④ Calcium channel blockers –

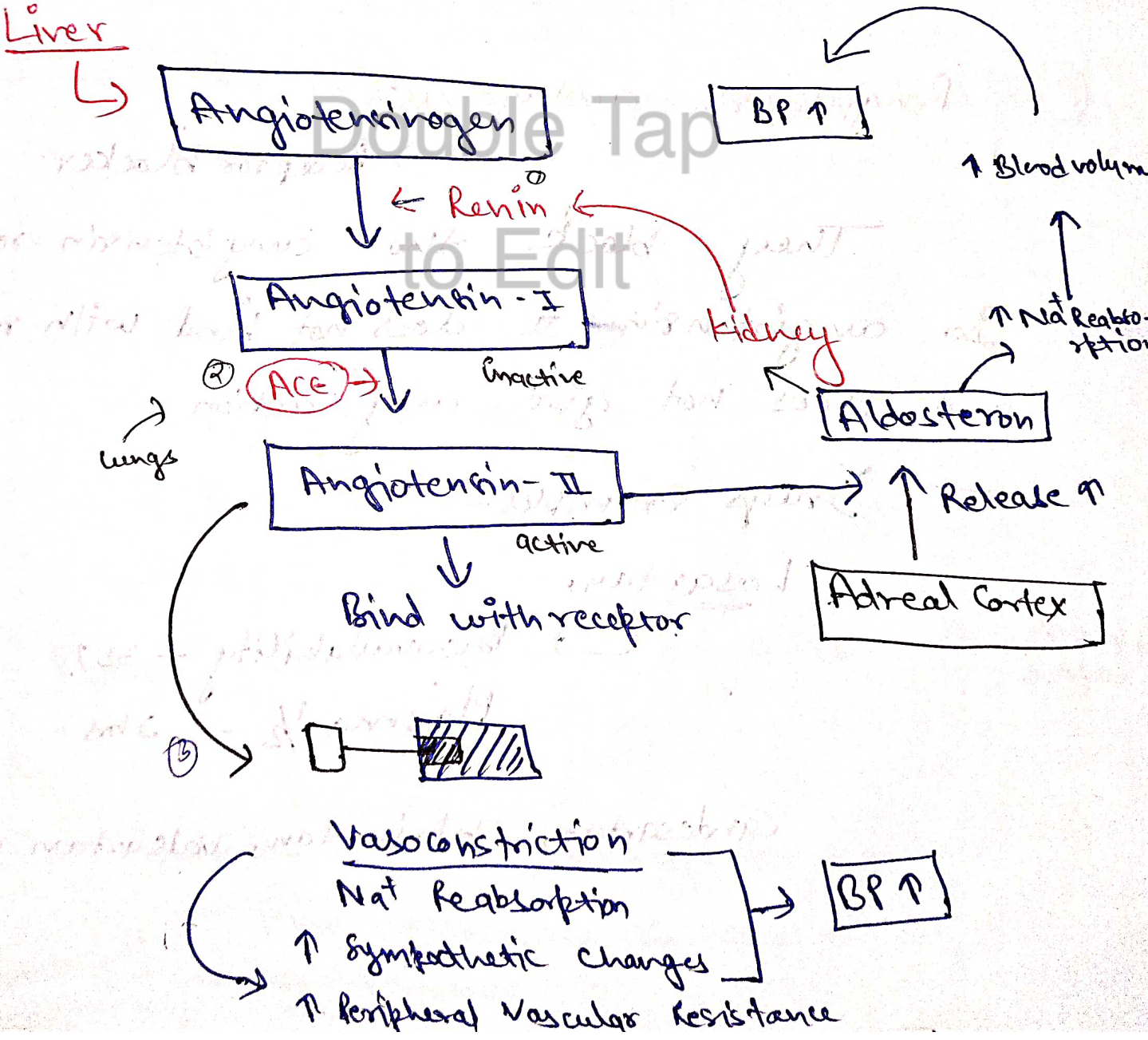
- Amlodipine, Verapamil, Nifedipin
- Diltiazem etc.

⑤ Vasodilators –

– Sodium nitroprusside, Diazoxide, Minoxidil, Hydrazaline etc.

① RAAS –

↳ Renin Angiotensin Aldosterone system



Double Tap to Edit

① ACE inhibitors

↳ inhibit this ACE

↳ Angiotensin converting enzyme

⇒ Inhibit Conversion of Angiotensin-I to Angiotensin-II

— Decrease BP

— ↓ Breakdown of Bradykinin → Vasodilation

② Angiotensin antagonists -

↳ Receptor blocker.

