**Learning unit: Anticonvulsants**

**Impact of the learning unit:**

Antiepileptic drugs, also known as anticonvulsant are a heterogeneous group of drugs in terms of both chemical and pharmacological profile. Their common indication is the therapy of epilepsy, which is a very common disorder. Patients with epilepsy usually need to take antiepileptics continuously for many years and for this reason avoidance of side effect is important. Even so, some drugs have serious side effects and also have a high interaction potential. In addition to epilepsy therapy, some antiepileptics have other indications such as bipolar affective disorder, migraine prophylaxis, anxiety disorder, and neuropathic pain treatment.

**Relevant terms:**

antiepileptic drugs

- antiepileptic drugs reducing presynaptic excitability and release of neurotransmitters
  - inhibition of sodium channel function
    - phenytoin
    - carbamazepine
    - lamotrigine
  - inhibition of calcium channel function
    - gabapentin
    - pregabalin
    - ethosuximide
  - modulation of the synaptic vesicular SV2A protein
    - levetiracetam
- antiepileptic drugs enhancing GABA action
  - activation of $Cl^-$ channel
    - clonazepam
    - diazepam
    - phenobarbital
  - inhibition of GABA reuptake

tiagabine

inhibition of GABA transaminase

vigabatrin

antiepileptic drugs reducing postsynaptic excitability

antiepileptic drugs with multiple mechanisms of action

valproate

topiramate

teratogenicity of antiepileptic drugs

**Learning outcomes**

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

Student knows the interaction potential of anticonvulsants.

Student knows the specifics of pharmacotherapy of antiepileptics in pregnant women.

**Study literature**

Rang & Dale's Pharmacology, 8th edition, 2016 – chapter 46 str. 546-558.

Study materials in IS aVLFA0822c and aVLFA08222p.

**Exam questions**

Special pharmacology: Anticonvulsants

„Essential“ drugs: gabapentin/pregabalin, carbamazepine, valproic acid