

DPT 4th

Course Title: Pharmacology I

Student Name:

Student ID:

Note:

Attempt all questions

Each question carry equal marks

Pay attention to every point of question

Give to the point answers

Extra detail may leads to marks deduction

Q1. Explain the detailed neurotransmission process

Ans1:- **Definition**:- the process by which neurotransmitters are released by axon terminal of neuron and bind to and react with receptors on dendrites of another neuron

Steps in neurotransmission

1. depolarization of terminal membrane
2. Activation of voltage gated ca channel
3. calcium entry
4. change in conformation of docky protien
5. fusion of vescile to the plasma memberans

Two factors are necessary for neurotransmitter release

1. depolarization of terminal membrane
2. Calcium ions in extracellular space

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Q2. What does direct and indirect cholinergic agent means? Explain therapeutic application and adverse effects of cholinergic agents in detail.

Ans2:-**direct cholinergic agents**:- They mimic action of acetylcholine and bind directly to stimulate cholinergic receptors

Indirect cholinergic agents:- They inhibit destuction of acetylcholine at cholinergic synapses

Uses:-

Use as miotic

Use in treatment of myasthenia gravis

Use in treatment of post operative urinary retention and paralytic ileus

Use in treatment of cobra bite

Use in treatment of belladonna poisoning

Use in treatment of Alzheimer disease

Use in treatment of glaucoma

Adverse effects:

Nausea

Diarrhea

Abdominal cramps

Salivation

Flushing of skin

Cardiac arrhythmias

Muscle weakness

Reduction of visual acuity

Headache

Q3.

- (a) Explain the effects and adverse effects of organic nitrates in angina pectoris.
- (b) Write down the treatment algorithm for improving symptoms of stable angina.

Ans3 (a):- **Effect of nitrates**:- They widen and relax veins and arteries in heart and anywhere in the body by dilating vessels nitrates reduce stress on heart by improving blood to heart muscles thus reducing symptoms of angina

Adverse effects:

Headache

Dizziness

Flushing

Syncope

Postural hypotension

Tachycardia

Palpitation

Coronary steal

Local rash

Irritation

Treatment:

1) lifestyle modification

Cessation of smoking

Reduce weight

Exercise

Control hypertension

2) **medication**

1st line are beta blockers and calcium channels

Nitroglycerine are used to reduce pain symptoms

Aspirin and statins to reduce cardiovascular events

3) surgery angioplasty

Q4.

(a) Differentiate between primary and secondary hypertension

(b) Explain the effect of renin on hypertension

(c) What is the importance of pharmacological treatment of hypertension

Ans4:- **Primary hypertension**:- High bp above 130 over 80 where no cause is known

2. common in 85 percent people

3. occur in those with positive family history

4. High basal metabolic index

5. cause is not known

6. it is not possible to cure

Secondary hypertension:

1. high bp of 130 over 80 where cause is known

2. common in 15 percent of people
3. occur in those with no family history
4. cause is known

Adrenal tumor

Kidney diseases

Hyperthyroidism

Oral contraceptives pills

Sleep apnea

5. it can be cured

B) Effect of renin:

Renin converts angiotensinogen which is produced by liver to hormone angiotensin I an enzyme known as ACE found in lung metabolize angiotensin I in 2 that cause blood vessels to constrict and increase bp

Pharmacological treatment of hypertension:-

Hypertension can lead to heart failure heart attack stroke and kidney diseases it is important to lower high blood pressure to protect heart brain and kidney from damage

Q5.

- (a) Differentiate between right heart failure and left heart failure
- (b) Summarize the pharmacotherapy of heart
- (c) failure

Ans:-Left sided heart failure:-

when left ventricle cannot pump blood to body

2. causes..ischemia, systemic hypertension

Mitral or aortic valve diseases

Pulmonary edema or congestion

3. organ enlarge in left sided heart failure is heart

4. prominent dyspnea is present

5. gastrointestinal symptoms present but not prominent

6. pulmonary edema and pleural effusions are common features

Right sided heart failure:-right ventricle cannot pump blood to lungs

Causes common is left ventricle failure

Peripheral edema visceral congestion

3. organ enlargement is liver

4. dyspnea present but not prominent

5. gastrointestinal symptoms are prominent

6. Ascites are present

Pharmacotherapy

NHYA1

Reduction of risk factors

Treatment of underlying cause

NHYA2

ACE 1

Angiotensin receptor blockers

Betablockers

NHYA 3

ACE1

MRA

dietary sodium reduction

Diuretics

Revascularization

Mitral valve surgery

NHYA4

Assess biomarkers and evaluate risk

Inotropes

Transplantation

Palliative care