



# RRB PHARMACIST

2024

MODEL PAPER - 29

TIME:-

9 P.M

## 40 QUESTIONS

WITH DETAILED EXPLANATION

SUBJECT -

## PHARMACOLOGY

VIDEO DEKHNE KE LIYE BANNER PAR CLICK KARE

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# 1. Dopamine is

- (a)  $\alpha$  and  $\beta$ -agonist
- (b)  $\beta$ -blocker
- (c)  $\alpha$ -agonist
- (d) Potassium channel activator

# 1. Dopamine is

(a)  $\alpha$  and  $\beta$ -agonist

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(c)  $\alpha$ -agonist

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## Dopamine

It acts on dopamine,  $\beta$  and  $\alpha$  receptors depending on the concentration.

At a dose of  $1-2\mu\text{g}/\text{kg}/\text{min}$ ., it stimulates only dopamine receptors leading to renal vasodilation.

Intravenous infusion at the rate of  $2-10\mu\text{g}/\text{kg}/\text{min}$ . stimulates heart by the agonistic action at  $\beta_1$  receptors.

At still higher dose ( $>10\mu\text{g}/\text{kg}/\text{min}$ ) there is intense vasoconstriction via stimulation of  $\alpha$  receptors.

## **2. Prazosin an antihypertensive agent is a**

- (a)  $\alpha$ -blocker**
- (b)  $\alpha$  and  $\beta$ -antagonist**
- (c) Calcium channel blocker**
- (d)  $\beta$ -agonist**

## 2. Prazosin an antihypertensive agent is a

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- (b)  $\alpha$  and  $\beta$ -antagonist
- (c) Calcium channel blocker
- (d)  $\beta$ -agonist



# DIFFERENCE BETWEEN $\alpha_1$ & $\alpha_2$ ADRENERGIC RECEPTORS



CHARACTERISTIC	$\alpha_1$	$\alpha_2$
<b>Selective agonist</b>	Phenylephrine, Methoxamine	Clonidine
<b>Selective antagonist</b>	Prazocin	Yohimbine, Rauwolscine
<b>Coupling protein</b>	Gq	Gi /Go
<b>Effective pathway</b>	IP3/DAG → increases, Phospholipase A2 increase → prostaglandin release	cAMP (Cyclic AMP) → decrease, K <sup>+</sup> channel → decrease or increase IP3/DAG → increase

### **3. Drug of choice for cardiogenic shock in the treatment of**

- (a) Diosgenin**
- (b) Epinephrine**
- (c) Dopamine**
- (d) Ouabain**

### **3. Drug of choice for cardiogenic shock in the treatment of**

**(a) Diosgenin**

**(b) Epinephrine**

**(c) Dopamine**

**(d) Ouabain**

# Drug of choice for different shock Treatments

Shock	DOC
• <b>Cardiogenic</b>	Nor-adrenaline or dopamine
• <b>with oligourea</b>	Dopamine
• <b>Anaphylactic</b>	Adrenaline
• <b>Distributive</b>	Nor-adrenaline or phenylephrine
• <b>Septic</b>	Broad spectrum antimicrobials
• <b>Shock due to adrenal insufficiency</b>	Corticosteroids
• <b>Hypovolumic</b>	Fluids (crystalloids)
• <b>Secondary</b>	Prazosin ( $\alpha$ -blockers)

**4. All of the following are side effects seen in adrenoceptor blockers EXCEPT**

- (a) Reduced tear production**
- (b) Impotence**
- (c) Myopic shift**
- (d) Decreased corneal sensation**

**4. All of the following are side effects seen in adrenoceptor blockers EXCEPT**

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## **SIDE EFFECTS OF ADRENOCEPTOR BLOCKERS**

- **Reduced tear production**
- **Impotence**
- **Decreased corneal sensation**

**5. Indicate the sympathomimetics agent, which is combined with a local anesthetic to prolong the duration of infiltration nerve block**

- (a) Epinephrine**
- (b) Xylometazoline**
- (c) Isoproterenol**
- (d) Dobutamine**



**5. Indicate the sympathomimetics agent, which is combined with a local anesthetic to prolong the duration of infiltration nerve block**

**(a) Epinephrine**

**(b) Xylometazoline**

**(c) Isoproterenol**

**(d) Dobutamine**

## Infiltration Anaesthesia

LA is infiltrated s.c. in the area of operation site for blocking the sensory nerve endings.

It is used in minor surgeries like incisions, excisions, suturing, hydrocele etc.

Adrenaline can be added to the LA to prolong its duration of action and to prevent systemic side effects.

## **6. Which drug is a selective beta-agonist**

- (a) Digoxin**
- (b) Dobutamine**
- (c) Amrinone**
- (d) Dopamine**

## 6. Which drug is a selective beta-agonist

(a) Digoxin

**(b) Dobutamine**

(c) Amrinone

(d) Dopamine

## DIFFERENCE BETWEEN $\beta_1$ , $\beta_2$ & $\beta_3$ ADRENERGIC RECEPTORS

CHARACTERISTIC	$\beta_1$	$\beta_2$	$\beta_3$
<b>Location</b>	Heart, JG cells in kidney	Bronchi, Blood vessel, Uterus, Liver, GIT Urinary tract, Eye	Adipose tissue
<b>Selective agonist</b>	Dobutamine	Salbutamol	BRL
<b>Selective antagonist</b>	Metroprolol, Atenolol	$\alpha$ - methyl prpranolol	CGP 20712A (also $\beta_1$ )
<b>Reletive potency of NA and adrenalie</b>	NA $\leq$ adrenlaine	NA $\ll$ Adrenaline	Noradrealine $>$ Adrenaline

## **7. Epinephrine is NOT used in**

- (a) Bronchospasm**
- (b) Hypertension**
- (c) Hypersensitivity reaction**
- (d) Increased intra ocular pressure**

## **7. Epinephrine is NOT used in**

**(a) Bronchospasm**

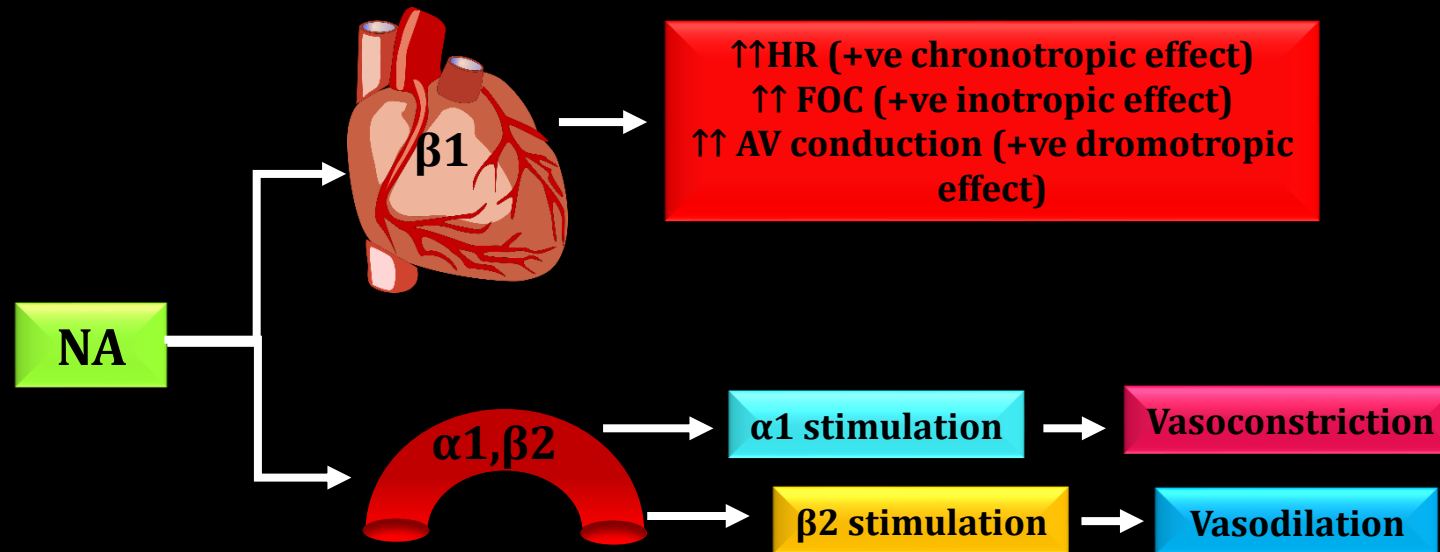
**(b) Hypertension**

**(c) Hypersensitivity reaction**

**(d) Increased intra ocular pressure**

# PHARMACOLOGICAL ACTIONS

## Cardiovascular system





**8. Which among the following is stored in light resistant container**

- (a) Albendazole**
- (b) AllopurinolAlprazol**
- (c) Adrenaline**
- (d) Alprazolam**

**8. Which among the following is stored in light resistant container**

**(a) Albendazole**

**(b) AllopurinolAlprazol**

**(c) Adrenaline**

**(d) Alprazolam**

## Epinephrine

- Parenterally administered epinephrine initially may produce constriction of renal blood vessels and decrease urine formation.
- Epinephrine Injection, USP is subject to oxidation and should be protected against exposure to light and stored in light-resistant containers.

