**Learning unit: Local anaesthetics**

**Impact of the learning unit**

Local anaesthetics are essential substances in the treatment of pain as they block transmission of pain signals. The knowledge of the individual substances, their pharmacodynamics and pharmacokinetic properties, typical adverse effects, indications and contraindications, is considered to be the basic knowledge of each student of medicine.

**Important terms**

techniques of local anaesthesia

 topical (surface) anaesthesia

 EMLA

 infiltration anesthesia

 conduction anaesthesia

 peripheral nerve block

 regional anaesthesia

 central conduction anaesthesia

 subarachnoideal (spinal) anaesthesia

 epidural anaesthesia

local anaesthetics (LA)

 mechanism of action

 pharmacokinetics

 factors influencing LA effects

 pH

 nerve fibre properties (thickness, myelinization)

 adverse effects of LA

 CNS, cardiovascular, anaphylaxis, methemoglobinemia

 ester local anaesthetics

 co**caine**

 pro**caine**

 tetra**caine**

 benzo**caine**

 oxybupro**caine**

 amide local anaesthetics

 trime**caine**

 lido**caine**

 bupiva**caine**

 ropiva**caine**

 prilo**caine**

 arti**caine**

 mepiva**caine**

 cincho**caine**

vasoconstrictory agents used in LA

**Learning outcomes**

Student knows basic pharmacological profile (mode of action, unwanted effects, indications and contraindications) of local anesthetics.

Student knows different techniques of local anaesthesia and their characteristics.

Student summarizes basic differences between amide and ester local anaesthetic agents.

Student gives examples of vasoconstrictor agents used in combination with local anaesthetics.

**Study materials**

Rang & Dale's Pharmacology, 8th edition, 2016, chapter 43, pp. 530-533 ( Local anaesthetics and other drugs affecting sodium channels)

Study materials for courses aVLFA0721p and aVLFA0721c.

**Exam questions**

*Special pharmacology*: 17. Local anesthetics

*Essential drugs*: 49. procaine/lidocaine, 51. prilocaine