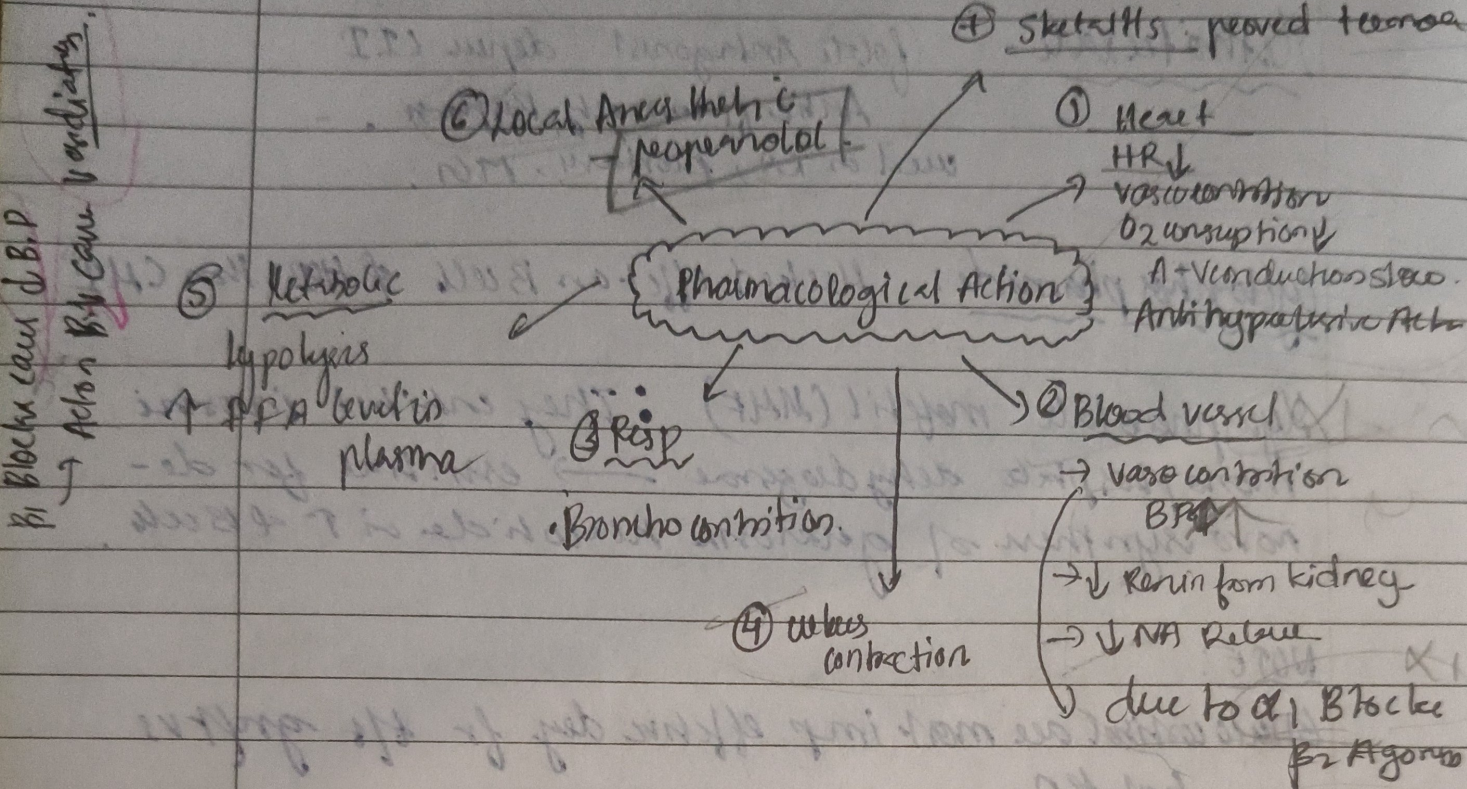


β -BLOCKERS:

These drugs inhibit Adrenergic Response Mediated through the β Receptor.



- $\rightarrow$ Propranolol is well Absorbed orally
- $\rightarrow$ low BA due to high FPM.
- $\rightarrow$ It penetrates the Brain
- $\rightarrow$ Metabolism is dependent on Hepatic Blood Flow.
- $\rightarrow$ BA is $\uparrow$ when taken with food.
- $\rightarrow$ Some Metabolites are excreted whereas some 90% of it is bonded to Plasma Protein. $\rightarrow$ as glucuronides
- $\rightarrow$ Esmolol is shortest Acting - iv
- $\rightarrow$ Nadolol is longest Acting

ARE - β Blockers.