**9. Which of the following drug reduces blood pressure primarily by directly decreasing heart rate alone**

- (a) Alpha methyl dopa**
- (b) Nitroprusside sodium**
- (c) Propranolol**
- (d) Prazosin**

**9. Which of the following drug reduces blood pressure primarily by directly decreasing heart rate alone**

- (a) Alpha methyl dopa**
- (b) Nitroprusside sodium**
- (c) Propranolol**
- (d) Prazosin**

## Propranolol

- Propranolol decreases heart rate, force of contraction (at relatively higher doses) and cardiac output (c.o.).
- It prolongs systole by retarding conduction so that synergy of contraction of ventricular fibres is disturbed.
- The effects on a normal resting subject are mild, but become prominent under sympathetic overactivity (exercise, emotion).

**10. Beta blocker that decreases both systolic and diastolic blood pressure is**

- (a) Nebivolol**
- (b) Sotalol**
- (c) Atenolol**
- (d) Propranolol**

**10. Beta blocker that decreases both systolic and diastolic blood pressure is**

**(a) Nebivolol**

**(b) Sotalol**

**(c) Atenolol**

**(d) Propranolol**



## Nebivolol

- This highly selective  $\beta_1$  blocker also acts as a NO donor, produces vasodilatation and has the potential to improve endothelial function, which may delay atherosclerosis.
- Absence of deleterious effect on plasma lipids and on carbohydrate metabolism is another advantage.
- In contrast to older  $\beta$  blockers, hypotensive response to nebivolol has a rapid onset because it decreases both systolic and diastolic BP. It has been used in hypertension and CHF.



# PREPARING FOR PHARMACIST EXAM

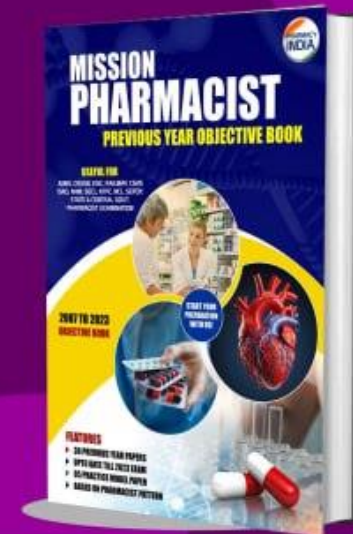
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**11. Which of the following statement is INCORRECT about Atenolol**

- (a) It is selective beta blocker**
- (b) It has no membrane stabilizing effects**
- (c) It has short duration of action**
- (d) Central side effects are rare**

# 11. Which of the following statement is **INCORRECT** about Atenolol

- (a) It is selective beta blocker
- (b) It has no membrane stabilizing effects
- (c) It has short duration of action**
- (d) Central side effects are rare

## Atenolol

- A relatively selective  $\beta_1$  blocker having low lipid solubility. It is incompletely absorbed orally, but first pass metabolism is not significant.
- Because of longer duration of action, once daily dose is often sufficient.
- Excreted unchanged by renal excretion.
- Side effects related to CNS action are less likely. No deleterious effects on lipid profile have been noted.
- Effective dose for most individuals falls in a narrow range. It is one of the most commonly used  $\beta$  blockers for hypertension and angina.

## **12. Naturally occurring sympatholytic is**

- (a) Strychnine**
- (b) Morphine**
- (c) Reserpine**
- (d) Quinine**

## 12. Naturally occurring sympatholytic is

(a) Strychnine

(b) Morphine

(c) Reserpine

(d) Quinine



## Reserpine

- Reserpine, a sympatholytic that causes the depletion of catecholamines and serotonin in tissues throughout the body, is well-absorbed orally.

### **13. Sympathetic blocking drug Guanethidine acts by**

- (a) Depleting catecholamines**
- (b) By interfering with synthesis of adrenergic transmitter**
- (c) By interfering with transmission of impulse across postganglionic adrenergic neuron**
- (d) By blocking adrenergic receptors**

## **13. Sympathetic blocking drug Guanethidine acts by**

**(a) Depleting catecholamines**

**(b) By interfering with synthesis of adrenergic transmitter**

**(c) By interfering with transmission of impulse across postganglionic adrenergic neuron**

**(d) By blocking adrenergic receptors**

## Reserpine, guanethidine, tricyclic antidepressants

- Excitement, rise in BP and body temperature can occur when these drugs are given to a patient on MAO inhibitors. This is due to their initial NA releasing or uptake blocking action.

## **14. Choose the selective blocker of beta-1**

### **Adrenoceptor**

- (a) Labetalol**
- (b) Prazosin**
- (c) Atenolol**
- (d) Propranolol**

## 14. Choose the selective blocker of beta-1

### Adrenoceptor

(a) Labetalol

(b) Prazosin

**(c) Atenolol**

(d) Propranolol

## DIFFERENCE BETWEEN $\beta_1$ , $\beta_2$ & $\beta_3$ ADRENERGIC RECEPTORS

CHARACTERISTIC	$\beta_1$	$\beta_2$	$\beta_3$
<b>Location</b>	Heart, JG cells in kidney	Bronchi, Blood vessel, Uterus, Liver, GIT Urinary tract, Eye	Adipose tissue
<b>Selective agonist</b>	Dobutamine	Salbutamol	BRL
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<b>Reletive potency of NA and adrenalie</b>	NA $\leq$ adrenlaine	NA $\ll$ Adrenaline	Noradrealine $>$ Adrenaline

## **15. Which is NOT a cardioselective Beta-blocker**

- (a) Acebutolol**
- (b) Atenolol**
- (c) Pindolol**
- (d) Metoprolol**



## 15. Which is NOT a cardioselective Beta-blocker

(a) Acebutolol

(b) Atenolol

**(c) Pindolol**

(d) Metoprolol

# Cardio-selective (Selective $\beta_1$ Blockers)

## [Also known as second generation $\beta$ -blockers]

- These agents are preferred in patients with
  - diabetes mellitus,
  - bronchial asthma,
  - peripheral vascular disease or
  - hyperlipidemia

### TRICK

New	→ Nebivolol (Most cardioselective)
Beta	→ Betaxolol
Blockers	→ Bisoprolol
Acting	→ Acebutolol
Exclusively	→ Esmolol
At	→ Atenolol
Myo	→ Metoprolol
Cardium	→ Celiprolol

**16. Alpha-1 blocker without any effect on blood pressure is**

- (a) Tamsulosin**
- (b) Prazosin**
- (c) Doxazosin**
- (d) Terazosin**

**16. Alpha-1 blocker without any effect on blood pressure is**

**(a) Tamsulosin**

**(b) Prazosin**

**(c) Doxazosin**

**(d) Terazosin**

## Tamsulosin

- This relatively uroselective  $\alpha$ 1A/  $\alpha$ 1D blocker ( $\alpha$ 1A :  $\alpha$ 1B affinity 7–38 fold) has been found as effective as terazosin in improving BHP symptoms, because  $\alpha$ 1A subtype predominate in the bladder base and prostate.
- However, it lacks the prostatic apoptosis promoting property of terazosin and doxazosin.
- Tamsulosin does not cause significant changes in BP or HR at doses which relieve urinary symptoms, and it is not used as an antihypertensive.

**17.  $\beta$ -adrenergic blocker that is primarily eliminated unchanged by renal excretion**

- (a) Propranolol**
- (b) Metoprolol**
- (c) Atenolol**
- (d) Esmolol**

**17.  $\beta$ -adrenergic blocker that is primarily eliminated unchanged by renal excretion**

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**(b) Metoprolol**

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**(d) Esmolol**

# Atenolol

- A relatively selective  $\beta_1$  blocker having low lipid solubility. It is incompletely absorbed orally, but first pass metabolism is not significant.
- Because of longer duration of action, once daily dose is often sufficient.
- Excreted unchanged by renal excretion.
- Side effects related to CNS action are less likely. No deleterious effects on lipid profile have been noted.
- Effective dose for most individuals falls in a narrow range. It is one of the most commonly used  $\beta$  blockers for hypertension and angina.



**18. Which of the following is used as a naturally occurring antispasmodic**

- (a) Reserpine**
- (b) Papaverine**
- (c) Quinidine**
- (d) Ephedrine**

**18. Which of the following is used as a naturally occurring antispasmodic**

**(a) Reserpine**

**(b) Papaverine**

**(c) Quinidine**

**(d) Ephedrine**

## Naturally occurring antispasmodics are:

- Papaverine
- Belladonna
- Fennel
- Ginger
- Peppermint etc.

