



SMART PHARMACOLOGY

LESSON 2 SPRING

Task 1

Give a definition of the concept of “angina pectoris”. What are the main causes, symptoms and complications of angina pectoris?

Task 2

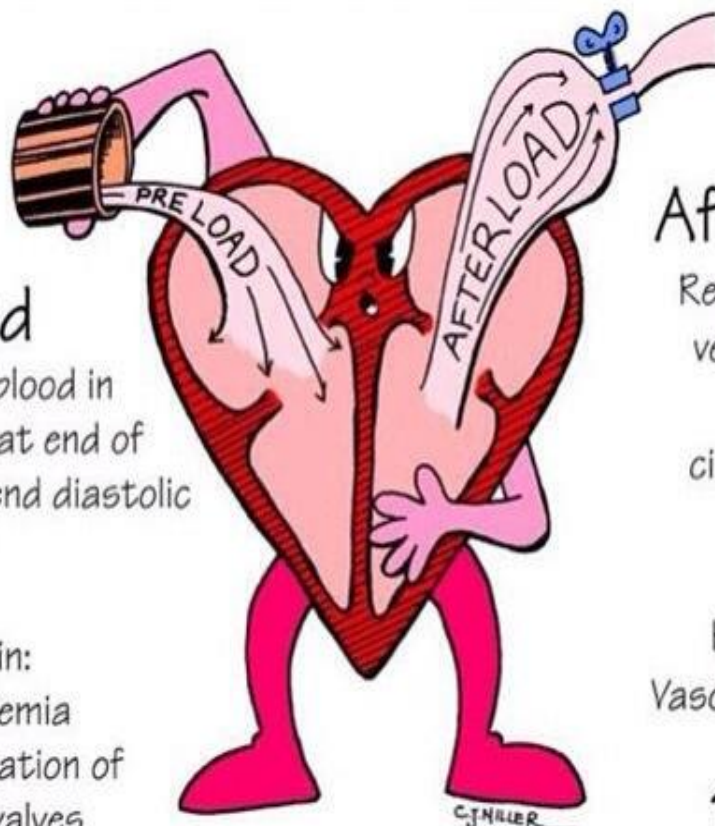
PRELOAD AND AFTERLOAD

Preload

Volume of blood in ventricles at end of diastole (end diastolic pressure)

Increased in:

- Hypervolemia
- Regurgitation of cardiac valves
- Heart Failure



Afterload

Resistance left ventricle must overcome to circulate blood

Increased in:

- Hypertension
- Vasoconstriction

↑ Afterload =

↑ Cardiac workload

Please describe the following picture. What is the meaning of it in case of angina pectoris treatment?

Task 3

Explain the PD effects of the anti-anginal medicines.
Give the classification and fill in the table.

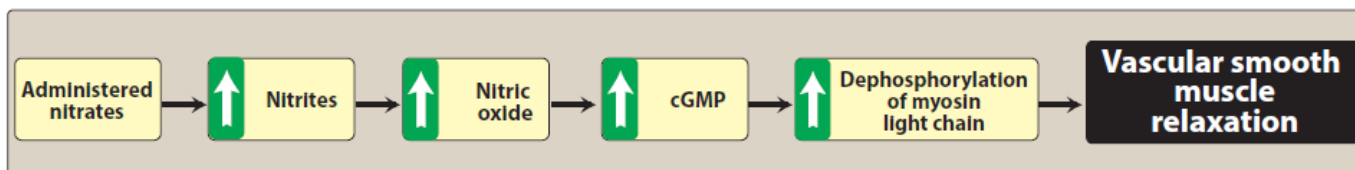
Types of anti-anginal drugs

Pharmacological effect	Name of drugs
<i>Medicines decreasing oxygen consumption by myocardium and increasing oxygen delivery to the myocardium</i>	
<i>Medicines decreasing oxygen consumption by myocardium</i>	
	Dipyridamol
<i>Medicines improving the metabolism in myocardium</i>	

glycerol trinitrate,
amiodaron
metoprolol,
bisoprolol,
propranolol
trimethasidine Inosine
isosorbide dinitrate,
atenolol,
nifedipine,

Task 4

Describe the mechanism of action of nitrates? Name the pharmacological effects



Pharmacological effects of nitrates	
1.	
2.	
3.	
4.	
5.	
6.	

Task 5

Describe the pharmacokinetic profile of nitrates.

<i>Name of the drug</i>	<i>Drug formulation</i>	<i>Onset of action</i>	<i>Duration of action</i>
Nitroglycerin			
Isosorbide dinitrate			
Isosorbide mono-nitrate			

Task 6

Discuss the possible side effects of nitrates. Name the contraindications of nitrates?

Possible side effect	description
1.	
2.	
3.	
4.	
5.	
6.	
Contraindications	

Task 7

Discuss the possible side effects of Ca channel blockers. Name the contraindications and mechanism of action?



Action: Blocks calcium access to cells

causing: ↓ Contractility +
 ↓ Conductivity of the heart

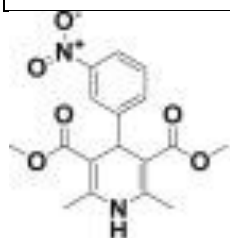
↓ Demand for oxygen

Side Effects: ↓BP
 Bradycardia
 May precipitate AV block
 Headache
 Abdominal discomfort
 (constipation, nausea)
 Peripheral edema

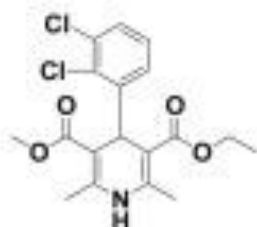
Task 8

Discuss advantages and disadvantages of Ca channel blockers of different generations. Find the common structure on the picture below. Complete the Table/

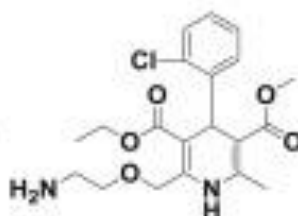
I generation	II generation	III generation
Phenylalkylamine derivatives–	Phenylalkilamine derivatives –	
Dihydropyridine derivatives	Dihydroperidine derivatives–	
Benzotiazepine derivatives -	Benzotiazepine derivatives –	
	II generation–a large duration, higher tissue specificity, fewer unwanted effects.	



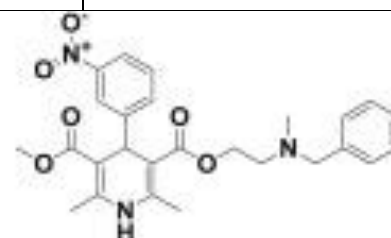
Nifedipine 19.2.1



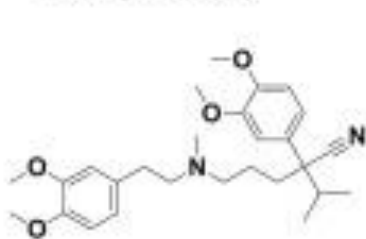
Felodipine 19.2.2



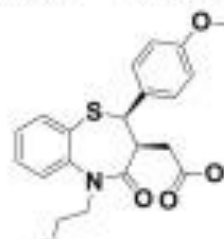
Amlodipine 19.2.3



Nicardipine 19.2.4



Verapamil 19.2.5



Diltiazem 19.2.6

Task 9

Which group of drugs with anti-anginal activity has not been mentioned yet? Describe its pharmacological properties.