

## Title of the learning unit: Antihypertensives

### Impact of the learning unit:

Gaining knowledge about the pharmacotherapy of hypertension, about the division of antihypertensive drugs into drugs of first line therapy and second line therapy, about combination therapy and their advantages, preferred combinations and about the treatment of hypertension in specific situations. Students will know the advantages and disadvantages of the use of drugs from every drug group of antihypertensives.

### Important terms

first-line drugs for hypertension

angiotensin converting enzyme inhibitors

- see learning unit 21.2: Drugs targeting the RAAS system

angiotensin II (AT1) receptor antagonists

- see learning unit 21.2: Drugs targeting the RAAS system

calcium channel blockers, dihydropyridines

- see learning unit 20.4. Vasodilators

diuretics (thiazide, loop, potassium-sparing) and aldosterone receptor antagonists.

- see learning unit 21.3: Drugs affecting diuresis

beta blockers

cardioselective - see learning unit 09: Sympathotropic agents

with combined effect

selective  $\alpha_1$  receptor blockade

labetalol

carvedilol

affecting NO synthase

nebivolol

second-line antihypertensives

centrally acting antihypertensive agents

centrally acting  $\alpha_2$  agonists - see learning unit 09: Sympathotropic agents

methyldopa

clonidine

imidazoline I1 receptor agonists

moxonidine

rilménidine

combined agonists of  $\alpha_2$  central and  $\alpha_1$  peripheral receptors

urapidil

peripheral  $\alpha_1$  receptor blockers ( $\alpha_1$ -lytics) - see learning unit 09: Sympathotropic agents

terazosin

doxazosin

nitrates and NO donors

see learning unit 20.4: Vasodilators

renin inhibitors

see learning unit 21.2. Drugs targeting the RAAS system

combinations of antihypertensives, benefits

preferred dual combinations

preferred triple combination

hypertension in pregnancy (pre-existing and gestational hypertension)

methyldopa

metoprolol

labetalol

resistant hypertension

combination therapy with a diuretic

adding spironolactone

combination with second-line antihypertensives (rilménidine, urapidil)

hypertensive crisis

furosemide

urapidil

nitrates

labetalol

clonidine

### **Learning outcomes**

Student knows the basic pharmacological profile (mechanism of action, side effects, indications and contraindications) of antihypertensives.

Student gives examples of antihypertensives suitable for pregnant women, diabetics or patients with metabolic syndrome.

Student explains benefits and disadvantages of the combination therapy with antihypertensives.

Student knows agents for the treatment of hypertensive crisis.

### **Study literature**

Rang & Dale's Pharmacology E - Book, Humphrey Rang, 8th edition, 2016, chapter 22, p. 265

Study materials to subjects aVLFA0822c and aVLFA0822p.

### **Exam questions**

Special pharmacology: Antihypertensives – drugs targeting RAAS; Antihypertensives – diuretics and aldosterone antagonists; Antihypertensives beta blockers + central antihypertensives; Antihypertensives - calcium channel blockers,  $\alpha_1$  lytics

Essential drugs: isosorbide-dinitrate/nitroglycerin; hydrochlorothiazide/indapamide; furosemide; spironolactone; amlodipin; perindopril; telmisartan