## **19. Example for selective $\alpha$ -2 adrenergic blocker**

- (a) Phentermine**
- (b) Yohimbine**
- (c) Chlorpromazine**
- (d) Prazosin**

## 19. Example for selective $\alpha$ -2 adrenergic blocker

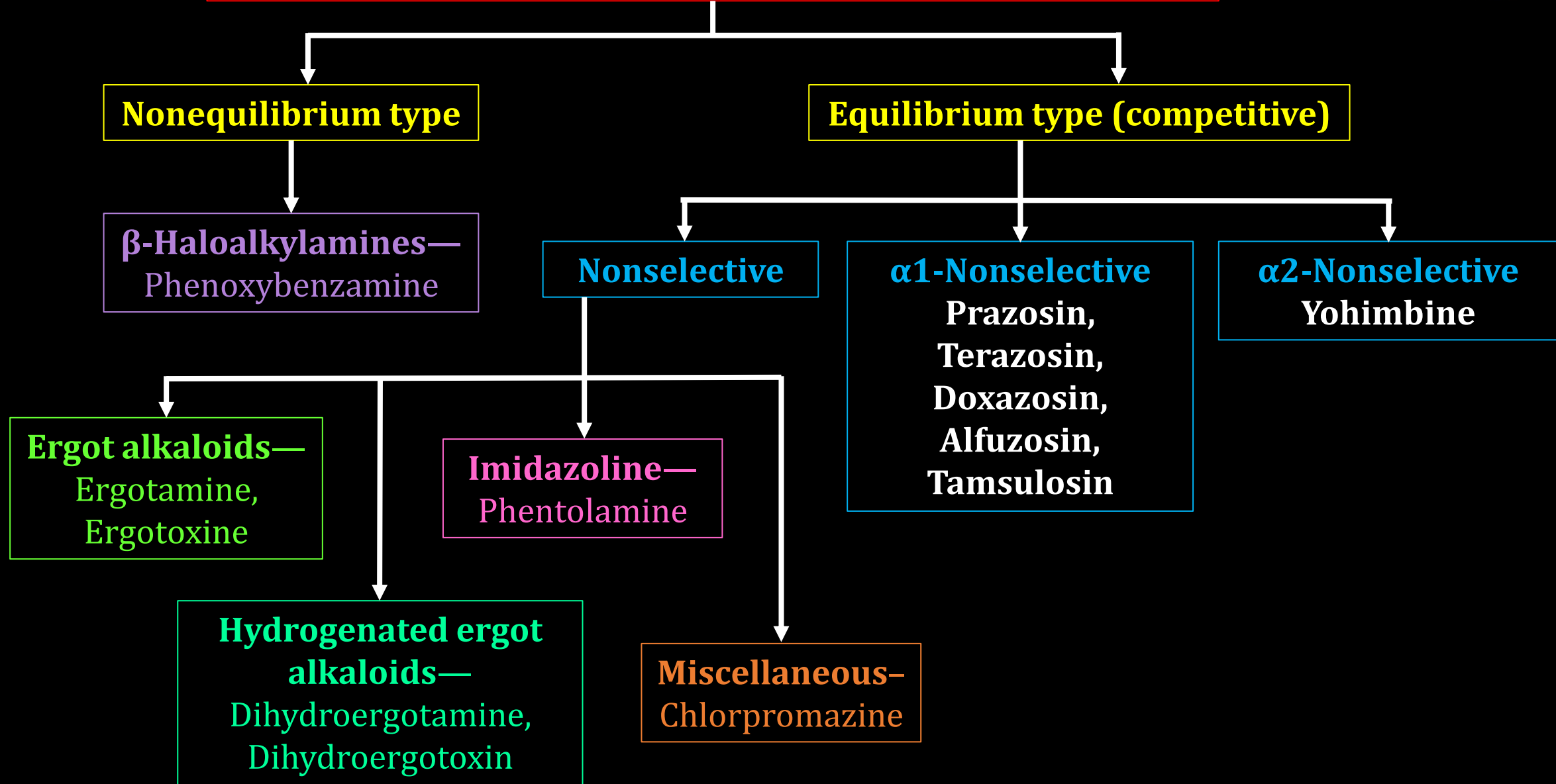
(a) Phentermine

**(b) Yohimbine**

(c) Chlorpromazine

(d) Prazosin

# **α-ADRENERGIC BLOCKING DRUGS**



## **20. Example for cardio-selective beta blocker**

**(a) Atenolol**

**(b) Timolol**

**(c) Sotalol**

**(d) Pindolol**

## 20. Example for cardio-selective beta blocker

**(a) Atenolol**

**(b) Timolol**

**(c) Sotalol**

**(d) Pindolol**



# Cardio-selective (Selective $\beta_1$ Blockers)

[Also known as second generation  $\beta$ -blockers]

- These agents are preferred in patients with
  - diabetes mellitus,
  - bronchial asthma,
  - peripheral vascular disease or
  - hyperlipidemia

## TRICK

New	→ Nebivolol (Most cardioselective)
Beta	→ Betaxolol
Blockers	→ Bisoprolol
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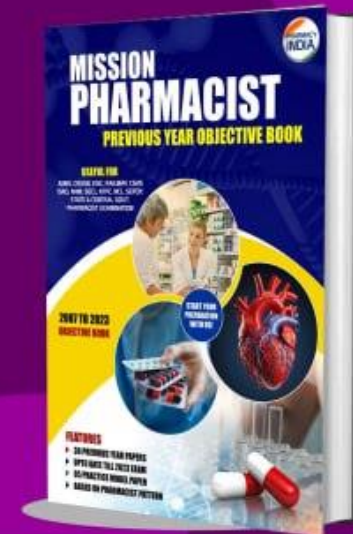
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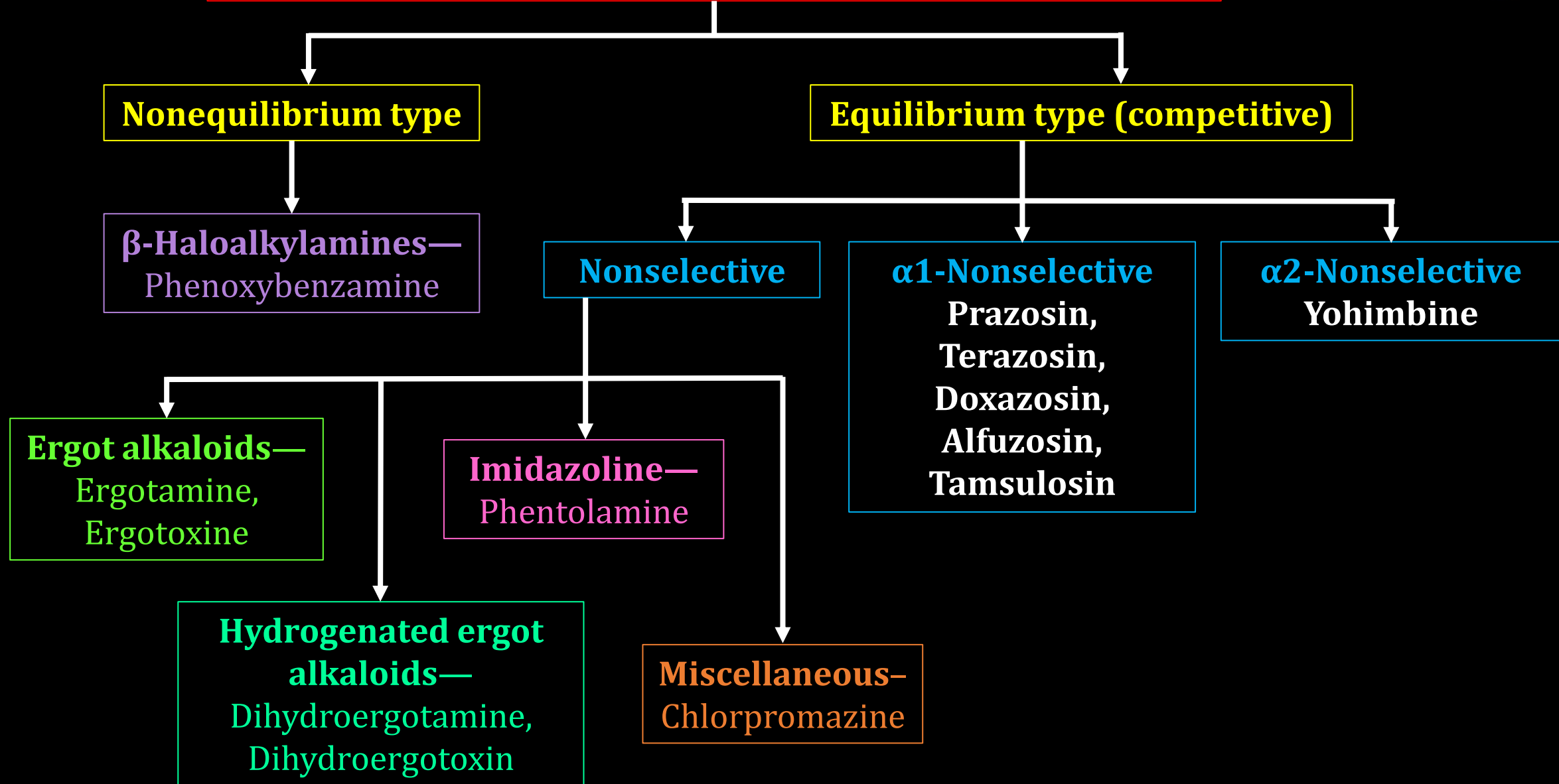
## **21. Phentolamine is a**