- 1) CVS - Bradycardia & Heart Block, CF
- 2) Bronchospasm $\rightarrow$ worsening bronchial Asthma

- ③ cold hand & feet - worsening of PVP.
- ④ Impaired carbohydrate tolerance
- ⑤ Alteration of lipid profile
- ⑥ Night mares
- ⑦ Rebound hypertension on withdrawal.
- ⑧ Erectile dysfunction
- ⑨ ↓ exercise capacity & tiredness.

A → Asthma

B → Bradycardia

C → CF

C → cold hands

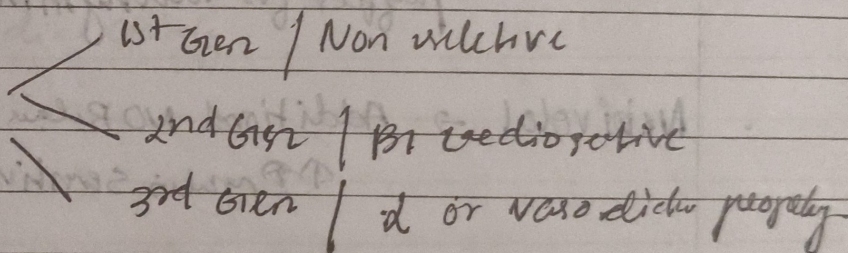
D → Diabetes

D → Dyslipidemia

E → Erectile dys

E → Exercise

Classification



1st Gen → Propranolol

2nd Gen → Metoprolol, Atenolol

3rd Gen → Labetolol, carvedilol.

1st Gen: STOP

S - Sotalol



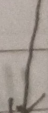
- Receptor Blockage
- Antiarrhythmic Action

T - Timolol

- 1st line of drug in glaucoma

Oxprenolol

Propranolol / Propranolol



- Perfect Antihypertensive for patient with bradycardia

2nd Gen: BHIMA

Betaxolol

Esmolol

Metoprolol

Atenolol

Acetazolol

Nebivolol

Bisoprolol

- Atenolol $\rightarrow$ selective Blocker more potent
- Metoprolol - Metabolized by CYP2D6.
- Esmolol - Ultra short Acting
Rapid onset
perfect for arrhythmias, surgery hypertension
emergency
- Nebivolol $\rightarrow$ Additional NO Release
 $\uparrow$ Parasympathetic

3rd Gen

Non selective ($\alpha + \beta$)

Labetalol

Carvedilol

β_1 selective

Nebivolol

Betaxolol

Uses:

Non Cardiovascular

- $\rightarrow$ Migraine $\rightarrow$ Propranolol
- $\rightarrow$ Glaucoma $\rightarrow$ $\downarrow$ IAH S. Dmg: Betaxolol, Timolol
- $\rightarrow$ Anxiety
- $\rightarrow$ Essential tremor } Propranolol

• Thyrotoxicosis

- Control sympathetic symptoms
- Inhibit conv. of T_4 to T_3
- Pre operative use.

• Pheochromocytoma

- used after an α Blocker
- To control tachycardia & Arrhythmia
- suppress cardiomyopathy

Cardiovascular → Hypertension → MI
 C-F Aneurysm → Angina, Arrhythmia

1) Hypertension

- $\downarrow$ HR, CO, Myocardial contractility.

$\downarrow$ Renin

- Mostly given O.D

Pregnancy induced hypertension } Labetalol.
 Hypertensive emergencies

2) Angina

$\downarrow$ HR & contractility

$\downarrow$

$\downarrow$ MO demand

$\downarrow$

Antianginal Action.

③ MI

- Reduce Infarct size
- prevent Arrhythmia.

④ Dissecting aortic aneurysm

↓ cardiac contractility & Aortic pulsation

⑤ Arrhythmias

↓ AV conduction

↓

Inhibit impulse from A to V

OVERDOSE

→ Hypotension

→ Bradycardia

→ Widened QRS complex

→ Signs & symptoms

→ Seizures

Dyspnoea

Hypoglycaemia

~~HT~~

Uses

- Hypertension

- Angina pectoris

- Atrial fibrillation

Uses:

→ propranolol & some other β block Reduce risk of Angiogram (DPI)

→ carvedilol Adrenally provoked tumor

→ Inhibit lipolysis ↑ Plasma FFA.

LDL & HDL

→ improve carbohydrate tolerance by $\downarrow$ insulin Release.

→ Local Anesthetics.

Propranolol

→ It delays Recovery from hypoglycaemia

due to insulin & oral Antidiabetic

increasing signs of hypoglycaemia

→ It Retards Lidocaine Metabolism by

Reducing hepatic blood flow.

→ It worsen COPD & con. symptoms

Asthma - its contraindicated.

Bradycardia effective

→ Contraindicated in complete heart block pen