They block the angiotensin receptor. So angiotensin-II does not blind with receptor and does not give any action.

— Drugs Examples -

Losartan,

↳ Bioavailability - 33%

Plasma t½ - 2hrs

Candesartan, Telmisartan, Valsartan etc

(3) Direct Renin inhibitors -

Blocks the catalytic activity of Renin which further inhibit the production of Ang I and Ang II.

eg-

Aliskiren — Treatment of cardiovascular and renal disease.

↓

Low bioavailability,

Plasma $t_{1/2}$ > 24 hrs.

Side effect -

Mainly dyspepsia, abdominal Pain.

(2) Diuretics -

Diuretics decrease

- Na^+ - H_2O retention ↓
- Blood volume ↓
- BP ↓

— Reduce plasma volume ↓ by 5-15 % → ↓ Cardiac output.

eg-

Thiazides → mild antihypertensive.

- More effectives in the elderly
- No tolerance

Eg:- Hydrochlorothiazide, Chlorthalidone etc.

Adverse Effect

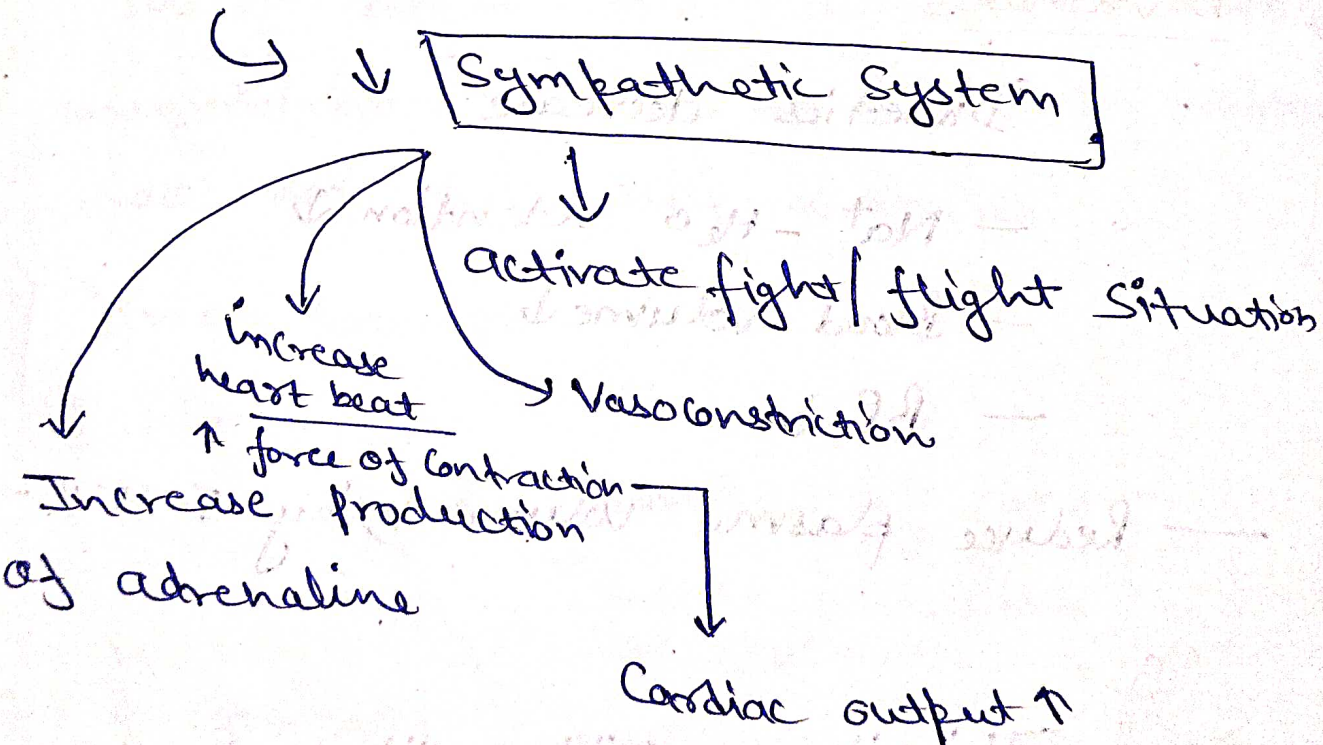
- Hypokalemia.
- Hyperuremia etc

High Ceiling diuretics-

weaker antihypertensive

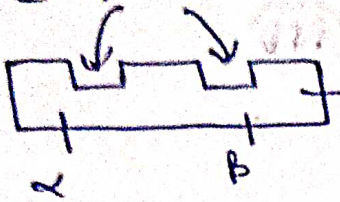
Eg Furosemide

(3) Beta blockers -



Epinephrine / Nor-Epinephrin

(CAD/NAd)