- (a) Adrenergic neuron blocker**
- (b) H1 antagonist**
- (c) Alpha-adrenoreceptor antagonist**
- (d) Beta-adrenoreceptor antagonist**

## **21. Phentolamine is a**

- (a) Adrenergic neuron blocker**
- (b) H1 antagonist**
- (c) Alpha-adrenoreceptor antagonist**
- (d) Beta-adrenoreceptor antagonist**

# **α-ADRENERGIC BLOCKING DRUGS**



**22. Which of the following is beta adrenergic blocker**

- (a) Ramipril**
- (b) Valsartan**
- (c) Verapamil**
- (d) Propranolol**

**22. Which of the following is beta adrenergic blocker**

**(a) Ramipril**

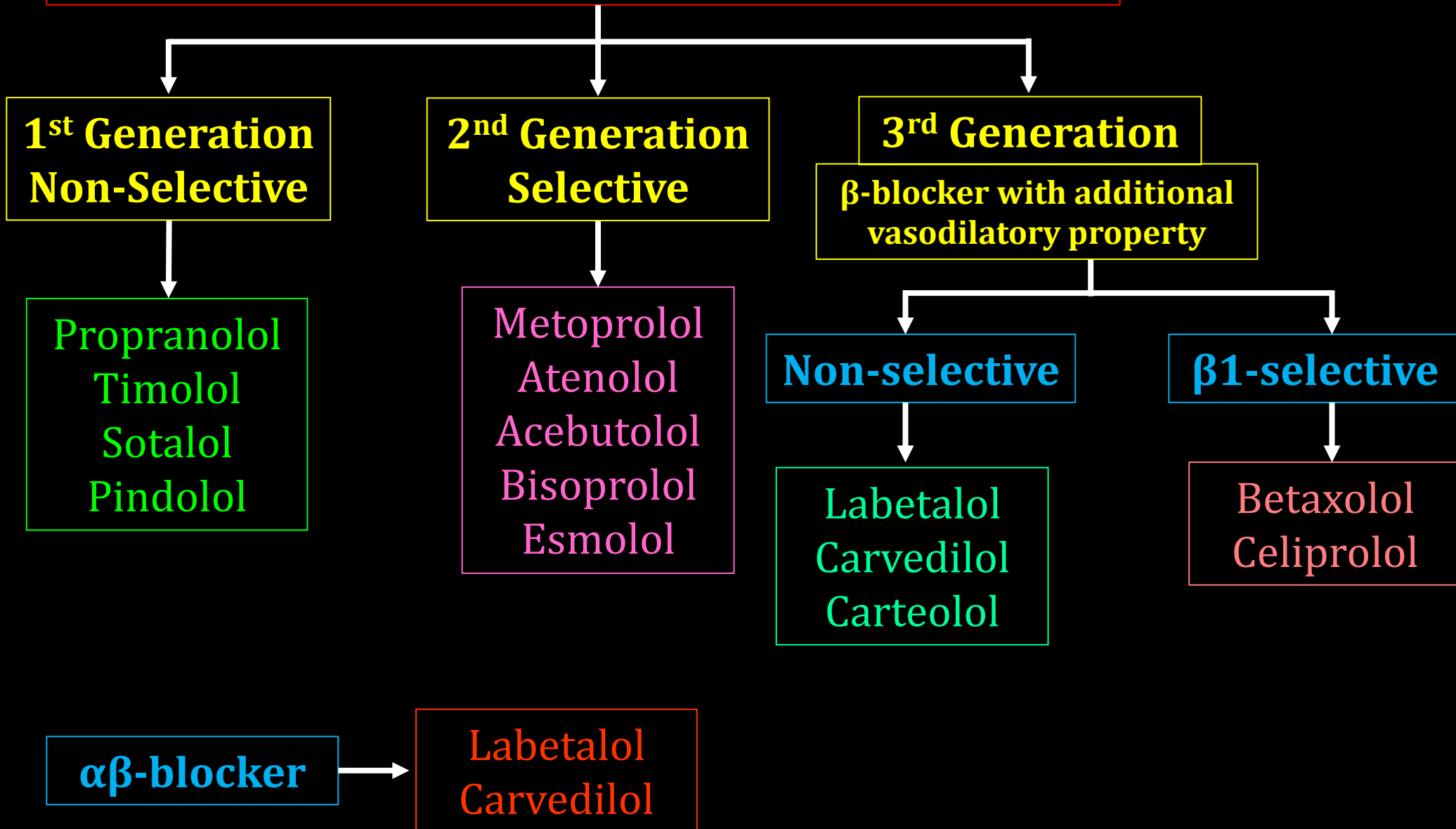
**(b) Valsartan**

**(c) Verapamil**

**(d) Propranolol**



# $\beta$ -ADRENERGIC BLOCKING DRUGS



**23. Which of the following is NOT an adverse effect of Propranolol**

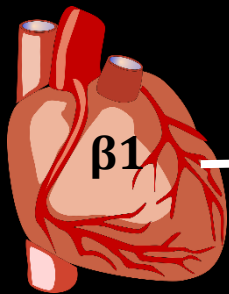
- (a) Lactic acidosis**
- (b) Uterine relaxation**
- (c) Bronchospasm**
- (d) Hypotension**

**23. Which of the following is NOT an adverse effect of Propranolol**

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# ACTIONS OF $\beta$ -ADRENERGIC BLOCKERS

## Cardiovascular system



$\beta_1$  blockade

$\downarrow\downarrow$ HR (-ve chronotropic effect)  
 $\downarrow\downarrow$  FOC (-ve inotropic effect)  
 $\downarrow\downarrow$ AV conduction (-ve dromotropic effect)

## Blood Vessels



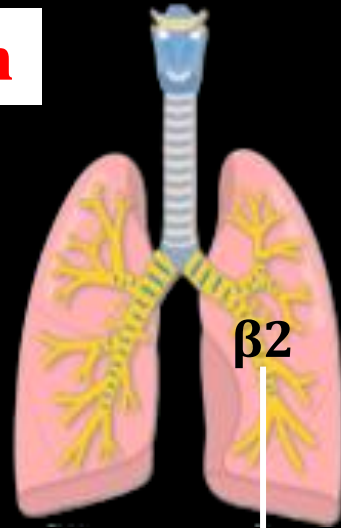
$\beta_2$  blockade

Vasodilation

$\downarrow$ ses BP

# ACTIONS OF $\beta$ -ADRENERGIC BLOCKERS

## Respiratory System

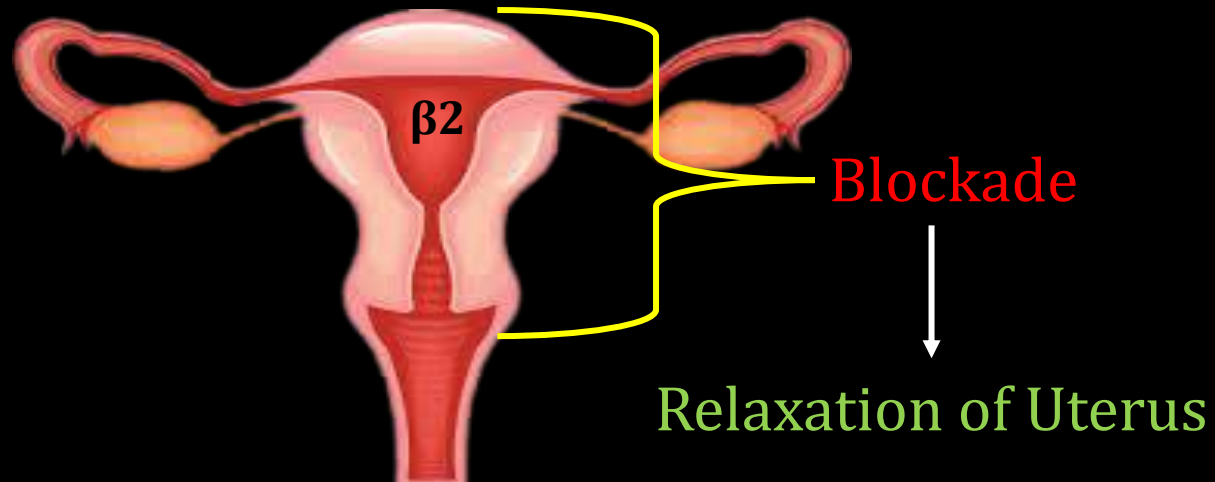


**Blockade**

**Constricts the bronchial  
smooth muscle  
(Bronchoconstriction)**

# ACTIONS OF $\beta$ -ADRENERGIC BLOCKERS

**Uterus**



## **24. Cardio selective beta blocker**

**(a) Propranolol**

**(b) Timolol**

**(c) Carvedilol**

**(d) Metoprolol**

## 24. Cardio selective beta blocker

(a) Propranolol

(b) Timolol

(c) Carvedilol

**(d) Metoprolol**



# Cardio-selective (Selective $\beta_1$ Blockers)

## [Also known as second generation $\beta$ -blockers]

- These agents are preferred in patients with
  - diabetes mellitus,
  - bronchial asthma,
  - peripheral vascular disease or
  - hyperlipidemia

### TRICK

New	→ Nebivolol (Most cardioselective)
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At	→ Atenolol
Myo	→ Metoprolol
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## **25. Beta blocker with membrane stabilizing activity**

**(a) Propranolol**

**(b) Timolol**

**(c) Atenolol**

**(d) Esmolol**

## 25. Beta blocker with membrane stabilizing activity

**(a) Propranolol**

**(b) Timolol**

**(c) Atenolol**

**(d) Esmolol**

## Propranolol

- Propranolol decreases heart rate, force of contraction (at relatively higher doses) and cardiac output (c.o.).
- It prolongs systole by retarding conduction so that synergy of contraction of ventricular fibres is disturbed.
- The effects on a normal resting subject are mild, but become prominent under sympathetic overactivity (exercise, emotion).
- Some beta-blockers, such as propranolol, labetalol, and pindolol, have membrane-stabilizing activity (MSA).

