SECTION 1  INTRODUCTION

- 1. Angina pectoris
- 2. The types of angina
  - (1) Stable angina
  - (2) Unstable angina
  - (3) Variant angina
- 3. The pathologic physiological mechanism of angina: an imbalance between the myocardial oxygen supply and demand
## Major Determinants of Myocardial Oxygen Consumption:

- Myocardial basic metabolism
- Heart rate
- Contractility
- Wall tension
- Ejection time
- Blood pressure (peripheral resistance)

{ventricular volume, ventricular pressure}
4. THE MECHANISM OF ANTIANGINAL DRUGS

- (1) Decrease myocardial oxygen consumption
- (2) Increase myocardial blood and oxygen supply
- (3) Antiplatelet, antithrombosis
SECTION 2  ORGANIC NITRATES

1. Drugs:
   - Nitroglycerin
   - Isosorbide dinitrate
   - Isosorbide mononitrate
2. PHARMACOLOGICAL MECHANISM

Organic nitrates

NO

guanylyl cyclase

cGMP

cGMP dependent protein kinase

intracellular Ca\(^{2+}\)

vascular smooth muscle relaxation
3. PHARMACOLOGICAL ACTION

- (1) decrease myocardial oxygen consumption
dilate venous decrease blood returning to heart
decrease ventricular end-diastolic volume and pressure
(large dose) dilate arterial decrease peripheral	nessistance decrease afterload

- (2) increase blood supply to ischemia area

- (3) redistribution of coronary blood flow

- (4) Inhibite of platelet aggregation, increase the
  release of PGI$_2$ and CGRP
first pass elimination is large, bioavailability is very low. sublingual route is a preferred.
5. CLINICAL USES

- (1) all types of angina
- (2) acute myocardia infarction
- (3) CHF
  - isosorbide dinitrate used in prophylaxis attack and CHF after myocardia infarction
5. ADVERSE EFFECTS AND TOLERANCE

tachycardia, flushing, throbbing headache, orthostatic hypotension, methemoglobinemia
1. The mechanism of antiangina

(1) decrease myocardial oxygen consumption block β-adrenoceptor inhibit myocardial contractility and heart rate

(2) improve blood and oxygen supply to ischemia area

(3) lower heart rate, prolong diastolic perfusion time, increase endocardium flow

(4) promote oxygen to dissociate from HbO₂
2. Clinical uses
   - stable and unstable angina
   - myocardia infarction

3. Contraindication
   - variant angina,
   - bronchial asthma,
   - bradycardia,

4. The combined use with nitroglycerin
SECTION 4  CALCIUM ANTAGONISTS

+ 1. mechanism of antiangina
  ✗ (1) dilate coronary arterial
  ✗ (2) reduction in peripheral vascular resistance
  ✗ (3) negative chronotropic and inotropic, decrease myocardial oxygen consumption
  ✗ (4) protect cardiac myocytes
  ✗ (5) antiatherosclerosis
2. clinical used
Variant angina, Stable angina, Unstable angina

3. compare with β-adrenoceptor blocking drugs
SECTION 4  OTHER ANTIAGINA DRUGS

- carvedilol
- nicorandil
- molsidomine
- sodium tanshinon Ⅱ–A silate