TEST ON THE TOPIC:

DRUGS AFFECTING THE RESPIRATORY SYSTEM, CARDIOVASCULAR SYSTEM, DIGESTIVE AND URINARY SYSTEM

A. Actuality. The treatment of intern organs diseases takes one of the leading places in practical activity of a family doctor. In the majority of cases the treatment of these diseases is long-lasting and requires drugs from different pharmacological groups (especially in elderly people). All this requires deep studies about drugs from the given groups.

B. The purpose of the training includes generalization of students knowledge regarding the treatment of respiratory, cardiovascular, digestive and diuretic systems, summarization of the material on these topics and formation of the main basic principles of the somatic diseases treatment.

C. Learning objectives:

1) The students must **know**: pharmacological characteristics of the groups of drugs used in intern organs′diseases, general principles of treatment of the intern organs′diseases, means of urgent help.

2) The students must **be able to:** write out the compulsory drugs, prescribe them in different somatic diseases which requires an urgent help, use the obtained knowledge to solve the situational problems.

D. Self-training questions:

1. Classification of drugs used in heart failure.
2. Cardiac glycosides. Definition, classification, mechanism of action, influence on functional parameters of the heart, systemic and regional hemodynamics, other systems body. Efficacy of tonicards in heart failure.
3. Indications of cardiac glycosides, dosing principles. Cardiac glycoside poisoning.Clinical picture and treatment.
4. Non-glycoside tonicard drugs: classification, mechanism of action, indications, side effects.
5. Cardiostimulatory drugs: classification, mechanism of action, indications, reactions effects.
6. Drugs that increase the sensitivity of myofibrils to calcium ions: the mechanism of action, indications, side effects.
7. Antihypertensive drugs: classification, mechanism of action, indications, side effects.
8. Antihypotensive drugs: classification, mechanism of action, indications, side effects.
9. Antiarrhythmic drugs: classification, mechanism of action, indications, side effects.
10. Antianginal drugs: classification, mechanism of action, indications, side effects.
11. Group of drugs used in treatment of acute myocardial infarction. The principles of action.
12. Drugs with influence on brain circulation: classification, mechanism of action, indications, side effect.
13. Classification of anti-migraine drugs. Medications used in access of migraine and in treatment of migraine: mechanism of action, indications, side effect.
14. Peripheral vasodilator drugs: classification, mechanism of action, indications, side effects
15. Venotropic drugs: classification, mechanism of action, indications, side effects.

16. Classification of diuretics according to the mechanism of action, place of action in the nephron, speed of occurrence and duration of effect, and acording to the intensity of the action. The characteristic of the groups: the mechanism of action, indications, side effect.
17. Anti-gout drugs: classification, mechanism of action, indications, side effects.
18. Drugs used in urolithiasis: classification, mechanism of action, indications, side effects.
19. Drugs used in the disturbances of the hydro-electrolytic balance: classification, mechanism of action, indications, side effects.
20. Drugs used in acid-base balance disorders: classification, mechanism action, indications, side effects.
21. Substitutes of plasma volume: classification, mechanism of action, indications, side effects.
22. Antitussives: classification, mechanism of action, indications, side effect.
23. Expectorants: classification, mechanism of action, indications, side effects.
24. Medications used in asthma: classification, mechanism of action, indications, side effects.
25. Groups of drugs used to treat pulmonary edema.
26. Drugs acting on appetite: classification, mechanism of action, indications, side effects.
27. Drugs that stimulate gastric juice secretion: classification, mechanism of action, indications, side effects.
28. Replacement drugs used in pancreatic hypofunction: classification, mechanism of action, indications, side effects.
29. Drugs that inhibit gastric secretion: classification, mechanism of action, indications, side effects.
30. Antacids: classification, mechanism of action, indications, side effect.
31. Gastroduodenoprotectors and cytoprotectors: classification, mechanism of action, indications, side effect.
32. Classification of anti-ulcer drugs.
33. Drugs that inhibit excretory function of the pancreas. Characteristic.
34. Medications that intensify the peristalsis of the digestive tract (prokinetic): classification, mechanism of action, indications, side effects.
35. Vomiting medicines: classification, mechanism of action, indications, adverse reactions.
36. Laxative and purgative drugs: classification, mechanism of action, indications, side effects.
37. Medications that inhibit the motility of the digestive tract. Classification.
38. Antiemetics drugs: classification, mechanism of action, indications, side effects.
39. Antidiarrheal drugs: classification, mechanism of action, indications, side effects.
40. Antiflatulent drugs: classification, mechanism of action, indications, side effects.
41. Hepatotropic drugs. Classification.
42. Drugs that modify the secretion and excretion of the ball: classification, mechanism of action, indications, side effect.
43. Hepatoprotective drugs: classification, mechanism of action, indications, side effects.
44. Cholelitholytic drugs: classification, mechanism of action, indications, side effect.
45. The classification of antispasmodic drugs that affect smooth muscles.
46. Neurotropic antispasmodics: classification, mechanism of action, indications, side effects.