**26. Select the  $\beta$ -adrenergic blocker that has additional  $\alpha$ -blocking, vasodilator and antioxidant properties**

- (a) Carvedilol**
- (b) Celiprolol**
- (c) Acebutolol**
- (d) Metoprolol**

**26. Select the  $\beta$ -adrenergic blocker that has additional  $\alpha$ -blocking, vasodilator and antioxidant properties**

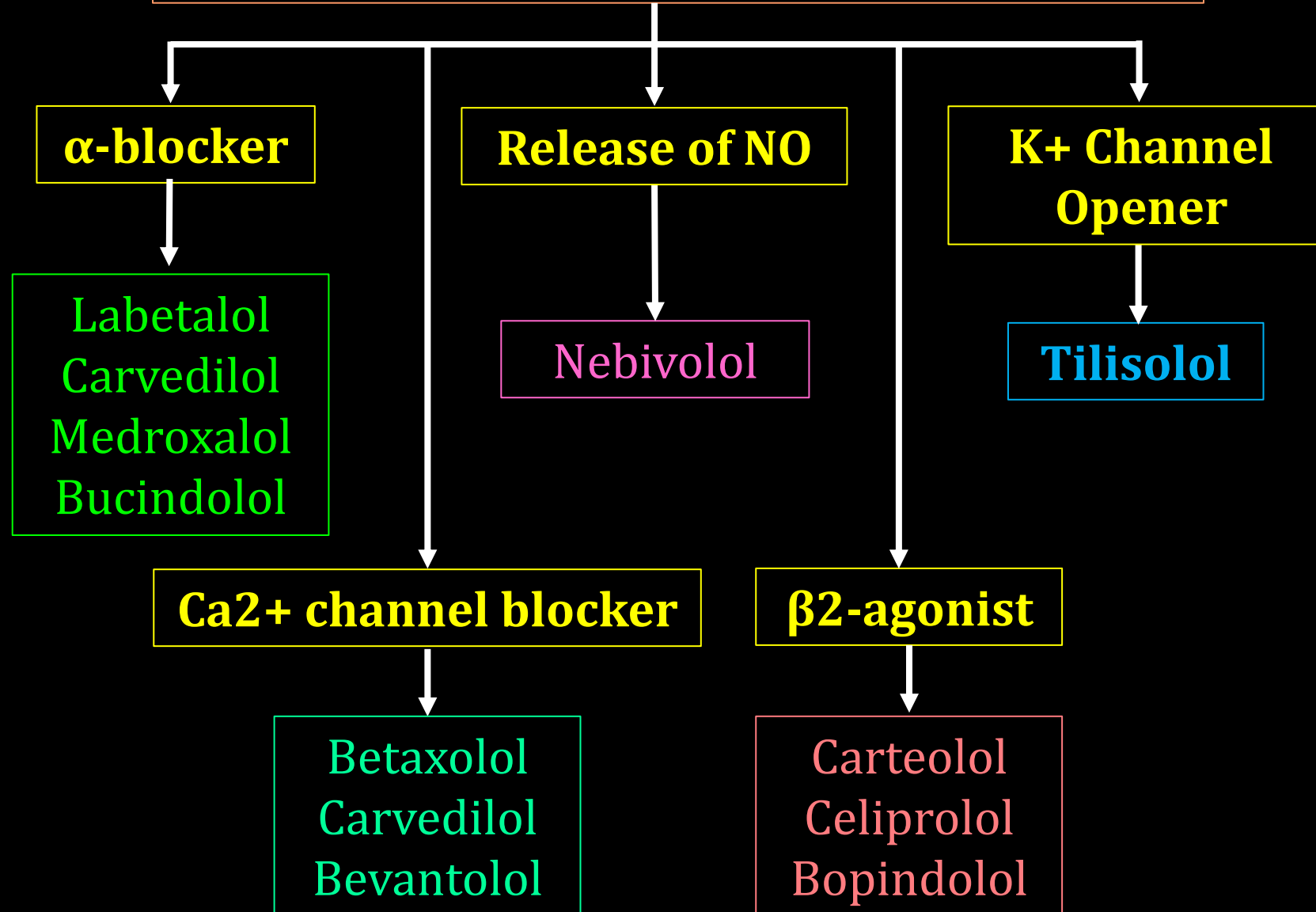
**(a) Carvedilol**

**(b) Celiprolol**

**(c) Acebutolol**

**(d) Metoprolol**

# Third Generation b-Blockers



**27. Which of the following is NOT a function of beta blocker**

- (a) Blocks the release of renin from juxtaglomerular apparatus**
- (b) Increases blood pressure**
- (c) Decreases heart rate**
- (d) Increases the coronary blood flow**



**27. Which of the following is NOT a function of beta blocker**

**(a) Blocks the release of renin from juxtaglomerular apparatus**

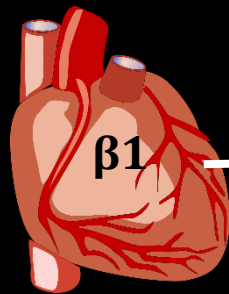
**(b) Increases blood pressure**

**(c) Decreases heart rate**

**(d) Increases the coronary blood flow**

# ACTIONS OF $\beta$ -ADRENERGIC BLOCKERS

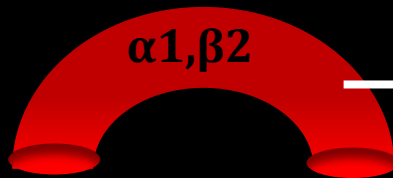
## Cardiovascular system



$\beta 1$  blockade

↓↓HR (-ve chronotropic effect)  
↓↓ FOC (-ve inotropic effect)  
↓↓AV conduction (-ve dromotropic effect)

