

CONCLUDING LESSON DRUGS ACTING ON THE NERVOUS SYSTEM

The task for the written work in concluding lesson will include 3 parts.

1. To indicate the main representatives of the next pharmacologic groups with classification

(2 – 3 groups from the listed below):

- 1) local anesthetics;
- 2) astringent, adsorbing and counterirritating drugs;
- 3) M-cholinergic agonists and directly acting M, N-cholinergic agonists;
- 4) indirectly acting M, N-cholinergic agonists (cholinesterase inhibitors);
- 5) M-cholinergic antagonists;
- 6) ganglionic-blocking drugs;
- 7) neuromuscular-blocking drugs;
- 8) alpha, beta-adrenergic agonists;
- 9) alpha-adrenergic agonists;
- 10) beta-adrenergic agonists, dopamine agonists;
- 11) alpha-antagonists and alpha, beta-antagonists;
- 12) general anesthetics (inhalational and intravenous);
- 13) hypnotic drugs;
- 19) drugs for the treatment of alcoholism;
- 20) opioid analgesics and their antagonists;
- 21) non-opioid analgesics;
- 22) antiepileptic drugs;
- 23) antiparkinsonic drugs;
- 24) drugs for the treatment of spasticity (skeletal muscle relaxants);
- 25) antipsychotic drugs (neuroleptics);
- 26) anxiolytic drugs;
- 27) antidepressants;
- 28) normothymic (mood-stabilizing, antimanic drugs);
- 29) psychostimulants (psychomotor stimulants);
- 30) nootropic drugs (psychometabolic drugs) and drugs for treatment of Alzheimer disease.

2. To prescribe, to indicate possible application and to explain mechanism of therapeutical effect (why does it help in this disease) for the next drugs (5 drugs from listed below):

- 1) solution of Procaine in vials for infiltrative anesthesia;
- 2) solution of Tetracaine as eye drops;
- 3) Pilocarpine as eye ointment;
- 4) Betanechol in tablets;
- 5) solution of Carbachole as eye drops;
- 6) Pyridostigmine in tablets;
- 7) solution of Edrofonium in ampoules;
- 8) Donepezil in tablets;
- 9) solution of Atropine in ampoules;
- 10) solution of Tropicamide as eye drops;
- 11) Oxybutynin in tablets;
- 12) Ipratropium as an aerosole;
- 13) solution of Epinephrine in ampoules;
- 14) solution of Phenylephrine as eye drops;
- 15) solution of Xylomethazoline as nasal drops;
- 16) solution of Dobutamine in ampoules;
- 17) Salbutamol as aerosol;
- 18) solution of Dopamine in ampoules;

- 19) Tamsulosin in tablets;
- 20) Propranolol in tablets;
- 21) Bisoprolol in tablets;
- 22) Nebivolol in tablets;
- 23) solution of Timolol as eye drops;
- 24) Carvedilol in tablets;
- 25) Chlordiazepoxide in tablets;
- 26) Triazolam in tablets;
- 27) Zolpidem in tablets;
- 28) Disulfiram in tablets;
- 29) solution of Morphine in ampoules;
- 30) Methadone in tablets;
- 31) Buprenorphine in tablets
- 32) Tramadol in tablets;
- 33) solution of Naloxone in ampoules;
- 34) Naltrexone in tablets;
- 35) Ketorolac in tablets;
- 36) Phenytoin in tablets;
- 37) Carbamazepine in tablets;
- 38) Ethosuximide in tablets;
- 39) Valproic acid in capsules;
- 40) Lamotrigine in tablets;
- 41) tablets containing Levodopa and Carbidopa;
- 42) Trihexyphenidyl in tablets;
- 43) Baclofen in tablets;
- 44) solution of Chlorpromazine in ampoules;
- 45) Galoperidol in tablets;
- 46) solution of Fluphenazine decanoate in ampoules;
- 47) Clozapine in tablets;
- 48) Risperidone in tablets;
- 49) Diazepam in tablets;
- 50) Alprazolam in tablets;
- 51) Buspirone in tablets;
- 52) Amitriptyline in tablets;
- 53) Fluoxetine in tablets;
- 54) Sertraline in tablets;
- 55) Trazodone in tablets;
- 56) Mirtazapine in tablets;
- 57) Venlafaxine in tablets;
- 58) Bupropion in tablets;
- 59) Lithium carbonate in tablets;
- 60) Memantine in tablets.

3. To prepare the next questions (3 questions from the listed below):

1. Local anesthetics: definition, mechanism of action, classification (by chemical structure and by duration of action). Factors influencing on the effect of the local anesthetics. Resorbive action of the local anesthetics.

