


<p> ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ </p>		<p>  SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия» </p>
Department of "Propaedeutics of Internal Diseases"		47 / 11
Methodological instructions for independent work of students in the discipline "The genitourinary system in pathology »		1p. of 11 p.

METHODOLOGICAL INSTRUCTIONS FOR INDEPENDENT WORK OF STUDENTS

Discipline: "The genitourinary system in pathology"

Course Code: MPSP 3216


Name and code of the OP: 6B10115 "Medicine"

Amount of study hours/credits: 150 hours / 5 credits

Course and semester of study: 3rd year, VI semester

Volume of independent work: 3


Shymkent, 2024

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Methodological instructions for independent work of students are developed in accordance with the working curriculum of the discipline (syllabus) and discussed at the department meeting

Protocol No. 10 dated "31" 05 2024.

Head of the Department, md, Professor E.K. Bekmurzayeva. Bekmurzayeva

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1. Topic №1: Laboratory methods of examination of patients with diseases of the urinary system. Collection of urine for conducting OAM, for Zimnitsky, Reberg test, its indicators in norm and pathology. Principles of determination of the level of creatinine, urea and residual nitrogen in blood serum, their indicators in norm and pathology.

2. Objective: To familiarize students with the basic methods of laboratory research, to identify a number of diagnostic signs that serve as criteria for the pathological process of the genitourinary system.

3. Tasks: indicated at the end

4. Form of implementation/assessment: presentation

5. Criteria for the implementation of SRO (requirements for completing the task): indicated at the end.

6. Submission deadline: 1 day

7. Literature: basic, additional indicated on the last page of the syllabus

8. Control (questions, tests):

Questions:

1. What is the main cause of true leukocyturia?
2. What is the elevated laboratory indicator in nephritic syndrome?
3. What laboratory changes indicate progression of renal failure?
4. What is the purpose of the Zimnitsky test?
5. What is the time interval between collection of urine portions in Zimnitsky's test?
6. Name the condition in which (Zimnitsky test) the density of urine in all portions is the same?
7. Name the pathology (Zimnitsky test) accompanied by low specific gravity of urine in all portions?

Test questions:

1. 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
2. Nocturia:
 - a) predominance of nocturnal diuresis over daytime
 - b) difficulty urinating
 - c) frequent urge to urinate during the day
 - d) painful urination
 - e) decreased electrolytes
3. Specify the syndrome observed in acute glomerulonephritis:
 - a) nephritic
 - b) nephrotic
 - c) hyperthyroidism
 - d) hyperglycemia
 - e) hypoglycemia
4. Select an elevated laboratory indicator for glomerulonephritis:
 - a) creatinine
 - b) uric acid
 - c) glucose
 - d) potassium

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- e) cholesterol
5. What is the purpose of the Zimnitsky test?
- To assess the concentrating ability of the kidneys
 - To assess glomerular filtration function
 - To determine the presence of a urinary tract infection
 - For the diagnosis of diabetes mellitus
 - To detect uric acid levels
6. Specify the amount of urine collected for the Zimnitsky test:
- 8
 - 6
 - 10
 - 12
 - 24
7. Specify the time interval between collection of urine portions in Zimnitsky's test:
- 3 hours
 - 1 hour
 - 2 hours
 - 4 hours
 - 6 hours
8. Select the indicators to be assessed in Zimnitsky's test:
- Specific gravity of urine, volume of each portion
 - Protein in urine
 - Leukocytes in urine
 - Glucose in urine
 - Bacteria in urine
9. Show the normal specific gravity of urine in Zimnitsky's test:
- 1010–1025
 - 1005–1015
 - 1020–1035
 - 1035–1045
 - 1000–1050
10. Normal volume of daily urine:
- 1000–1500 ml
 - 500-800 ml
 - 1500–2000 ml
 - 2000–2500 ml
 - More than 3000 ml
11. Name the condition in which (Zimnitsky test) the density of urine in all portions is the same:
- isosthenuria
 - hyposthenuria
 - hypersthenuria
 - normosthenuria
 - glucosuria
12. Name the condition (Zimnitsky test) in which the specific gravity of urine decreases below 1010:
- hyposthenuria
 - normal
 - hematuria
 - hypersthenuria