Antispasmodics with myotropic action.: classification, mechanism of action, indications, side effect.

E. Independent work (is done in written form while preparing for the concluding sesion)

1.) Questions on medical prescriptions

To prescribe the following drugs in all possible medicinal forms 1. Nikethamide. 2. Cytiton. 3. Epinephrine. 4. Ipratropium bromide. 5. Aminophylline. 6. Salbutamol. 7. Sodium cromoglycate. 8. Codeine. 9. Ketotifen. 10. Ethimizol. 11. Prenoxdiazine. 12. Bromhexine. 13. Acetylcysteine. 14. Sodium benzoate. 15. Dextromethorphan. 16. Strophanthin. 17. Digitoxin. 18. Digoxin. 19. Corglycon. 20. Amrinone. 21. Levosimendan. 22. Dopamine. 23. Dobutamine. 24. Quinidine. 25. Procainamide. 26. Lidocaine. 27. Mexiletine. 28. Flecainide. 29. Metoprolol. 30. Bretylium tosylate. 31. Amiodarone. 32. Verapamil. 33. Propranolol. 34. Sotalol. 35. Clonidine. 36. Metildopa. 37. Azamethonium. 38. Atenolol. 39. Captopril. 40. Diazoxide. 41. Hydralazine. 42. Nifedipine. 43. Sodium nitroprusside. 44. Losartan. 45. Prazosin. 46. Nebivolol. 47. Enalapril. 48. Moxonidine. 49. Labetalol. 50. Carvedilol. 51. Norepinephrine. 52. Phenylephrine. 53. Ergotamine. 54. Caffeine sodium benzoate. 55. Dextran-70. 56. Deoxychorticosterone acetate. 57. Izoturon. 58. Angiotensinamide.

59 Nitroglycerin. 60. Dipiridamole. 61. Isosorbide dinitrate. 62. Molsidomine.63. Vinpocetine. 64. Pentoxifylline. 65. Cinarizine. 66. Nicergoline. 67. Xanthinol nicotinate. 68. Piricarbat. 69. Sumatriptan. 70. Ravimig. 71. Troxerutin. 72. Phentolamine.73. Piracetam.74. Mannitol. 75. Furosemide. 76. Torasemid. 77. Hydrochlorothiazide. 78. Indapamide. 79. Spironolactone. 80. Triamteren. 81. Colchicine. 82. Etebenicide. 83. Allopurinol. 84. Cystenal. 85. Ammonium chloride. 86. Sodium hydrocarbonate. 87. Dextran-40. 88. Sodium chloride. 89. Potassium chloride. 90. Calcium chloride. 91. Rehydron. 92. Hydroxyethylamidone (refortan). 93. Ciproheptadine. 94. Amfepramone. 95. Atropine sulphate. 96. Pirenzepine. 97. Ranitidine. 98. Famotidine. 99. Almagel. 100. Magnesium hydroxide. 101. Omeprazol. 102. Sucralfate. 103. Bismuth subcitrate. 104. Regesan. 105. Panzinorm. 106. Pancreatine. 107. Creon. 108. Aprotinine.109. Metoclopramide. 110. Ondansetron. 111. Thyethylperazine. 112. Loperamide. 113. Bisacodyl. 114. Simethicone. 115. Magnesium sulfate. 116. Enterol. 117. Bactisubtil. 118. Essentiale. 119. Ademethionine. 120. Holosas. 121. Silimarine. 122. Ursodeoxycholic acid. 123. Papaverine hydrochloride. 124. Drotaverine. 125. Mebeverine. 126. Lactulose. 127. Macrogol. 128. Picosulphate. 129. Platyphylline hydrotartrate. 130. Baralgine.

