02 Treatment

Cardio Vascular System

Life style modification

Na restriction

K & Mg supplementation

Stop smoking and avoid stress

Exercise and weight reduction of obese patient

Control risk factors : DM, Hyperlipidemia

Avoid drugs that ↑ BP :

sympathomimetics, sodium containing drugs, oral contraceptive

Drug therapy

Blood Pressure =

Cardiac output × Periphral resistance

So you can decrease blood pressure by

1) ↓↓ **PVR**

Vasodilators [arterial or venous]

2) ↓↓ **Heart rate & contractility**

Leading to ↓ cardiac output

3) ↓↓ **Plasma volume**

Leading to ↓ cardiac output

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Indication

Patient with hypertension associated with :

- Angina pectoris
- Thyrotoxicosis
- Increased sympathetic overactivity

Contraindication

Patient with :

- Severe bradycardia
- Cardiogenic shock
- Asthma
- Severe hepatic impairment
- Decompensated heart failure

Hydralazine

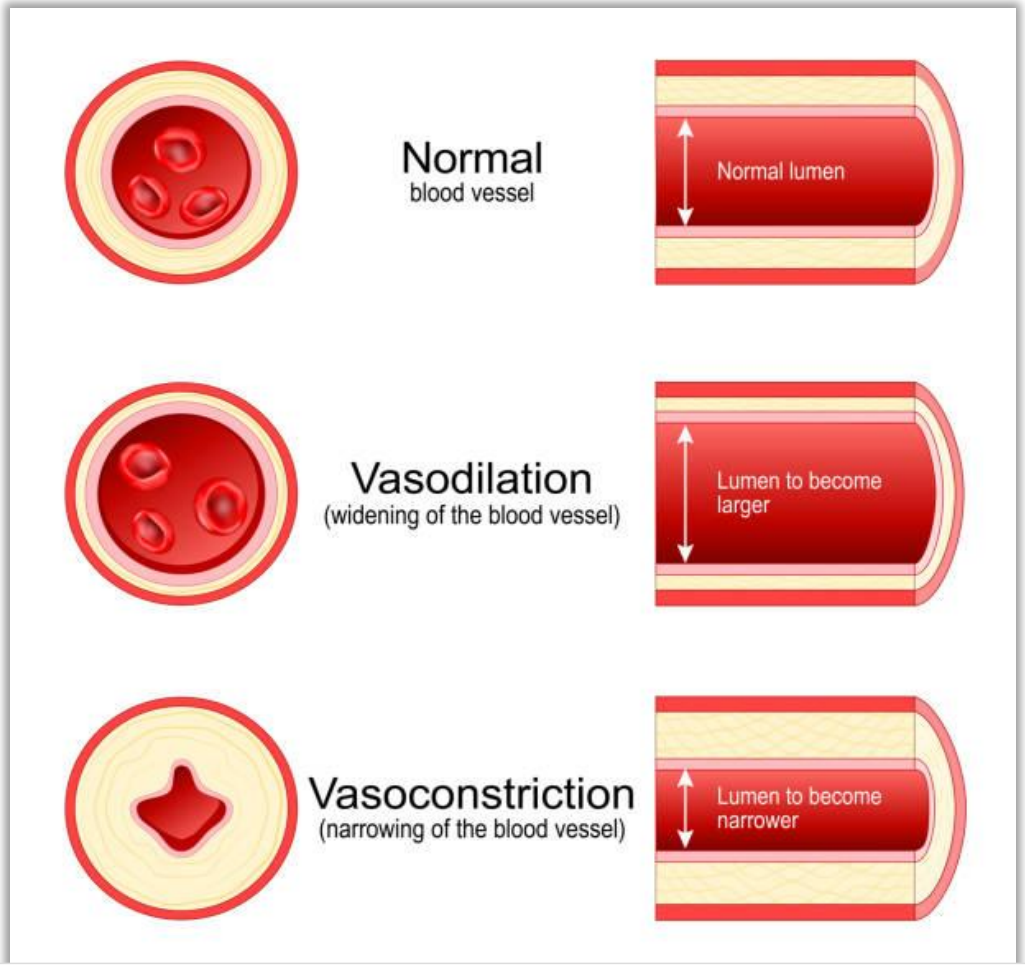
- ❖ Used in severe hypertension & hypertension in pregnancy
- ❖ Usually combined with diuretics & β blocker

Minoxidil

- ❑ Direct arteriodilator by opening K channel
- ❑ Stimulate hair growth

Fenoldopam

- ➢ Stimulate peripheral dopamine receptors in the renal & mesenteric arteries leading to VD
- ➢ Used IV as a rapid acting vasodilator to treat emergency



Treatment

Cardio Vascular System

Treatment is aimed at maintaining the balance between O2 supply & O2 demand

↑ O2 supply

1) Restore the coronary blood flow by
   a) Percutaneous intervention including stenting
   b) Coronary artery bypass graft
2. Relieve vasospasm by drugs : CCB, Nitrates
3) Break the thrombi using thrombolytic agents : streptokinase, urokinase
4) Prevent thrombus formation by antiplatelet drugs

