

Anti-Anginal

Angina Pectoris

- Angina pectoris, commonly referred to simply as angina, is a clinical syndrome characterized by ischemic chest pain resulting from an imbalance between the myocardial oxygen demand and supply.
- It serves as a symptom of myocardial ischemia, indicating reduced blood flow to the heart muscle.

Pathophysiology

- **Ischemia:** A condition where there is a reduced blood flow to any organ or tissue, leading to a shortage of oxygen (O_2).
- **Myocardial Oxygen Imbalance:** When the heart muscle (**myocardium**) does not receive sufficient oxygen and blood supply, angina pectoris occurs.

Symptoms

A. Primary Symptoms:

- Severe chest pain, typically on the left side.
- Pain may radiate to the neck, back, jaw, and limbs.

B. Associated Symptoms:

- Indigestion
- Nausea
- Vomiting
- Diaphoresis (excessive sweating)

Causes:

- Most commonly caused by coronary artery disease.
- Atherosclerosis (plaque buildup) narrows arteries and restricts blood flow.

Types of Angina:



1. Stable Angina (Classical Angina):

- **Most common type** of angina.

- **Triggers:** Predictable, often induced by physical exertion, stress, or increased workload.
- **Cause:** Atherosclerosis leading to reduced coronary artery perfusion.

2. Variant Angina (Prinzmetal's or Vasospastic Angina):

- **Uncommon and unpredictable** type.
- Occurs at **rest** and is caused by coronary vasospasm, reducing blood supply and oxygen delivery.
- **Treatment** focuses on relieving vasospasms.

3. Unstable Angina:

- **Occurs at rest** with attacks increasing in intensity and duration.
- Primarily caused by **atherosclerosis** due to plaque buildup, which narrows the arteries and restricts blood flow.

Treatment of Angina:

- **Lifestyle changes:** Increased physical activity, weight loss, quitting smoking, and reducing fatty acid intake.
- **Surgery:** Coronary artery bypass surgery.
- **Medications:** Anti-anginal drugs such as calcium channel blockers, vasodilators, and beta-blockers.

Anti-Anginal Drugs

- Anti-anginal drugs are medications used to alleviate and prevent angina pectoris (chest pain) resulting from myocardial ischemia.
- They work by either increasing the oxygen supply to the heart muscle or decreasing its oxygen demand.
- Effective management of angina often involves a combination of these medications tailored to the patient's specific needs.

Classification of Anti-Anginal Drugs:



Classification of Anti-Anginal Drugs

— Vasodilators (Nitrates)

— Calcium Channel Blockers

1. Vasodilators (Nitrates):

- **Mechanism:** These drugs relax blood vessels, increasing oxygen supply to the myocardium and reducing the workload on the heart.
- **Examples:**
 - *Amyl Nitrite*

- Nitroglycerin (common for acute angina relief)
- Pentaerythritol tetranitrate
- Isosorbide dinitrate
- Dipyridamole

2. Calcium Channel Blockers:

- **Mechanism:** These drugs prevent calcium from entering heart and blood vessel cells, leading to muscle relaxation, dilation of arteries, and improved blood flow.
- **Examples:**
 - Verapamil
 - Bepridil hydrochloride
 - Diltiazem hydrochloride
 - Nifedipine
 - Amlodipine
 - Felodipine
 - Nicardipine
 - Nimodipine

Summary Table

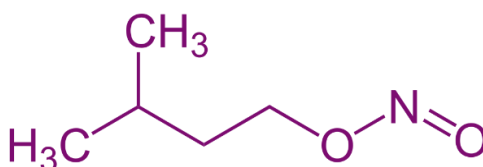
Category	Medications
Vasodilators	Amyl Nitrite, Nitroglycerin, Pentaerythritol Tetranitrate, Isosorbide Dinitrate, Dipyridamole
Calcium Channel Blockers	Verapamil, Bepridil Hydrochloride, Diltiazem Hydrochloride, Nifedipine, Amlodipine, Felodipine, Nicardipine, Nimodipine

Various Vasodilators Drugs

1. Amyl Nitrite

Structure

- Amyl nitrite is an organic compound belonging to the class of alkyl nitrites.
- It consists of a nitrite group attached to an amyl (pentyl) chain.
- **Chemical Formula:** $C_5H_{11}NO_2$





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