Drugs used in (for): newborn′s asphyxia, dry cough, pulmonary edema, acute respiratory infection, chronic bronchitis, bronchopneumonia, acces of bronchial asthma, treatment of bronchial asthma, chronic obstructive bronhopneumopathy, status asthmaticus, acute heart failure, chronic heart failure, decompensated heart failure, atrial fibrillation, cardiac glycoside intoxication, acute myocardial infarction, cardiac arrest, supraventricular paroxysmal tachycardia, cardiogenic shock, atrial and ventricular extrasystoles of sympathoadrenal type (neurogenic), atrio-ventricular block, atrial flutter and atrial fibrillation, ventricular fibrillation, ventricular paroxysmal tachycardia, arrhythmias caused by cardiac glycosides overdose, sinusal bradycardia, ventricular extrasystoles and ventricular tachycardia after acute myocardial infarction, hypertensive crisis, diagnosis of pheochromocytoma, treatment of pheochromocytoma, mild hypertension, severe hypertension, hypertension with arrhythmias, hypertension with hyperaldosteronism, hypertension with hyperreninemia, hemorhagic hypotension, hypotension caused by overdose of CNS depressants, cardiogenic shock with

arterial hypotension, sympathomimetic resistant hypotension, orthostatic hypotension, hypovolemic shock, chronic hypotension, acute myocardial infarction, pain control in acute myocardial infarction, thrombosis prophylaxis in acute myocardial infarction, acces of angina pectoris, prophylaxis of angina pectoris access, migraine attacks, migraine treatment, hypertensive encephalopathy, vestibular-cochlear disorders, ischemic stroke, chronic circulatory cerebral failure, sequelae of cerebral trauma, Raynaud's syndrome, obstructive endartritis, cerebral atherosclerosis, ischemic ophthalmologic disorders, chronic venous failure, trophic ulcers of the lower limbs, cerebral edema, pulmonary edema, acute renal failure, chronic renal failure, acute intoxication, forced diuresis, essential arterial hypertension, arterial hypertension with hyperaldosteronism, glaucoma, acute heart failure, chronic congestive heart failure, gout access, gout prophylaxis, uricoinhibitors in gout, uricosurics in gout, alkalinisation of urine in urolithiasis, acidification of urine in urolithiasis, renal colic in urolithiasis, acidosis, alkalosis, isotonic dehydration, hypotonic dehydration, hypertonic dehydration, hypovolemic shock, detoxification of the body in peritonitis, detoxification of the body in food poisoning, acute arterial hypotension, prophylaxis and treatment of thrombosis, hypokalemia, hypocalcemia, anorexia, alimentary obesity, hypotrophy in children, hypoacid gastritis, reflux esophagitis (esophageal reflux disease), Zollinger-Elison syndrome, gastric ulcer, duodenal ulcer, acute pancreatitis, chronic pancreatitis, gastroprotectors in gastric ulcer, antisecretory in duodenal ulcer, reflux oesophagitis, gastric hypomotility, chronic functional constipation, chronic constipation, hepatic encephalopathy, bowel evacuation in surgical emergencies (acute constipation), preparation for radiological and endoscopic examination of the digestive tract, preparation for surgical intervention, drugs or food intoxication (poisoning), meteorism, flatulence and meteorism in diseases of the digestive tract, drug-induced vomiting, vomiting in sick motion, cytostatic and radioprotective-induced vomiting, non-specific acute diarrhea, toxic hepatitis, hepatocolecystitis, cholelithiasis, biliary colic, intestinal colic.