receptors → activate sympathetic N. system ↑

β Blockers → Blocks beta receptors

↳ Also ↓ release of renin

↓ Sympathetic activity

↓

Cardiac output ↓ → BP ↓

Vasodilation

⇒ They are mild antihypertensives

⇒ Now a days used as a first line

⇒ Response → develops over 1-3 weeks.

• Non-selective β-blockers - not used in asthametic Patients due to its broncho dilations effects.

drugs - Propranolol, metoprolol, Atenolol etc.

α- blockers –

→ Dilate vessels
→ Reduction in TPR ↓ ⟩ BP ↓

eg → Prazosine, Terazosin, Doxazosin etc

orally : peak fall in bp – after 4-5 hrs

Plasma t½ → 3 hrs, effects last for 12 hrs

Adrs –

low doses – No side effects.

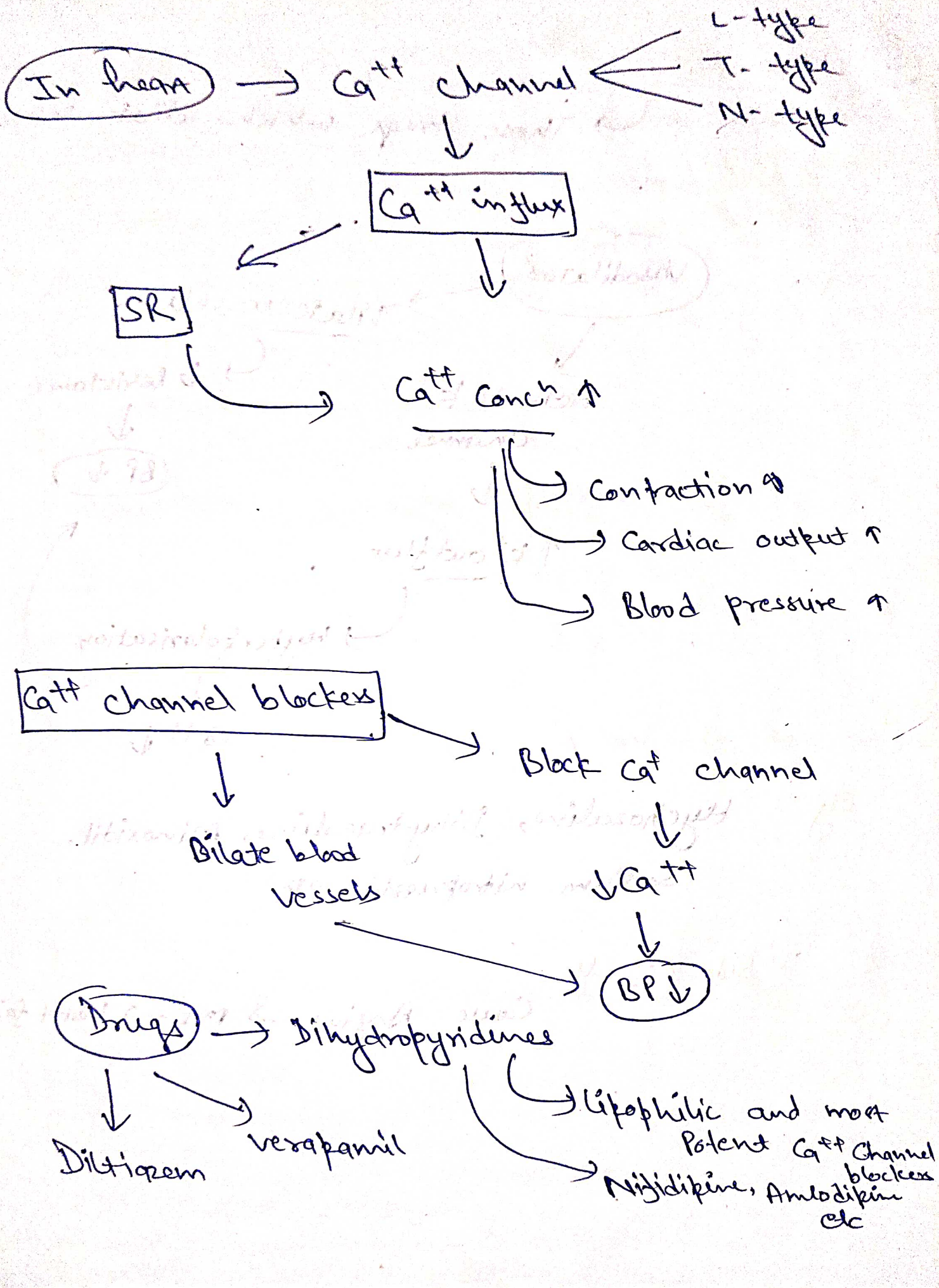
Others – Headache, dry mouth, weakness etc.