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e) isosthenuria

13. 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. Biochemical blood test: creatinine - 440 $\mu\text{mol} / \text{l}$, urea - 16 mmol / l, potassium - 5.6 mmol / l. Your preliminary diagnosis:

- a) chronic renal failure
- b) acute glomerulonephritis
- c) nephrotic syndrome
- d) acute tubulointerstitial nephritis
- e) polycystic kidney disease

14. Specify the condition accompanied by polyuria and low specific gravity of urine:

- a) diabetes insipidus
- b) chronic heart failure
- c) diabetes mellitus
- d) acute renal failure
- e) urinary tract infection

15. Select the pathology (Zimnitsky test) accompanied by low specific gravity of urine in all portions:

- a) chronic renal failure
- b) acute pyelonephritis
- c) diabetes mellitus
- d) chronic glomerulonephritis
- e) urolithiasis

16. 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 $\mu\text{mol/l}$, urea - 18 mmol/l, potassium - 5.6 mmol/l.

- a) chronic renal failure
- b) acute glomerulonephritis
- c) nephrotic syndrome
- d) acute tubulointerstitial nephritis
- e) polycystic kidney disease

17. Specify the main indicator for assessing the concentration function of the kidneys:


- a) urine specific gravity
- b) urine protein level
- c) volume of each portion of urine
- d) presence of glucose
- e) leukocytes in urine

18. 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

19. A 45-year-old patient, upon palpation of the kidneys of a patient suffering from chronic pyelonephritis, the doctor discovers pain and enlargement of the right kidney. Your preliminary diagnosis:

- a) chronic pyelonephritis

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- b) Acute renal failure
- c) Urolithiasis
- d) Polycystic kidney disease
- e) Glomerulonephritis

20. A 28-year-old man complains of paroxysmal pain in the lumbar region, urinary retention, and facial swelling at a doctor's appointment. A positive Pasternatsky's symptom occurs with:

- a) urolithiasis
- b) diabetic nephropathy
- c) urethritis
- d) cystitis
- e) prostatitis

1. Topic №2: Instrumental methods of examination of patients with diseases of the urinary system. Predisposing factors and causes leading to the development of dysuric, nephrotic, nephritic syndromes. Classification. Clinical and diagnostic features.

Principles of radioisotope radiography, diagnostic capabilities of the method. Preparation and technique of excretory urography, its indicators in norm and pathology. Determination of glomerular filtration rate: calculated Glomerular filtration rate according to the CKD-EPI formula. Visual examination methods: radiological and ultrasound. The importance of endoscopic examination methods.

2. Objective: To familiarize students with the basic methods of instrumental research, to identify a number of diagnostic signs that serve as criteria for the pathological process of the genitourinary system.

3. Tasks: indicated at the end

4. Form of implementation/assessment: presentation.

5. Criteria for the implementation of SRO (requirements for completing the task): indicated at the end.

6. Submission deadlines: Day 5

7. Literature: the main one, the additional one is indicated on the last page of the syllabus

8. Control (questions, tests):

Questions:


1. What is the main instrumental method for nephritic syndrome?
2. Predisposing factors and causes leading to the development of dysuric syndrome?
3. Preparation and technique for excretory urography?
4. What is the importance of endoscopic examination methods?
5. Visual examination methods?

Test questions:

1. A 65-year-old patient complains of difficulty urinating, frequent urges, and a feeling of incomplete bladder emptying. Palpation reveals a painful, enlarged, elastic area in the lower abdomen. Your preliminary diagnosis:
 - a) acute urinary retention
 - b) cystitis
 - c) infectious and inflammatory process in the kidneys
 - d) urolithiasis
 - e) prostatitis
2. A 55-year-old patient complains of pain in the lower abdomen and difficulty urinating. Upon palpation of the lower abdomen, the physician detects a hard, painful area that cannot be moved. Your preliminary diagnosis:
 - a) urolithiasis
 - b) acute cystitis