↓ O2 demand

1) By reducing work load on the heart :
   a) Decrease preload by : nitrates
   b) Decrease afterload by : CCB, K channel opener
   c) Decrease heart rate and contractility : β-adrenergic blocker

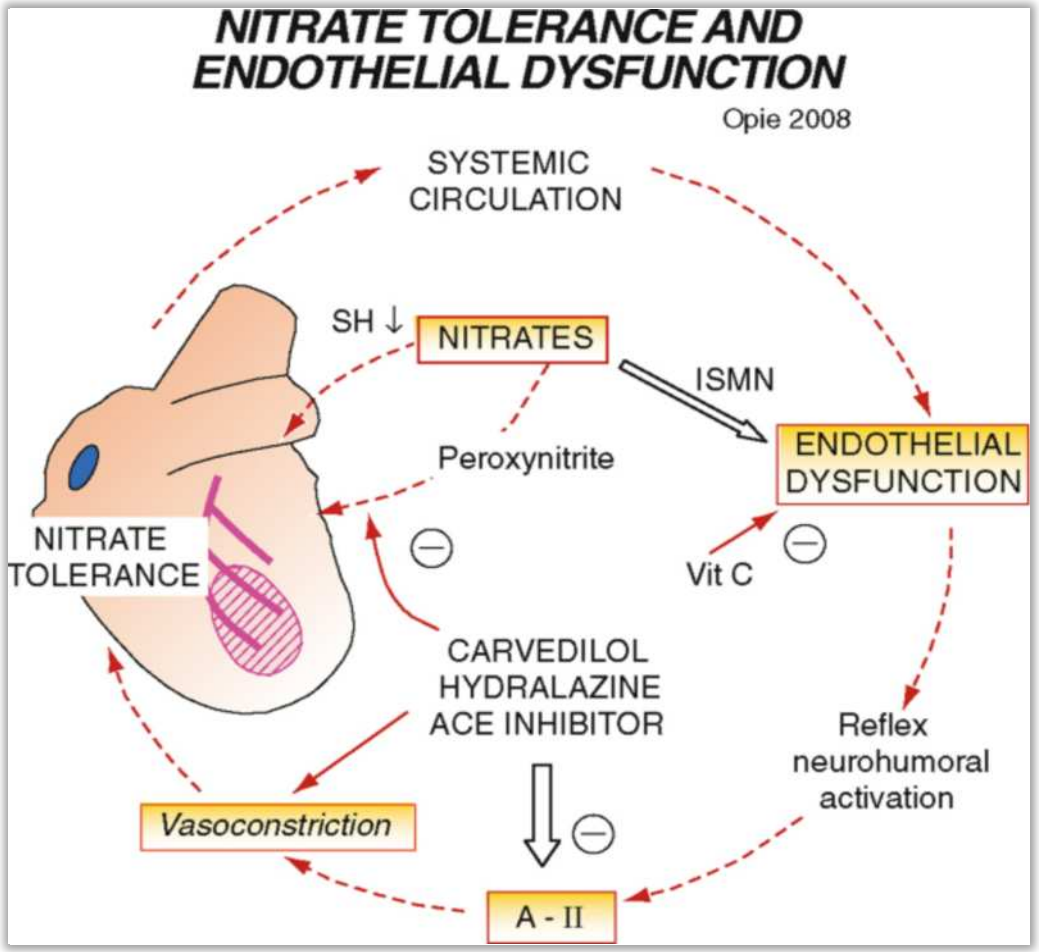
Precautions

- Start with the **smallest dose**
- Patient should consult his doctor when more than **3 tablets** sublingually taken over 15 min without improvement for fear of MI
- It should not be put in **sunlight** or with cotton

※ **NB :** Nitrates **should not** be used with **Sildenafil**

Side effect

1) Throbbing headache
2) Flushing in the face
3) Postural hypotension, dizziness
4) Tachycardia and palpitation



5) Tolerance :

Causes

Inactivation of mitochondrial enzyme

Management

Nitrate free period

Knowledge check

Cardio Vascular System

Which of the following correctly ranks the calcium channel blockers from most active on the myocardium to most peripherally active?

1) Diltiazem, amlodipine, verapamil
2) Verapamil, diltiazem, nifedipine
3) Nifedipine, verapamil, diltiazem
4) Amlodipine, diltiazem, verapamil

A 50-year-old woman is diagnosed as having Prinzmetal's angina. Which one of the following medications is contraindicated?

1) Amlodipine
2) Verapamil
3) Diltiazem
4) Propranolol

A 50 year old woman is diagnosed as having Prinzmetal's angina Which one of the following medications should you advise her to take?

1) Atenolol
2) Amlodipine
3) Propranolol
4) Bisoprolol

One of the following drugs is effective in treatment of ischemic episodes in patients with variant angina:

1) Sodium nitroprusside
2) Hydralazine
3) Diltiazem
4) Propranolol