

FIG-124

①

CVS (2018 prof)

1Q. Enumerate extra-cardiac clinical uses of β -adrenergic receptor blockers?

- Ans.:
- * Hypertension
 - * Migraine
 - * Hyperthyroidism
 - * Labetolol is used in pheochromocytoma (α -blocker & β -blocker)
 - * Beneficial reduction in size of infantile hemangiomas.
 - * Treatment of glaucoma.

2Q. Enumerate Vasodilators?

- Hydralazine (Older Vasodilators)
- Minoxidil
- Calcium Blockers (Nifedipine, Verapamil)
- Parenteral Vasodilators. (Nitroprusside)

3Q. Give mechanism of action of Cardiac glycosides?

Ans. - 1) Regulation of Cytosolic calcium concentration:-

Sodium/Calcium exchanger plays an important role in this process by extruding calcium from

myocytes in exchange for sodium by inhibiting the ability of myocytes actively pump sodium from the cell. Higher cellular sodium is exchanged for extracellular calcium by the sodium/calcium exchanger increasing intracellular calcium. Thus more free calcium is available at next contraction cycle thereby increasing cardiac contractility.

2) Increased Contractility of cardiac muscle:-

Glycosides increase the force of cardiac contraction that leads to decrease in ~~ed~~ end diastolic volume.

2017 Proff

1Q:- Classify diuretics?

- Ans:-
- Thiazide diuretics (Hydrochlorothiazide)
 - Loop diuretics (Furosemide)
 - Carbonic Anhydrase inhibitors (Acetazolamide)
 - SGLT₂ inhibitors (Canagliflozin)
 - Osmotic diuretics (Mannitol)
 - Potassium Sparring diuretics (Spironolactone)

2Q - Enumerate Adverse effects of Thiazide diuretics?

- Ans: → Hypokalemia → Hypouricemia (70% patients)
 → Hyperglycemia → Hypomagnesemia
 → Patients who are treated with digoxin result in ^{cardiac} arrhythmias.

3Q - Write down mechanism of action of digoxin?

Ans: Repeat (Q3, 2018 prof on backside).
 [Unit test, Random]

4Q - Adverse effects & Clinical uses of propranolol?

Ans: Adverse Effects:-

- * Bronchoconstriction
- * Arrhythmias
- * Sexual dysfunction
- * Metabolic disturbances.
- * Dizziness
- * Lethargy
- * Fatigue
- * Weakness
- * Visual disturbances.
- * Short-term memory loss
- * Depression
- * Insomnia.

Clinical uses:-

- * Hypertension
- * Migraine

- Hypertension
- Angina pectoris
- Myocardial Infarction
- Arrhythmias

1Q:- Enumerate Antihypertensive drugs?

- Vasodilators
- Cardiac depressants
- Calcium blockers
- β -blockers
- Metabolism modifiers
- Sodium Channel blockers (Ranolazine)

2Q:- Describe pharmacological effects of digoxin on CVS?

Cardiac effects:-

- Increased Ventricular ejection.
- Increased cardiac output
- Increased renal perfusion
- Decreased end-systolic & end-diastolic size.
- Decreased in sympathetic tone.
- Decreased Heart rate.
- Decreased Preload & afterload
- Decreased Compensatory & sympathetic renal responses

3Q:- Describe the mechanism of action of Nitroglycerin

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Ans - Nitoules release Nitric oxide within smooth muscle cells through the action of Aldohyde dehydrogenase-2. Nitric oxide stimulates guanlyl cyclase & cause inc. in 2nd messenger cGMP which results in smooth muscle relaxation by dephosphorylation of myosin light chain phosphate.

8Q:- Describe Adverse effects of calcium channel blockers.

Ans:-
→ Constipation → Pre-tibial edema
→ Nausea → Flushing → Dizziness
Serious Adverse effects
→ Heart failure
→ AV-blockade
→ Sinus Node Depression

9Q:- Classification of Anti-Arhythmic drugs?

Ans:-
→ Sodium Channel Blocker (Procainamide)
→ β -blockers (Esmolol)
→ Potassium Channel blockers (Amiodarone)
→ Calcium Channel blockers (Verapamil)
→ Adenosine (Potassium, Magnesium).

10 Q:- Adverse Effects of Amiodarone?

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Ans: Deposits in cornea & skin

→ Thyroid dysfunction → Paresthesias

→ Tremor → Pulmonary fibrosis

11Q: Mechanism of Action of Quinidine?