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- c) glomerulonephritis
 - d) renal amyloidosis
 - e) hydronephrosis
3. When percussing the kidneys of a patient suffering from lower back pain and edema, the doctor detects increased dullness in the kidney area on both sides. Your preliminary diagnosis:
- a) Chronic pyelonephritis
 - b) Acute renal failure
 - c) Urolithiasis
 - d) Glomerulonephritis
 - e) hydronephrosis
4. A 40-year-old patient complains of pain in the lumbar region, fever, and general weakness. Percussion of the kidney area on the right side reveals pain and dullness. Your preliminary diagnosis:
- a) acute pyelonephritis
 - b) urolithiasis
 - c) chronic glomerulonephritis
 - d) kidney cancer
 - e) renal amyloidosis
5. A 64-year-old patient has suffered from hypertension for many years and complains of heaviness in the lower back, decreased appetite, edema, and weakness. Percussion of the kidneys on both sides reveals increased dullness. Your preliminary diagnosis:
- a) chronic renal failure
 - b) acute urinary retention
 - c) polycystic kidney disease
 - d) Kidney cancer
 - e) Urolithiasis
6. A 45-year-old patient complains of lower back pain and loss of appetite, increased body temperature, weakness. He attributes this to hypothermia. He did not take any treatment. Percussion of the kidneys reveals painful dullness on both sides. Your preliminary diagnosis:
- a) exacerbation of pyelonephritis
 - b) urolithiasis
 - c) polycystic kidney disease
 - d) acute urinary retention
 - e) chronic renal failure
7. A 45-year-old patient complains of edema, high blood pressure, and fatigue. On examination, moderate abdominal enlargement, edema in the legs, and pale skin are noted. Your preliminary diagnosis:
- a) glomerulonephritis
 - b) chronic pyelonephritis
 - c) acute renal failure
 - d) urolithiasis
 - e) polycystic kidney disease
8. When examining a patient suffering from kidney disease, the doctor discovers pronounced swelling of the face, which is especially noticeable in the morning. The patient also complains of headache and nausea. Identify the characteristic symptoms indicating kidney disease:
- a) swelling and headache
 - b) nausea and thirst
 - c) upper abdominal pain and fever
 - d) dry skin and brittle nails
 - e) skin hydration and loss of appetite

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9. A 50-year-old patient complains of fatigue, headaches, swelling, and loss of appetite. On examination, the patient looks pale, with brittle nails. A complete blood count shows: hemoglobin 100 g/l, erythrocytes $3.5 \times 10^{12}/l$, leukocytes $9.5 \times 10^9/l$, platelets 440×10^9 , ETV 30 mm/sag. A biochemical blood test shows: urea - 9.4 mmol/l, creatinine - 188 $\mu\text{mol/l}$, Na^+ - 131 mmol/l, K^+ - 6.7 mmol/l. Identify the characteristic symptoms indicating kidney disease:

- a) swelling, pale skin, brittle nails.
- b) fever, vomiting, headache
- c) thirst, weight gain, night sweats
- d) fatigue, dizziness, apathy
- e) abdominal pain, loss of appetite

10. When examining a patient suffering from chronic pyelonephritis, the doctor notes the presence of edema in the eye area and on the legs. Indicate the changes in the urine tests confirming the diagnosis:

- a) leukocyturia and bacteriuria
- b) proteinuria and hematuria
- c) elevated creatinine levels
- d) elevated urea levels
- e) elevated potassium levels

11. A 67-year-old patient complains of frequent urge to urinate and pain in the lower abdomen. Examination reveals swelling in the legs and high blood pressure. Select the necessary examination for diagnosis:

- a) ultrasound examination of the kidneys and urine analysis
- b) X-ray of the kidneys
- c) magnetic resonance imaging
- d) kidney biopsy
- e) echoencephalography

12. A 56-year-old woman consulted a doctor with complaints of facial swelling, especially in the morning, decreased urine output, and rapid fatigue. History: frequent colds. On examination: the patient's face is pale, puffy, her eyelids are swollen, and her eye slits are narrowed. Indicate the correct characteristic based on the examination data:


- a) nephritis facies
- b) febrile facies
- c) mitralis facies
- d) facies basedovica
- e) Facies of Hypocrisy