## Blood Vessels



$\beta 2$  blockade

Vasodilation

↓ses BP

**28. The following is a selective  $\alpha$ -adrenoceptor antagonist**

- (a) Prazosin**
- (b) Yohimbine**
- (c) Phentolamine**
- (d) Clonidine**

**28. The following is a selective  $\alpha$ -adrenoceptor antagonist**

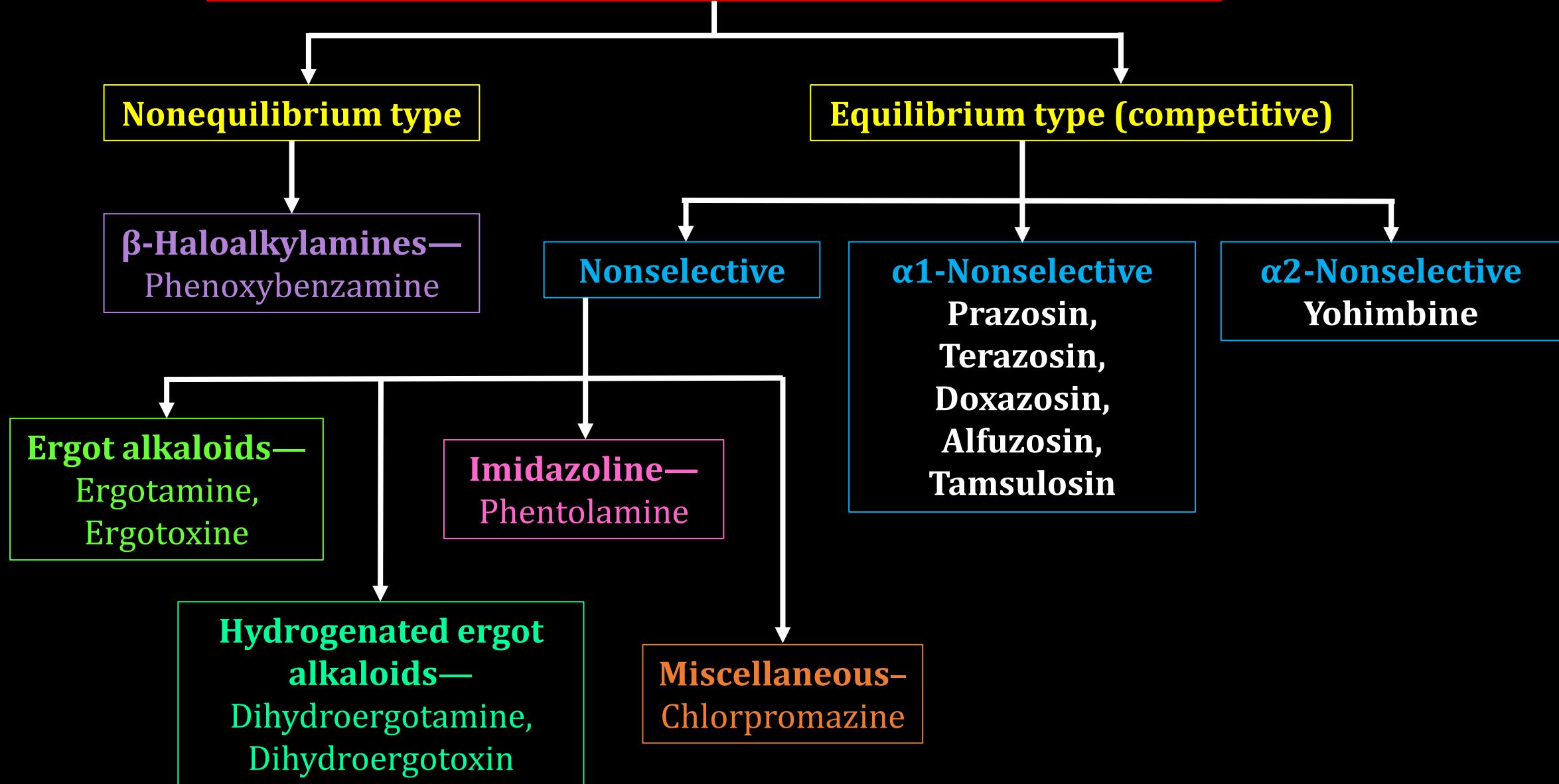
**(a) Prazosin**

**(b) Yohimbine**

**(c) Phentolamine**

**(d) Clonidine**

# **α-ADRENERGIC BLOCKING DRUGS**



**29. Propranolol can be used to allay anxiety associated with**

- (a) Chronic neurotic disorder**
- (b) Schizophrenia**
- (c) Short-term stressful situations**
- (d) Endogenous depression**

**29. Propranolol can be used to allay anxiety associated with**

- (a) Chronic neurotic disorder**
- (b) Schizophrenia**
- (c) Short-term stressful situations**
- (d) Endogenous depression**

**Propranolol suppresses anxiety in short-term stressful situations, but this is due to peripheral rather than a specific central action.**



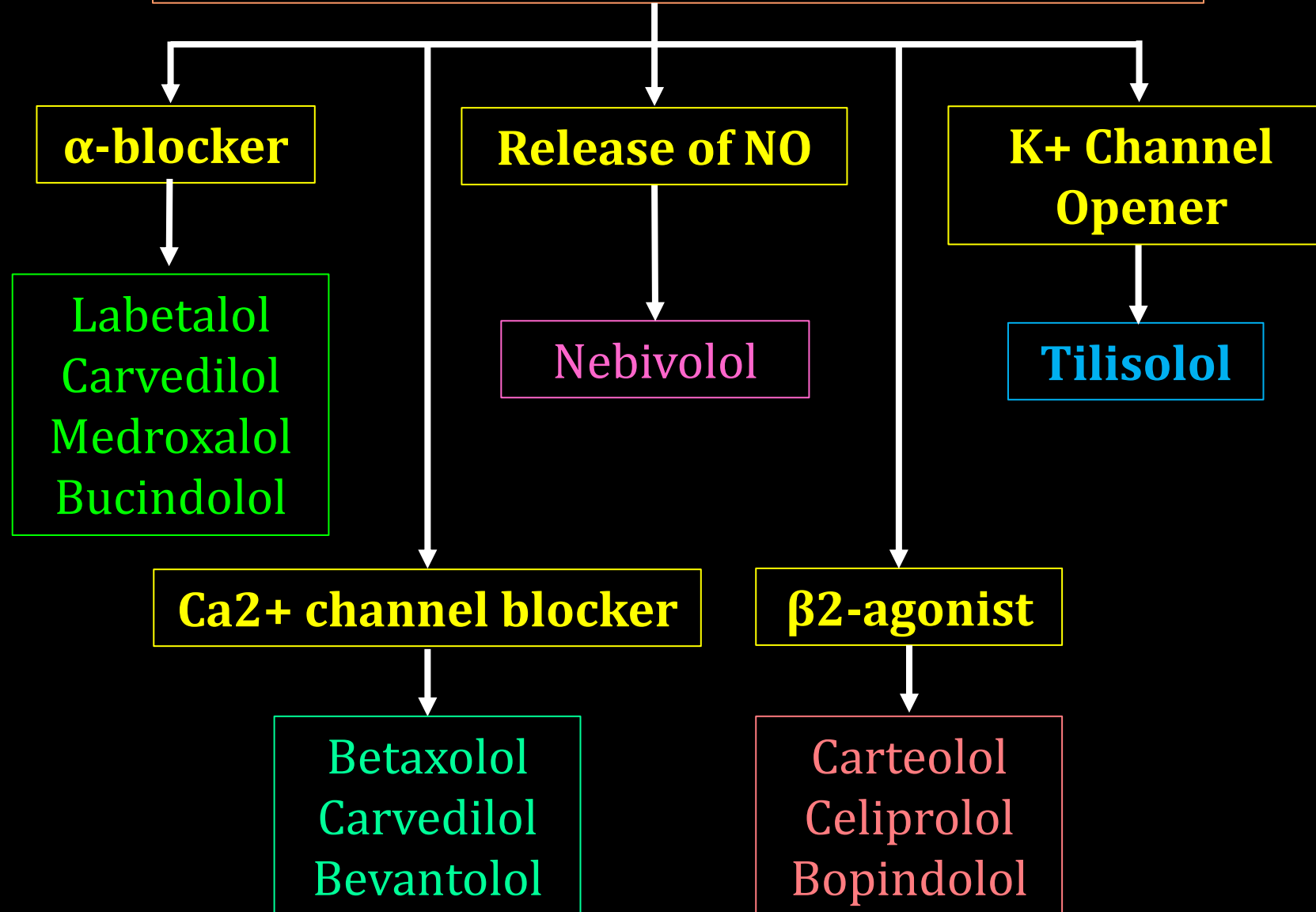
**30. Select the  $\text{Ca}^{2+}$  channel blocker that has additional  $\beta$  blocking properties**

- (a) Carvedilol**
- (b) Celiprolol**
- (c) Acebutolol**
- (d) Metoprolol**

**30. Select the  $\text{Ca}^{2+}$  channel blocker that has additional  $\beta$  blocking properties**

- (a) Carvedilol**
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# Third Generation b-Blockers





# PREPARING FOR PHARMACIST EXAM

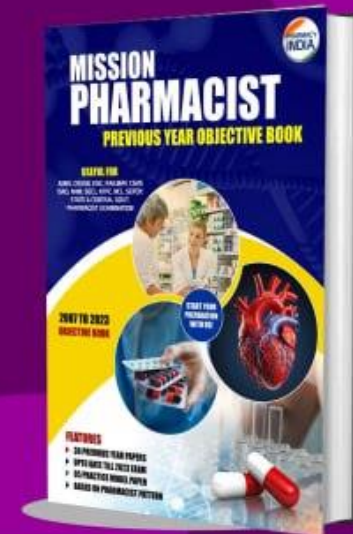
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**31. Indicate the adrenoreceptor antagonist drug, which is a rauwolfia alkaloid**

- (a) Prazosin**
- (b) Propranolol**
- (c) Reserpine**
- (d) Phentolamine**

**31. Indicate the adrenoreceptor antagonist drug,  
which is a rauwolfia alkaloid**

**(a) Prazosin**

**(b) Propranolol**

**(c) Reserpine**

**(d) Phentolamine**

**Reserpine is an adrenoreceptor antagonist drug that comes from the Rauwolfia genus of plants and has been used in medicine since ancient times to treat insanity.**