Central Sympatholytics –

– Clonidine etc → ↓ sympathetics

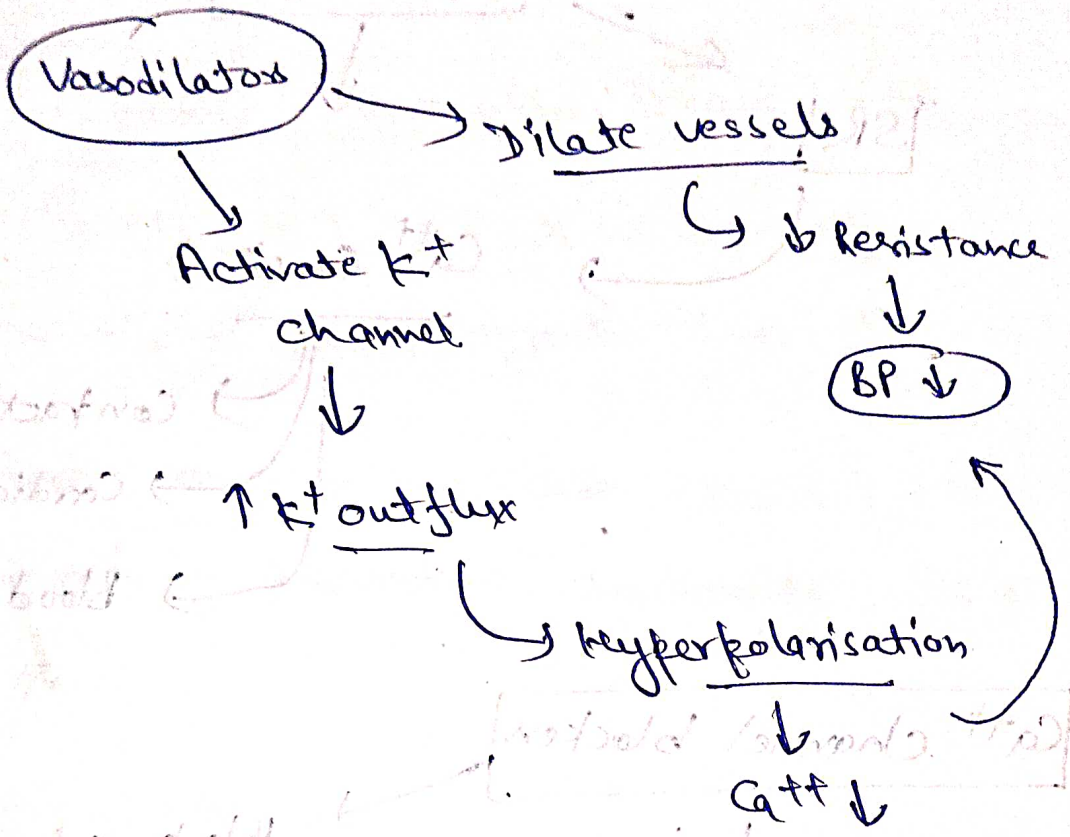
(4) Calcium Channel blockers –

In electrophysiology of heart, we studied that Ca^{++} is responsible for Contraction


In heart
Ca++ channel
L-type
T-type
N-type
Ca++ influx
SR
Ca++ Conc^n ↑
Contraction ↑
Cardiac output ↑
Blood pressure ↑
Ca++ channel blockers
Block Ca+ channel
Dilate blood vessels
↓Ca++
BP ↓
Drugs
Dihydropyridines
Diltiazem
Verapamil
Lipophilic and most Potent Ca++ Channel blockers
Nifidipine, Amlodipine etc

(5) Vasodilators -

↳ Those drugs which dilate vessels



Eg - Hydrazaline, Dihydrazaline, Minoxidil, Sodium nitroprusside etc

Side effects -

Cause Angina & MI → Heart failure