13. A 53-year-old man has a biochemical blood test showing urea content of 11.5 mmol/l and creatinine of 185.2 $\mu\text{mol/l}$. The Reberg test revealed glomerular filtration of 75 ml/min and tubular reabsorption of 90%. The patient requires the following informative testing:

- a) excretory urography
- b) computed tomography
- c) radioisotope renography
- d) kidney biopsy
- e) nephroangiography

14. A patient's blood biochemistry analysis showed urea content of 11.5 mmol/l, creatinine content of 185.2 $\mu\text{mol/l}$. The Reberg test revealed: glomerular filtration rate of 75 ml/min, tubular reabsorption of 90%. Specify additional informative research:

- a) excretory urography
- b) nephroangiography
- c) computed tomography
- d) radioisotope renography

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e) kidney biopsy

15. A 42-year-old man was admitted to hospital with complaints of severe pain in the lower back on the left, temperature of 38°C, weakness, nausea. Examination revealed severe leukocyturia, bacteriuria, increased ESR, leukocytosis. Select an informative research method:

Select a study to clarify the diagnosis:

- a) ultrasound examination of the kidneys
- b) X-ray of the kidneys
- c) kidney biopsy
- d) Zimnitsky's test
- e) Nechiporenko's sample

1. Topic №3: Palpation, percussion of the kidneys, percussion determination of the upper border of the bladder; auscultation of the renal arteries. Palpation and percussion (tapping method) of the kidneys, percussion determination of the upper border of the bladder; auscultation - auscultation of the renal arteries.

2. Objective: To familiarize students with the methods of palpation and percussion of the kidneys. Percussion determination of the upper border of the urinary bladder; auscultation - a method of listening to the renal arteries.

3. Tasks: indicated at the end

4. Form of implementation/assessment: presentation, implementation of practical skills

5. Criteria for the implementation of SRO (requirements for completing the task): indicated at the end.

6. Submission deadlines: Day 8

7. Literature: the main one, the additional one is indicated on the last page of the syllabus

8. Control (questions, tests):

Questions:

- 1. How is the upper limit of the bladder determined?
- 2. What is determined by palpation of the kidneys?
- 3. Method of listening to the renal arteries?

Test questions:

1. A patient complaining of poor urine flow reveals a small bulge in the suprapubic area upon examination. Specify the cause of this condition:


- a) enlargement of the prostate gland
- b) massive water load
- c) restriction of fluid intake
- d) taking saluretics
- e) taking antibiotics

2. On examination, the patient's face is pale, puffy, the eyelids are swollen, the eye slits are narrowed. Specify the name of this facial expression:

- a) nephritis facies
- b) mitralis facies
- c) Facies of Hyppocracy
- d) febrile facies
- e) facies basedovica

3. A 75-year-old patient complains of lower abdominal pain and difficulty urinating. When percussing the suprapubic area, the doctor detects increased dullness; the patient does not feel pain when palpating. Your preliminary diagnosis:

- a) Acute urinary retention

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- b) Chronic cystitis
 - c) Prostatitis
 - d) Bladder cancer
 - e) renal amyloidosis
4. The main clinical sign according to the clinical protocol of nephrotic syndrome is:
- a) edema
 - b) increased blood pressure
 - c) heartbeat
 - d) dysuria
 - e) fever
5. 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
6. 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
7. 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
8. Indicate the main causative agent of pyelonephritis in adults:
- a) escherichia coli
 - b) Staphylococcus aureus
 - c) streptococcus pyogenes
 - d) klebsiella pneumoniae
 - e) chlamydia
9. 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
10. 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
11. Name the condition (Zimnitsky test) in which the specific gravity of urine decreases below 1010:
- a) hyposthenuria

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- b) normal
- c) hematuria
- d) hypersthenuria
- e) iozosthenuria

12. When examining a patient suffering from kidney disease, the doctor discovers pronounced swelling of the face, which is especially noticeable in the morning. The patient also complains of headache and nausea. Identify the characteristic symptoms indicating kidney disease:

- a) swelling and headache
- b) nausea and thirst
- c) upper abdominal pain and fever
- d) dry skin and brittle nails
- e) skin hydration and loss of appetite

13. 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

14. 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

15. 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