Ans: Quinidine binds to open & inactivated sodium channels & prevents sodium influx. Thus, slowing rapid upstroke during Phase Zero (0). It also decreases the slope of Phase (4) spontaneous depolarization & inhibits potassium channels. It slows conduction velocity & increases refractoriness.

12Q: Mechanism of Action of Sotalol?

Ans: It has 2 isomers :-

Isotolol
↓
Responsible for
β-blocker activity.

D-sotalol
↓
Responsible for
Potassium channel
blockade.

13Q: Compare Loop with thiazide diuretics.

Loop diuretics	Thiazide Diuretics
* Mechanism of Action	* Mechanism of Action
They decrease renal vascular resistance and increase renal blood	They lower blood pressure by inc ↑ sodium & water excretion → Decrease blood volume.

flow.	↓ Cardiac Output ↓ Blood pressure (↓)
* <u>Adverse effects</u> :- → Hypovolemia → Autotoxicity → Hypokalemic metabolic Alkalosis. → Potassium wasting	* <u>Adverse effects</u> :- → Hypokalemia → Hyperuricemia → Hypomagnesemia → Acute gout
* <u>Clinical Uses</u> :- → Dec (↑) mild to moderate blood press. → Heart failure.	* <u>Clinical Uses</u> :- → Treatment of Severe Hypercalcemia. → Treatment of edematous states → Hypertensive emergencies.

2015 proff.

2Q:- Classify Anti-Arhythmic drugs?

Ans:- Repeat (Q9, On backside)

2Q:- Adverse effects of Digoxin?

Ans:- Nausea, Vomiting, Diarrhea, Visual & Endocrine changes, Arrhythmia.

3Q:- Three most common uses of β -blocker drugs?

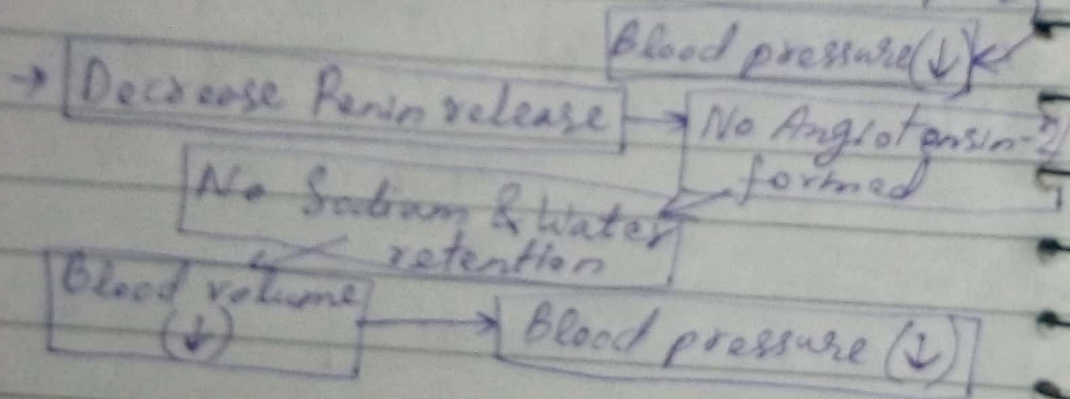
Ans: • Hypertension • Arrhythmias
• Heart failure

4Q. Name 2 cardio-selective β -blocker drugs?

Ans: → Carvedilol
→ Metoprolol

5Q. How β -blocker lower blood pressure?

Ans: → β -blocker decrease Cardiac output

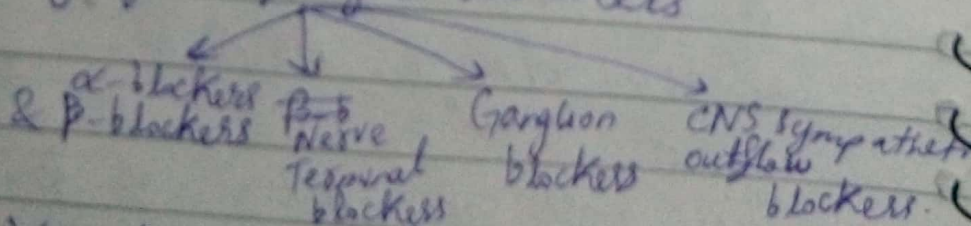


2017 Send-up

Q1:- Classify drugs used in hypertension

→ Diuretics

→ Sympathoplegic blockers



→ Vasodilators

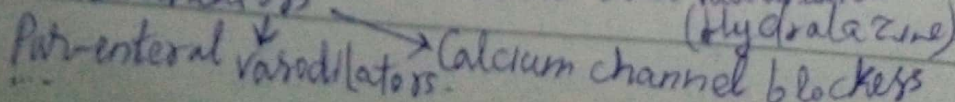


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→ Angiotension Antagonists

ACE inhibitors ARBs.

