Department of Pharmacology

The task for preparing to the concluding class in the section

**DRUGS ACTING ON ORGANS AND SYSTEMS OF BODY**

1. **To prepare the next questions:**
   1. Antitussive drugs: classification, mechanisms of action, differences between groups.
   2. Expectorants: definition, classification (on the mechanism of action), application.
   3. Bronchodilators (broncholytics) that are used in bronchial asthma and chronic obstructive pulmonary disease: mechanisms of action, application (for relief or for prevention of the asthma attacks), adverse effects.
   4. Antiinflammatory drugs that are used in bronchial asthma and chronic obstructive pulmonary disease: mechanisms of action, application (for relief or for prevention of the asthma attacks), adverse effects.
   5. The asthmatic status (definition, directions of pharmacotherapy).
   6. Principles of pharmacotherapy of pulmonary edema in cardiologic practice (drugs, their mechanisms of action in pulmonary edema).
   7. General principles of treatment of arterial hypertension. The most important groups of hypotensive drugs (with representatives), mechanisms of their hypotensive effect.
   8. Role of sympathetic nervous system in pathogenesis of arterial hypertension. Hypotensive drugs that inhibit influence of sympathetic nervous system (to specify pharmacological groups and their main representatives, mechanisms of hypotensive effect, side effects).
   9. Hypotensive drugs that change sodium and water balance (to specify pharmacological groups and their main representatives, mechanisms of hypotensive effect, side effects).
   10. Role of renin-angiotensin system in pathogenesis of arterial hypertension Inhibitors of renin-angiotensin system as hypotensive drugs (to specify pharmacological groups and their main representatives, mechanisms of hypotensive effect, side effects).
   11. Management of hypertensive crisis (for emergency and urgent treatment): drugs, their mechanisms of action, routes of administration.
   12. Management of chronic and acute hypotensive states: drugs and their mechanisms of action.
2. The drugs used at disturbances of appetite: the main representatives, mechanisms of action, application.
3. The drugs used for treatment of peptic ulcer disese (PUD). Principles of therapy, classification of drugs with main representatives, mechanisms of action.

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1. The principles of treatment of acute and chronic pancreatitis, drugs and mechanisms of their action.
2. Drugs used in disturbances of bile secretion: mechanisms of action, application.Treatment of gallstone colic. Hepatoprotectors: definition, effects and application.
3. Laxative drugs (definition, classification, the mechanism of action, the indication for use). Drugs for treatment of diarrhea – representatives, mechanisms of action.
4. Antiemetic drugs (definition, classification, mechanisms of action, indications for use). Prokinetic drugs – effects and application.
5. Classification of antiarrhytmic drugs for treatment of tachyarrhythmia by Vaughan-Williams (with the list of main drugs): mechanisms of action, influence on electrophysiological and hemodynamic parameters.
   1. The choice of drugs for the treatment of supraventricular and ventricular arrhythmias, the most important of their adverse effects. Drugs for treatment of bradyarrhytmias (names of drugs and mechanisms of their action).
   2. Diuretic drugs: definition, classification, localization and mechanisms of action.
6. Comparison of the main groups of diuretics by their efficacy, influence on electrolyte balance, adverse effects and application.
   1. Classification of drugs acting on myometrium, effects and application of groups.
   2. Drugs that are used for the treatment of angina pectoris (antianginal drugs): the main groups, their mechanisms of action in angina pectoris. Other drugs used in coronary artery disease.
7. Nitrates and other NO donors, that are used in coronary artery disease: mechanisms of antianginal effect, use for relieving and preventing of angina attacks, adverse effects. Tolerance to nitrates and its prevention.
8. Treatment of uncomplicated myocardial infarction: the main groups of drugs, mechanisms of their beneficial effects in myocardial infarction.
9. Treatment of migraine: the main drugs for relieving of migraine attacks, mechanisms of their action. Drugs for prevention of migraine attacks (groups and representatives).
10. Drugs for the treatment of disturbances of peripherical and cerebral blood flow: groups and their representatives, mechanisms of action, application. .
11. Hypolipidemic drugs: definition, the main representatives, mechanisms of their action.
12. Pathogenetic mechanisms of the congestive heart failure, main pharmacological groups for treatment and their representatives, mechanisms of their beneficial action in the heart failure.