**It's also used to treat hypertension and other neurological diseases.**

**Reserpine works by binding to catecholamines in nerve cells to produce its antihypertensive effect.**



**32. Which one of the following is a beta blocker**

- (a) Benazepril**
- (b) Clonidine**
- (c) Atenolol**
- (d) Amlodipine**

**32. Which one of the following is a beta blocker**

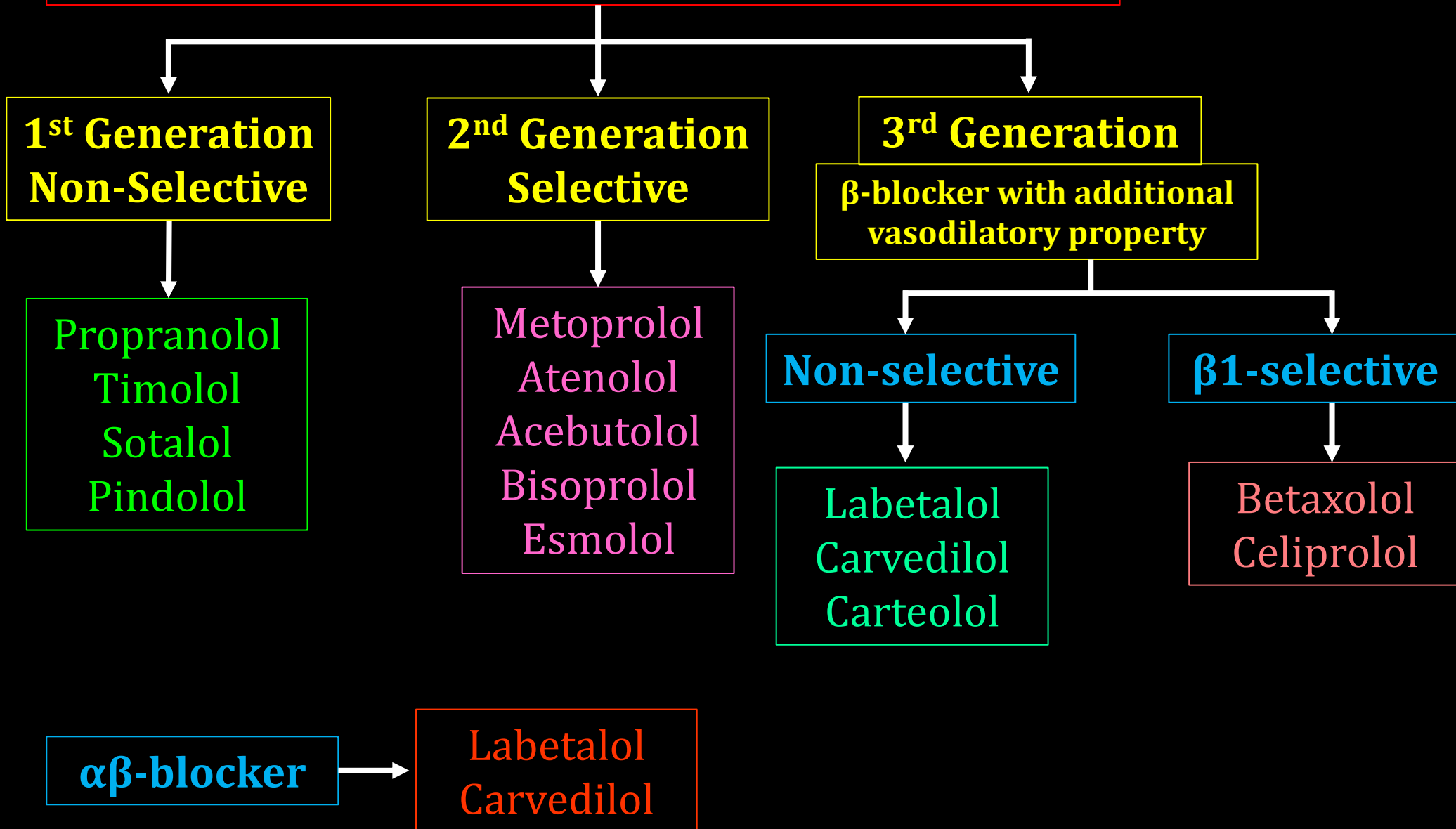
**(a) Benazepril**

**(b) Clonidine**

**(c) Atenolol**

**(d) Amlodipine**

# $\beta$ -ADRENERGIC BLOCKING DRUGS



**33. A cardioselective blocker with vasodilating properties is**

- (a) Pindolol**
- (b) Atenolol**
- (c) Bisoprolol**
- (d) Nebivolol**

**33. A cardioselective blocker with vasodilating properties is**

- (a) Pindolol**
- (b) Atenolol**
- (c) Bisoprolol**
- (d) Nebivolol**

# Cardio-selective (Selective $\beta_1$ Blockers)

## [Also known as second generation $\beta$ -blockers]

- These agents are preferred in patients with
  - diabetes mellitus,
  - bronchial asthma,
  - peripheral vascular disease or
  - hyperlipidemia

### TRICK

New	→ Nebivolol (Most cardioselective)
Beta	→ Betaxolol
Blockers	→ Bisoprolol
Acting	→ Acebutolol
Exclusively	→ Esmolol
At	→ Atenolol
Myo	→ Metoprolol
Cardium	→ Celiprolol

## **34. Beta blockers are used in treatment of**

- (a) Hypertension**
- (b) Diabetes mellitus**
- (c) Myxedema**
- (d) Hypercholesterolemia**

**34. Beta blockers are used in treatment of**

- (a) Hypertension**
- (b) Diabetes mellitus**
- (c) Myxedema**
- (d) Hypercholesterolemia**



# Uses of Beta blockers

- Hypertension
- Angina pectoris
- Cardiac arrhythmias
- Myocardial infarction
- Congestive heart failure
- Dissecting aortic aneurysm
- Pheochromocytoma
- Thyrotoxicosis
- Migraine
- Anxiety
- Essential tremor
- Glaucoma
- Hypertrophic obstructive cardiomyopathy

**35. Which of the following is NOT the use of**

**Propranolol**

**(a) Glaucoma**

**(b) Cataract**

**(c) Migraine**

**(d) Hypertension**

**35. Which of the following is NOT the use of**

**Propranolol**

**(a) Glaucoma**

**(b) Cataract**

**(c) Migraine**

**(d) Hypertension**

# Uses of Propranolol

- Hypertension
- Angina pectoris
- Cardiac arrhythmias
- Myocardial infarction
- Congestive heart failure
- Dissecting aortic aneurysm
- Pheochromocytoma
- Thyrotoxicosis
- Migraine
- Anxiety
- Essential tremor
- Glaucoma
- Hypertrophic obstructive cardiomyopathy