→ Renin Inhibitors (Aliskirans)

Q2:- Adverse effects & Clinical uses of Clonidine?

Ans:- Clinical uses:-

→ Used in Hypertension

Adverse effects:-

→ Sedation → Dry mouth

→ Constipation → Rebound Hypertension

→ Sodium & Water retention.

Q3:- Enumerate Calcium Channel blockers?

(i) Diphenyl Alkyl Amine
(Verapamil).

(ii) Benzothiazepines
(Diltiazem).

(iii) Dihydropyridines
(Amlodipine, Felodipine).

Q4:- Mechanism of Action & Adverse effects of Nitroprusside?

Ans:- Release of Nitric oxide stimulate guanylyl cyclase and $1\alpha:1$ in cGMP

Concentration & relaxation in ^{vascular} smooth muscle
myosin light chain phosphate.

Adverse Effects:

→ Hypotension

→ Throbbing Headache.

Q5:- Mechanism of Action of Digoxin?

Ans: Repeat

(Proof.)

Q6:- Mechanism of Action of ACE
inhibitors?

Ans: ACE inhibitors inhibits Angiotensin
converting enzyme Kininase-2 &
dipeptidase. Thus, cause reduction in
blood level of Angiotensin-2 & Aldosterone
which causes Sodium & water excretion,

Blood pressure (↓) ← Blood volume (↓)

They cause inc(↑) in Bradykinin
which increases the production of
Nitric oxide which is a potent vasodilator.

Q7:- Classify drugs used in treatment of
Angina Pectoris?

Ans: Repeat

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Q8:- Explain clinical uses & Adverse effects of Nitrates & Nitrites?

Ans:- Clinical uses:-
→ Angina → Hypertension → Cyanide poisoning
Adverse effects:-

→ Tachycardia → Orthostatic Hypotension
→ Throbbing Headache

Q9:- Enumerate Cardioselective β -blockers?

Ans:- Repeat.

Q10:- Explain how propranolol exerts anti-hypertensive & anti-arrhythmic effects?

Ans:- Anti-hypertensive effects

→ Reduce Cardiac output

→ Reduce Renin release

Anti-Arrhythmic effects

→ Due to block of β -receptor & slow pacemaker activity.

Q11:- Enumerate drugs used for treatment of congestive cardiac failure?

Ans:- → Digitalis → Angiotensin Antagonists

→ Diuretics → β_1 agonists

→ β -antagonists → Phosphodiesterase Inhibitor

→ Vasodilators.

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Q12:- Mechanism of Action of Digoxin?

Ans:- Repeat

[sand-up]

Q1:- Uses & Adverse effects of loop diuretics (Furosemide)? Uses

- Acute & Chronic Heart failure
- Hypertensive Emergency.
- Acute Pulmonary edema
- Hypercalcaemia

Adverse effects

- Ototoxicity
- Hypokalaemia
- Hypovolaemia

Q2:- Adverse effects of Nitroglycerin?

CVS (Unit ^{old} test)

Q:- Classify Anti-arrhythmic drugs?

Ans:- Repeat

Q:- Adverse effects of Amiodarone?

Ans:- Repeat

Q:- Mechanism of Action of Adenosine.

Slows or blocks conduction in

AV node probably by hyperpolarizing the tissue & producing calcium current.

Q:- Compare & Contrast loop & thiazide diuretics

Ans:- Repeat

Q:- Adverse effects & contraindications of ACE inhibitors?

Ans:- Adverse effects:-

→ Cough → Hyperkalemia

Contraindications:-

→ Pregnancy

→ Renal vascular disease

Q:- Write two drugs used for Angina of Effort & Vasospastic Angina?

Ans:- → Nitroglycerin

→ Calcium channel blockers.

Q:- Adverse effects of Losartan, propranolol & Fenoldopam.

Ans: Losartan:- Hyperkalemia & Teratogen.

Propranolol:- Insomnia, Fatigue, Sexual dysfunction, Dizziness, Hypotension.

Fenoldopam:- Arteriolar vasodilation