2. Ways of application of the local anesthesia (kinds of anesthesia). Distinctive features of the most known local anesthetics.

3. Biosynthesis and metabolism of acetylcholine. Classification and localization of cholinergic receptors.
4. M-cholinergic agonists (M-cholinomimetics): main representatives, effects, clinical application.
5. M, N-cholinergic agonists: direct and indirect agonists (cholinesterase inhibitors), effects and clinical application.
6. Poisoning by cholinergic agonists: symptoms and treatment.
7. M-cholinergic antagonists (M-cholinoblokery): the main representatives, pharmacologic effects, application, adverse effects and contraindication. Distinctive features of specific agents.
8. Poisoning by cholinergic antagonists: symptoms and treatment.
9. Classification of N-cholinergic antagonists. Ganglionic-blocking drugs: the main representatives, effects, application, adverse effects.
10. Neuromuscular-blocking drugs: classification by mechanism of the action, differences between groups, application. Overdosing of neuromuscular-blocking drugs and its treatment.
11. Biosynthesis of norepinephrine and its elimination from the synapse. Subtypes of adrenergic receptors (adrenoceptors): localization, effects.
12. Classification of adrenergic agonists by mechanism of action and by chemical structure, differences between groups.
13. Comparison of epinephrine and norepinephrine by effects and application. Effects and application of dopamine depending on dose.
13. α -Adrenergic agonists: the main representatives, effects and application.
14. β -Adrenergic agonists: classification, comparison of their effects and application. Dopamine – effects and application.
15. Alfa-adrenergic antagonists: classification, effects, differences between groups, application.
16. Beta-adrenergic antagonists: classification, therapeutic and adverse effects, differences between groups.
17. Application of beta-adrenergic antagonists, mechanisms of their beneficial effects in cardiovascular diseases.
18. General anesthesia: definition, main features. Comparison of main inhalation anesthetics. The significance of MAC and blood – gas partition coefficient.
19. Comparison of main non-inhalation (intravenous) anesthetics. Preanesthetic medications.
20. Hypnotic drugs: definition and classification. Mechanisms of action and pharmacological effects of benzodiazepine and non-benzodiazepine hypnotics. Comparison of duration of action of hypnotic drugs.
21. The rules and precautions during administration of hypnotic drugs. Adverse effects of hypnotic drugs, their significance in different groups.
22. Acute poisoning by ethanol and its management. Pharmacotherapy of alcoholism, mechanisms of action of the most important drugs.
23. Opioid (narcotic) analgesics: mechanism of action, classification. The main pharmacologic effects of morphine and other strong agonists of opioid receptors, distinctive features of other groups. Adverse effects of opioid analgesics and their significance in different groups of drugs.
24. Opioid dependence: symptoms, treatment. Acute poisoning by opioids analgesics: main features and treatment. Antagonists of opioid receptors and their use.
25. Non-opioid analgesics (analgesics –antipyretics), their mechanism of action, effects, application, adverse effects.
26. Epilepsy - the main clinical forms, pharmacologic management (with names of drugs used for the most important pharmacological forms). Status epilepticus and its treatment.
27. Mechanisms of action of drugs for treatment of epilepsy (with examples of drugs). Adverse effects of antepileptic drugs (on the example of 5 representatives).

28. Parkinsonism: role of different neurotransmitters in pathogenesis, approaches to its management. Classification of drugs for treatment of parkinsonism, mechanisms of their of action. Distinctive features of action of combined drugs (levodopa/carbidopa).

29. Antipsychotic drugs: definition, classification, mechanisms of action of typical and atypical antipsychotic drugs, their influence on neurotransmitters and receptors. Difference between typical and atypical antipsychotic drugs by therapeutic and adverse effects.

30. Adverse effects of antipsychotic drugs. Extrapyramidal disorders: types, symptoms, treatments.

31. Anxiolytic drugs: definition, classification, mechanisms of action. Therapeutic and adverse effects, application.

32. Antidepressants: classification (with the most important representatives), mechanisms of action of different groups of antidepressants.

33. Comparison of different groups of antidepressants (by adverse effects and therapeutic index). Overdosing of tricyclic antidepressants: symptoms, treatment.

34. Mood-stabilizing (drugs for treatment of bipolar disorders, anti-manic) drugs: definition, main representatives. Lithium carbonate: mechanism of the action, therapeutic and adverse effects. Role of other drugs in bipolar disorders.

35. Psychostimulants (psychomotor stimulants): definition, main representatives, their mechanisms of action, effects, possible application. Abuse of amphetamine and other stimulants.

36. Nootropic drugs (psychometabolic stimulators): definition, main representatives, mechanisms of action, effects, possible application. Drugs for treatment of Alzheimer disease, mechanisms of action.