**36. Drug acting as cardio selective beta blocker is**

- (a) Labetalol**
- (b) Betaxolol**
- (c) Propranolol**
- (d) None of these**

**36. The 3<sup>rd</sup> Generation selective beta-1 blocker is**

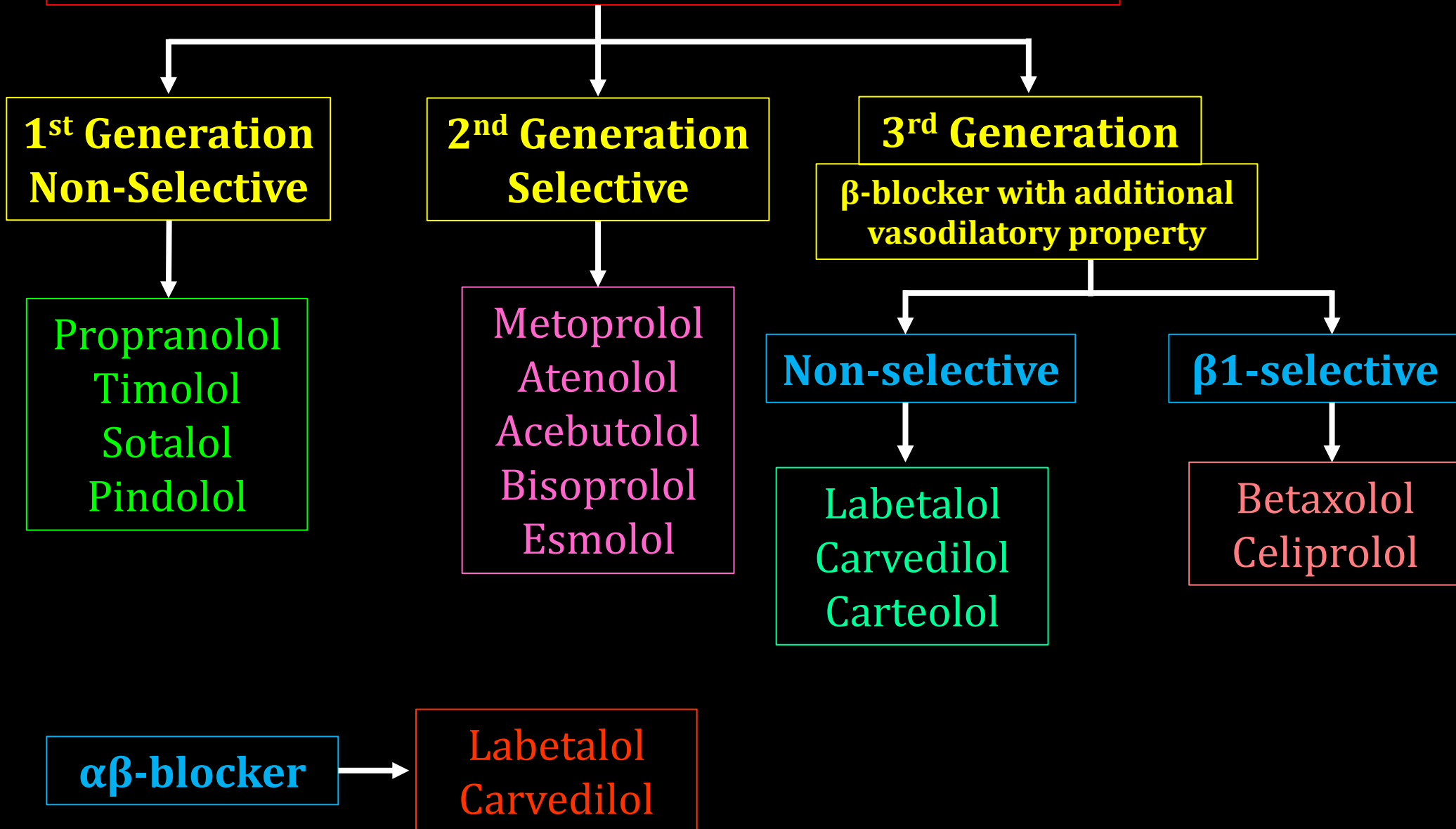
**(a) Labetalol**

**(b) Betaxolol**

**(c) Propranolol**

**(d) None of these**

# $\beta$ -ADRENERGIC BLOCKING DRUGS



**37. Which of the following drug is used in treatment of glaucoma**

- (a) Pilocarpine**
- (b) Acetylcholine**
- (c) Neostigmine**
- (d) Atropine**



**37. Which of the following drug is used in treatment of glaucoma**

- (a) Pilocarpine**
- (b) Acetylcholine**
- (c) Neostigmine**
- (d) Atropine**

**Pilocarpine** is used in **glaucoma** due to its **pupillary constrictor (miotic) action**. However because of its **very short duration of action**, **intraocular tension** may increase even if one or two doses are missed.

**38. Select the prostaglandin analogue used for glaucoma**

- (a) Latanoprost**
- (b) Misoprostol**
- (c) Gemeprost**
- (d) Epoprostenol**

**38. Select the prostaglandin analogue used for glaucoma**

**(a) Latanoprost**

**(b) Misoprostol**

**(c) Gemeprost**

**(d) Epoprostenol**

# PGs USED IN GLAUCOMA

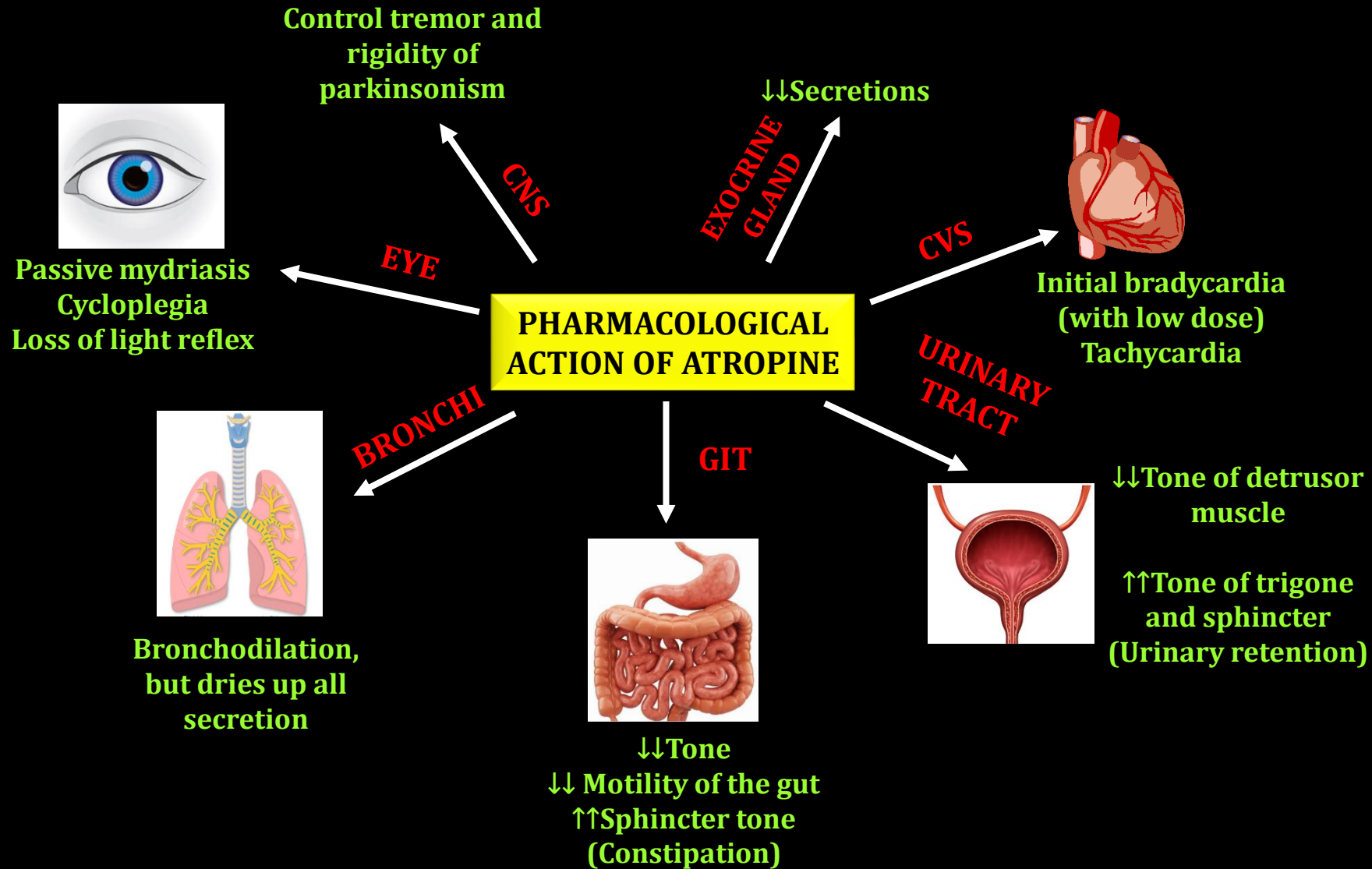
Group	Drugs	Mechanism	Adverse effects	Special Points
<b>PGF<sub>2</sub>α</b> <b>ANALOGS</b>	Latanoprost Bimatoprost Travoprost Tafluprost Unoprostone	↑ Uveoscleral outflow	<ul style="list-style-type: none"> <li>• Iris pigmentation</li> <li>• Growth of eyelashes</li> <li>• Macular edema in aphakics (Latanoprost)</li> <li>• Reactivation of uveitis (Latanoprost)</li> </ul>	<ul style="list-style-type: none"> <li>• Drug of choice for POAG</li> </ul>

**39. Which of the following may cause cycloplegia when used topically in the eye**

- (a) Cortisone**
- (b) Physostigmine**
- (c) Pilocarpine**
- (d) Atropine**

**39. Which of the following may cause cycloplegia when used topically in the eye**

- (a) Cortisone**
- (b) Physostigmine**
- (c) Pilocarpine**
- (d) Atropine**





**40. One of these  $\beta$ -blockers, used in glaucoma is**

**(a) Propranolol**

**(b) Atenolol**

**(c) Timolol**

**(d) Labetalol**

**40. One of these  $\beta$ -blockers, used in glaucoma is**

**(a) Propranolol**

**(b) Atenolol**

**(c) Timolol**

**(d) Labetalol**

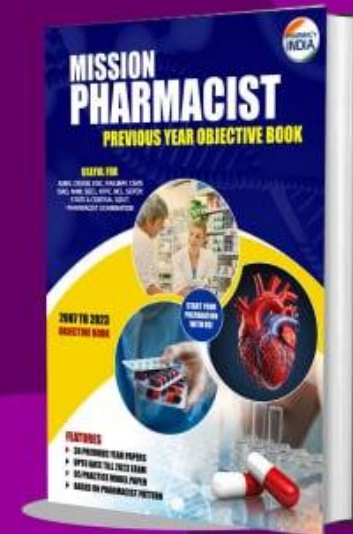
# $\beta$ -blockers used in Glaucoma

Group	Drugs	Mechanism	Adverse effects	Special Points
<b>BETA BLOCKERS</b> 1. Non-selective ( $\beta_1 + \beta_2$ ) blockers	Timolo, Levobunolol, Carteolo, Metipranolol	$\downarrow$ Formation of aqueous humor	<ul style="list-style-type: none"> <li>Allergic blepharon-conjunctivitis.</li> <li>Precipitates asthma.</li> <li>Transient stinging and burning in eye.</li> </ul>	<ul style="list-style-type: none"> <li>Should be avoided in: Asthma, Bradycardia, CHF, Diabetes.</li> <li>Betaxolol is less likely to precipitate asthma but is less efficacious.</li> </ul>
2. Cardioselective ( $\beta_1$ ) blockers	Betaxolol			



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