kg. Respiration rate 24 per minute, pulse 96 beats per minute, rhythmic, blood pressure 150/90 mm Hg.

2. A 36-year-old patient was admitted with complaints of facial swelling, headache, decreased amount of dark-colored urine. History: he had tonsillitis 2 weeks ago. Examination: BP 170/100 mm Hg, protein in urine 3.5 g/l, large number of erythrocytes.

3. A 45-year-old man was admitted with complaints of severe edema, decreased daily diuresis, headache, and shortness of breath. A biochemical blood test showed total protein 48 g/l, albumin 20 g/l, cholesterol 8.9 mmol/l. A general urine test showed protein 5.5 g/l, erythrocytes 8-10 in the field of vision, hyaline and granular casts. Blood pressure 120/80 mm Hg.

4. A 42-year-old patient was admitted with complaints of severe edema, increased blood pressure, decreased urine output, and weakness. Blood pressure 170/110 mm Hg. Blood chemistry: creatinine 620 μmol/l, urea 25 mmol/l, potassium 5.8 mmol/l. General urine analysis: erythrocytes 30-40 in the field of vision, protein 4.6 g/l, granular casts. Kidney biopsy: crescents in more than 70% of glomeruli.

5. A 37-year-old man was admitted with complaints of edema and increased arterial pressure. History of a recent skin infection. Blood chemistry: creatinine 170 μmol/l, decreased complement C3. Urinalysis: protein 3.0 g/l, erythrocytes 20-30 in the field of view. Kidney biopsy: pronounced subepithelial "humps" on electron microscopic examination.

6. A 41-year-old female patient with chronic pyelonephritis complains of worsening condition: lower back pain, weakness, weight loss. Blood biochemistry: increased creatinine and urea. General urine analysis: density 1.008, leukocytes 20-30 in the field of vision, bacteriuria (+++). Ultrasound: shrinkage of one of the kidneys.

7. A 67-year-old man came to the clinic complaining of decreased appetite, itchy skin, frequent urge to urinate at night, and weakness. In the last two weeks, he has noted an increase in blood pressure (up to 180/110 mm Hg). History: hypertension for more than 15 years. General urine analysis: proteinuria 2.6 g/day, isosthenuria, microhematuria. Blood biochemistry: creatinine - 440 μmol/l, urea - 16 mmol/l, potassium - 5.6 mmol/l.

8. A 60-year-old man complains of severe weakness, loss of appetite, itchy skin, and frequent urge to urinate at night. Over the past two weeks, he has noted an increase in blood pressure (up to 180/110 mm Hg). History: hypertension for over 15 years. General urine analysis: proteinuria 2.6 g/day, isosthenuria, microhematuria. Blood biochemistry: creatinine - 450 μmol/l, urea - 18 mmol/l, potassium - 5.6 mmol/l.

9. A 32-year-old female patient was admitted with complaints of pain in the lumbar region, high temperature (up to 39°C), chills, frequent painful urination. In the general urine analysis: leukocytes cover the entire field of vision, bacteria (+++), protein 0.5 g/l.

10. A 48-year-old man complained of high blood pressure up to 180/110 mm Hg, headaches, general weakness and decreased exercise tolerance. History: diagnosed with chronic pyelonephritis. On examination: no significant edema, pulse 82 beats/min. Biochemical analysis: creatinine - 150 μmol/l, urea - 10.5 mmol/l, no hyperkalemia. Kidney ultrasound: right kidney reduced to 8.5 cm, parenchyma thinned; left kidney unchanged.

1. Topic N3. Leading clinical syndromes (hypertensive and renal failure) in nephrology. Diagnostic value.(Predisposing factors and causes leading to the development of hypertensive and (acute and chronic) renal failure. Clinical features)

2. Objective: To familiarize students with the leading clinical syndromes(hypertensive and renal failure) in nephrology, to learn clinical signs and the basics of diagnostics, to become familiar with instrumental research methods, and to give them a diagnostic interpretation.

3. Learning Objectives:

The student should know:

1. The mechanism of development of leading syndromes(hypertensive and renal failure)diseases of the urinary system.
2. Main complaints of patients with syndromes(hypertensive and renal failure)diseases of the urinary system.
3. Reasons for development ((acute and chronic) renal failure.

The student should be able to:

1. Conduct a survey of patients with hypertensive syndrome
2. Conduct a survey of patients with renal failure
3. Conduct an examination of the patient and identify changes in the general status characteristic of

of this syndrome.

4. Conduct a physical examination of patients with syndromes(hypertensive and renal failure)

4. Main questions of the topic:

1. What predisposing factors do you know that lead to the development of dysuric syndrome?
2. What complaints do patients with hypertensive syndromes present?
3. What palpable changes can be detected in dysuric syndrome?
4. What is oliguria?
5. What are the causes of chronic renal failure syndrome?
6. What laboratory and instrumental research methods are used to diagnose renal failure?
7. What are the causes of renal failure?
8. Name the laboratory changes indicating the progression of renal failure?
9. Name the mechanism of development of renal failure?