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1. Cardiac glycosides: definition, representatives. Mechanism of action and main pharmacologic effects of the cardiac glycosides. Intoxication by cardiac glycosides: predisposing factors, symptoms, treatment.
2. Platelet aggregation inhibitors (antiplatelet drugs): definition, the main representatives, mechanisms of action, possible application, adverse effects.
3. Anticoagulant drugs: definition, classification, mechanisms of action, pharmacokinetic properties, possible application, adverse effects. Drugs used in overdosing of anticoagulants.
4. Thrombolytic (fibrinolytic) drugs: definition, the main representatives and their distinctive features, mechanisms of action, possible application.
5. Drugs for the treatment of bleeding disorders (hemostatic drugs): the main groups and their representatives, mechanisms of action, possible application, adverse effects.
6. Iron-deficient and B12- (folate-) deficient anemias: the main causes, drugs for treatment, mechanisms of their action, principles of administration, adverse effects.
7. Hematopoetic growth factors – main preparations, effects and application.
8. Histamine: physiological role, main subtypes of histamine receptors, effects of their activation. Histamine antagonists: main subgroups, effects, application.
9. Serotonin (5-hydroxytryptamine): physiological role, main subtypes of serotonin receptors, effects of their application. Agonists and antagonists of serotonin: the main representatives, application.
10. Eicosanoids: definition, biosynthesis and effects of prostanoids and leukotrienes. Preparations of prostanoids and their application.
11. . Eicosanoid antagonists and their mechanisms of action. Non-steroidal anti-inflammatory drugs (cyclooxygenase inhibitors): classification by selectivity to cyclooxygenase isoforms, therapeutic and adverse effects, differences between groups.
12. Nitric oxide: biosynthesis, main effects. Nitric oxide donors, drugs that increase synthesis or potentiate the effects of nitric oxide: main representatives, application.
13. Regulation of secretion of hormones, the role of hypothalamus and pituitary gland, principle of the negative feedback. Hypothalamic hormones, their synthetic analogs and antagonists – effects and application.
14. Hormones of anterior lobe of pituitary gland, their synthetic analogs and antagonists – effects and application.
15. Hormones of posterior lobe of pituitary gland – effects and application. Effects and application of melatonin (hormone of pineal gland).
16. Thyroid hormones – effects and application. Antithyroid drugs – mechanism of action, application, adverse effects.
17. Calcitonin, parathyroid hormone, synthetic drugs influencing calcium balance

– mechanisms of action, application.

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1. Hormones of pancreatic gland and their effects. Diabetes mellitus – the main types, strategy of treatment. Insulin preparations – classification, distinctive features. Urgent situations in diabetes mellitus (ketoacidotic, hyperosmolar and hypoglycemic coma) and their treatment.
2. Synthetic antidiabetic (hypoglycemic) drugs: the main groups, mechanisms of action, adverse effects.
   1. Estrogen hormones and their synthetic analogs: effects and application.
   2. Progesterone and synthetic progestins: effects and application.
   3. Antagonists of estrogens and progesterone, their possible application. Selective estrogen receptor modulators: distinctive features, application.
3. Oral contraceptive drugs: the main groups, mechanisms of action, administration, adverse effects.
4. Androgen hormones: natural hormones and their physiologic effects, synthetic analogs of the androgens (anabolic steroids), their possible application, adverse effects. Androgen antagonists and their application.
5. Glucocorticoids: representatives (natural and synthetic), effects and application.
6. Adverse effects of glucocorticoids. Withdrawal syndrome: mechanism of development, symptoms, prevention.
   1. Mineralocorticoids, their effects and application. Antagonists of glucocorticoids and mineralocorticoids, their application.
7. Classification of hypersensitivity reactions. The main groups of drugs used in immediate-type allergic reactions, their mechanisms of action and application. Brief characterization of histamine H1-receptors antagonists (classification, pharmacokinetic and pharmacodynamic differences, adverse effects). Treatment of anaphylactic shock.
   * 1. Immunodepressants: the main representatives, mechanisms of action, application, adverse effects.
     2. The main components of the immune system, mechanisms of immune response. Drugs used in immune deficiency: the main representatives, mechanisms of action, application. Interferons: effects and application.
8. **To prescribe, to indicate possible application (disease, which can be treated by this drug) and to explain mechanism of the therapeutic effect:**
   1. Dextromethorphan (in syrup “Tussin Plus”);
   2. Guaifenesin (in syrup “Tussin”);
   3. Salbutamol (aerosol);
   4. Acetylcysteine in tablets;
   5. Beclomethasone (aerosol);
   6. Zafirlukast: in tablets;

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1. Ipratropium (Atrovent) (aerosol).
2. Metoprolol in tablets;
3. Clonidine in tablets;
4. Prazosin in tablets;
5. Fenoldopam in ampoules;
6. Verapamil in tablets;
7. Hydrochlorthiazide in tablets;
8. Enalapril in tablets;
9. Losartan in tablets;
10. Midodrine in tablets;
11. Quinidine in tablets;
12. Procainamide in ampoules;
13. Lidocaine in ampoules;
14. Propafenone in tablets;
15. Esmolol in ampoules;
16. Amiodarone in tablets;
17. Sotalol in tablets;
18. Verapamil in ampoules;
19. Atropine sulfate in ampoules;
20. Isoprenaline [isoproterenol] in tablets,
21. Digoxin in tablets;
22. Levosimendan in vials;
23. Carvedilol in tablets;
24. Orlistat in capsules;
25. Ranitidine in tablets;
26. Omeprazole in tablets;
27. Bismuth tripotassium dicitrate in tablets;
28. Tablets ”Mezym”;
29. Drotaverine in tablets;
30. Bisacodyl in tablets;
31. Lactulose as a syrup;
32. Loperamide in tablets;
33. Metoclopramide in tablets;
34. Ondansetron in ampoules;
35. Spironolacton in tablets;
36. Furosemide in ampoules;