2) Tests (Guidelines for Laboratory Work in Pharmacology).
3) Clinical case (Guidelines for Laboratory Work in Pharmacology).
4) Virtual situations (Guidelines for Laboratory Work in Pharmacology).
5)Virtual didactic movie.
6) Tables

Table 1

Determine the diuretic drugs

Drugs	**Way of administration**	**Duration of action**		**The mechanism of action**	**Activity in case of acidosis**
		Onset of the effect (min, hours)	**time (hours)**		

A	internal	20 – 30 min.	3 – 4 hours	Direct inhibition of reabsorption of Na +, Cl- and K + ions	+
	intravenous	2 – 5 min.	1,5 – 2 hours		
B	internal	12 – 48 hours	48-120 hours	It concurrently inhibits aldosterone receptors	+
C	internal	1 – 2 hours	6 – 8 hours	Carbonic anhydrase inhibitor	-
D	internal	1 – 2 hours	8 – 12 hours	It inhibits the reabsorption of Na +, Cl-, and promotes the reabsorption of Ca2 + ions.	-

Table 2

Determine antihypertensive drugs

Drugs	**Way of administration**	**Duration of action**		**Mechanism of action**	**Complications**
A	internal	2 – 3 hours	6 – 8	Neurotropic: causes mediator depletion in nerve endings	Drowsiness, mental braking, nasal congestion, impotence
B	internal	1 – 2 hours	8 – 10	Neurotropic: decrease of sympathetic action through beta-adrenergic receptors	Bradycardia, decreased cardiac activity, bronchospasm
C	internal	2 – 4	12 –	Neurotropic:	Somnolence,

		hours	16	depression of the vasomotor center in the bulb	xerostomia, constipation, Na + retention in the body, withdrawal hypertension
	intramuscular	30-60 min.	3 – 6		
	intravenous	20 – 30 min.	1 – 2		
D	intramuscular	30-60 min.	3 – 5	musculotrop	Deprimarea activităţii cardiace
	intravenous	15 – 20 min.	2 – 3		

Table 3

Determine the choleretic drugs administered internally

Drugs	**Coleretic effect**		**Delivery form**
	Degree (%)	**Duration of action (hours)**	
A	20	1,5 – 2	Tablets N50
B	20 – 86	3 – 4	Tablets 0,2 g
C	20	2 – 3	Tablets N10 şi N50
D	27 - 35	6 and more	Tablets 0,25 g

Table 4

Determine the antiarrhythmic drugs A, B and C (lidocaine, procainamide, propafenone)

Parameters	**A**	**B**	**C**
The duration of phase 0 of the action potential	Increase	Slightly increase	Increase
Duration of repolarization	Increase	Dicrease	Practically does not change
Duration of action potential	Increase	Dicrease	Practically does not change
Duration of the refractory period	Increase	Dicrease	Practically does not change

Table 5

Select the indications for antiarrhythmic drugs

Drug	Indicaţii pentru administrare	
	Supraventricular arrhythmias	**Ventricular arrhythmias**
Adenosine		
Propranolol		
Digoxin		
Lidocaine		
Amiodarone		
Mexiletine		
Verapamil		
Procainamide		
Flecainide		
Disopyramidă		

7) Problem:

A patient with duodenal ulcer in the background of diabetes mellitus was prescribed an antibiotic with bacteriostatic effect for treatment of Helicobacter Pylori. During the treatment the patient noticed an acceleration of the peristalsis of the stomach and small intestine with the improvement of the symptoms of intestinal atony.
Which drug group was prescribed?
Explain the beneficial effect in intestinal atony?