5. Methods/technologies of learning and teaching:

- Discussion of the topic of the lesson, Sbl

6. Massessment methods/technologies (discussion of the topic of the lesson, solving situational problems, acquiring practical skills):

- AKC/silent formula.

7. Literature (primary and secondary):indicated on the last page of the syllabus

8. Control:(questions, situational task)

Questions:

1. What objective factors do you know?features characteristic of hypertensive syndrome?
2. What percussion changes can be detected in renal failure?
3. Name the types of renal failure?
4. What is poly-, oligo-, anuria?
5. What predisposing factors do you know that lead to the development of hypertensive syndrome?

Situational tasks:

1. A 45-year-old female patient is in hospital. Complains of general weakness, shortness of breath, headache, nausea, edema, decreased appetite, poor sleep. Her condition is severe. She sits in bed propped up by pillows, almost without moving. Pale skin, acrocyanosis, puffy face, edema in the legs and lower back, respiratory rate 32 per minute, Ps 92 beats per minute, rhythmic, tense, blood pressure 70/100 mm Hg. The abdomen is enlarged due to severe ascites.

2. A 67-year-old man came to the clinic complaining of decreased appetite, itchy skin, frequent urge to urinate at night, and weakness. In the last two weeks, he has noted an increase in blood pressure (up to 180/110 mm Hg). History: hypertension for more than 15 years. General urine analysis: proteinuria 2.6 g/day, isosthenuria, microhematuria. Blood biochemistry: creatinine - 440 μmol/l, urea - 16 mmol/l, potassium - 5.6 mmol/l.

3. A 60-year-old man complains of severe weakness, loss of appetite, itchy skin, and frequent urge to urinate at night. Over the past two weeks, he has noted an increase in blood pressure (up to 180/110 mm Hg). History: hypertension for over 15 years. General urine analysis: proteinuria 2.6 g/day, isosthenuria, microhematuria. Blood biochemistry: creatinine - 450 μmol/l, urea - 18 mmol/l, potassium - 5.6 mmol/l.

4. A 42-year-old woman was admitted to the hospital complaining of dull pain in the lower back, fever up to 37.8°C, general weakness, frequent and painful urination. The patient has a history of chronic tonsillitis and episodes of pyelonephritis in her youth. Examination: body temperature – 37.5°C. Blood pressure – 130/85 mmHg. Urinalysis: leukocyturia, bacteriuria, proteinuria (0.5 g/day). Blood biochemistry: creatinine – 115 μmol/l, urea – 7.5 mmol/l.

5. A 48-year-old man complained of high blood pressure up to 180/110 mm Hg, headaches, general weakness and decreased exercise tolerance. History: diagnosed with chronic pyelonephritis. On examination: no significant edema, pulse 82 beats/min. Biochemical analysis: creatinine - 150 μmol/l, urea - 10.5 mmol/l, no hyperkalemia. Kidney ultrasound: right kidney reduced to 8.5 cm, parenchyma thinned; left kidney unchanged.

6. According to the Zimnitsky test, the following results were revealed: daily diuresis 2500 ml, daytime diuresis - 1720 ml, nighttime diuresis - 780 ml. The maximum and minimum values of the relative density of urine in different portions are within the range of 1.005 - 1.012.

7. A 48-year-old woman came to the clinic complaining of facial swelling, especially in the morning, decreased urine output, urine that is the color of "meat slops", palpitations, and fatigue. History: a month ago, after hypothermia, she had tonsillitis and bronchitis, after which she was periodically bothered by aching pain in the lower back. Objectively: the patient's face is pale, puffy, and her eyelids are swollen. Blood pressure is 150/110 mm Hg. In the general urine analysis, protein is 0.099%, red blood cells are 45-50 in the field of view. Specify the cause of the "meat slops" color in the urine.

8. A 55-year-old patient complains of edema, weakness, increased blood pressure to 140/100 mm Hg, decreased daily diuresis. In the general urine analysis: protein - 3.6 g / day, erythrocytes 5-6 in the field of view. In the general blood analysis - creatinine - 140 mmol / l, urea - 18 mmol / l.

9. A 65-year-old patient complains of lower back pain, frequent urge to urinate, and swelling of the lower extremities. Examination of the abdomen revealed moderate enlargement, pale skin, and brittle nails. Blood chemistry: creatinine 250 μmol/l, urea 15 μmol/l, glomerular filtration rate 60 ml/min, potassium 5.5 mmol/l, sodium 135 mmol/l. Total urine analysis: protein 3.5 g/l, erythrocytes 8-10 p/z, leukocytes 4-5 p/z, density 1010, granular cylinders.

10. A 55-year-old man consulted a doctor complaining of severe weakness, swelling of the face and lower extremities, increased blood pressure to 170/100 mm Hg, and decreased urine output. His medical history includes several episodes of tonsillitis over the past year. Laboratory examination reveals: Urine analysis: proteinuria (3 g/day), microhematuria, cylindruria. Ultrasound examination: kidneys are of normal size, without obvious structural changes.