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1. Torasemide in tablets;
2. Indapamide in tablets;
3. Oxytocin in ampoules;
4. Ergonovine in tablets;
5. Hexoprenaline in ampoules;
6. Nitroglycerin as sublingual tablets;
7. Nitroglycerin as ointment;
8. Ivabradine in tablets;
9. Nicorandil in tablets;
10. Sumatriptan in tablets;
11. Pentoxifyline in tablets;
12. Sildenafil in tablets;
13. Atorvastatin in tablets;
14. Amlodipine in tablets;
15. Aspirin in tablets as an antiplatelet drug;
16. Clopidogrel in tablets;
17. Heparin in vials;
18. Streptokinase in vials;
19. Tissue plasminogen activator in vials;
20. Aminocaproic acid in vials;
21. Ferrous sulfate in tablets;
22. Cyanocobalamine in ampoules;
23. Filgrastim in ampoules;
24. Warfarin in tablets;
25. Rivaroxaban in tablets;
26. Loratadine in tablets;
27. Ondansetrone in tablets;
28. Dinoprostone in suppositories;
29. Depot preparation of Octreotide (Sandostatin Depot) in vials;
30. Goserelin for subcutaneous injections;
31. Somatropin in vials;
32. Bromocriptine in tablets;
33. Desmopressin in tablets;
34. Melatonin in tablets;
35. Levothyroxine in tablets;
36. Methimazole in tablets;

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1. Salmon-Calcitonin in vials;
2. Alendronate in tablets;
3. Short-acting insulin preparation in vials ;
4. Long-acting insulin preparation in vials;
5. Glimepiride in tablets;
6. Metformin in tablets;
7. Conjugated estrogens (Premarin) in tablets;
8. Combined contraceptive drug in tablets;
9. Clomifen citrate in tablets;
10. Tamoxifen in tablets;
11. Nandrolone decanoate in vials;
12. Flutamide in tablets;
13. Prednisolone in tablets;
14. Mometasone in ointment;
15. Betmetasone for intraarticular injection;
16. Epinephrine in ampoules;
17. Azathioprine in tablets;
18. Cyclosporine in capsules;
19. Sirolimus in tablets;
20. Basiliximab in vials;
21. Ribomunyl in tablets;

100. Peginterferon-alpha-2-b in vials.

1. **To indicate the main representatives of the next pharmacologic groups**:
   1. Antitussive drugs and expectorants.
   2. Broncholytics that are used in of bronchial asthma.
   3. Anti-inflammatory drugs that are used in bronchial asthma.
   4. Hypotensive (antihypertensive) drugs
   5. Drugs used at disturbances of appetite.
   6. The drugs used for treatment of peptic ulcer disese (PUD).
   7. The drugs used at insufficient and excessive secretory function of pancreas.
   8. Drugs used in disturbances of bile secretion. Hepatoprotectors.
   9. Laxative drugs. Drugs used in diarrhea.
   10. Emetic and antiemetic drugs.
       1. Antiarrhytmic drugs.
       2. Drugs for treatment of congestive heart failure (CHF).

13. Antianginal drugs.

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1. Drugs for treatment of disturbances of cerebral and peripherical circulation.
2. Drugs for treatment of migraine.
3. Hypolipidemic drugs.
4. Diuretic drugs.
5. Drugs influencing on uterus.
   1. Platelet aggregation inhibitors (antiplatelet drugs).
6. Anticoagulants.
7. Thrombolytic (fibrinolytic) drugs,
8. Hemostatic drugs.
9. Drugs for treatment of anemia.
10. Drugs, which stimulate leukopoesis and thrombopoesis.
11. Hypothalamic hormones, their synthetic analogs and antagonists.
12. Hormones of anterior lobe of pituitary gland, their synthetic analogs and antagonists.
13. Hormones of posterior lobe of pituitary gland and pineal gland.
14. Thyroid hormones and antithyroid drugs.
15. Calcitonin, parathyroid hormone and synthetic drugs influencing calcium balance.
16. Preparations of pancreatic gland hormones.
17. Synthetic antidiabetic (hypoglycemic) drugs.
18. Estrogen hormones, their synthetic analogs.
19. Natural and synthetic progestins.
20. Oral contraceptive drugs.
21. Antagonists of estrogens and progestins, selective estrogen receptor modulators.
22. Androgens, their synthetic analogs and antagonists.
23. Natural and synthetic glucocorticoids and mineralocorticoids.

38.Antagonists of glucocorticoids and mineralocorticoids.

1. Histamine antagonists.
2. Serotonin agonists and antagonists.
3. Preparations of prostanoids.
4. Eicosanoid antagonists.
5. Drugs which stimulate generation of nitric oxide or potentiate its effects
   1. The drugs used in immediate-type allergic reactions.
   2. Immunodepressants (immune suppressive drugs).

46. Drugs used in immune deficiency.

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