

MEDICINAL CHEMISTRY-I – BP402T

UNIT: 2

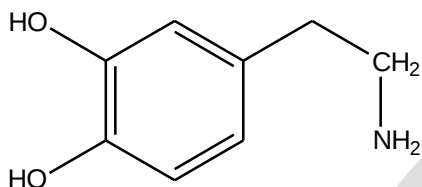
CLASS: 6

TOPIC: SYMPATHOMIMETICS

1. Dopamine

Structure

Dopamine

**Iupac name**

1,2-benzenediol 4-(amino ethyl)

Uses

It is the immediate metabolic precursor of norepinephrine

It is found naturally in the CNS, basal ganglia where it functions as neurotransmitter as well as in adrenal medulla.

It can activate alpha and beta adrenergic receptors as well as D1 and D2 dopaminergic receptors.

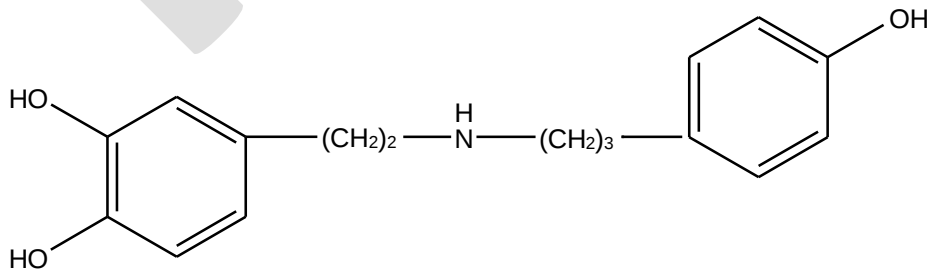
Drug of choice for cardiogenic and septic shock

Used to increase BP and to increase cardiac output

Side effects

Nausea, hypertension and arrhythmias

2. Dobutamine

Structure

Dobutamine

Iupac name**Uses**

It is a synthetic direct acting adrenergic drug

It acts on beta one receptors of the heart.

It increases heart rate and cardiac output.

It doesn't significantly elevate oxygen demands of the Myocardium so it is a major advantage compared to other sympathomimetic drugs.

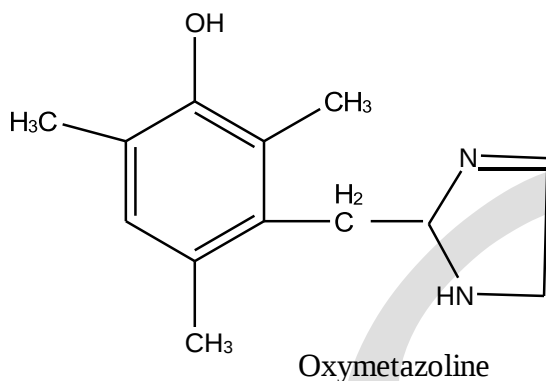
So it is used to increase cardiac output in acute heart failure and inotropic support after cardiac surgery.

Side effects

Nervousness, headache, nausea, vomiting, increase in heart rate and BP etc.

3. Oxymetazoline

Structure



Iupac name

Uses

It acts on alpha receptors.

It is found as nasal spray decongestants, ophthalmic drops for the relief of redness eyes associated with swimming and use of contact lenses.

Side effects

Nervousness, head ache, trouble sleeping, local irritation and sneezing.

4. Xylometazoline

Structure

Iupac name

Uses

It is a alpha adrenergic agonist

Used as nasal spray contestants or ophthalmic drops to reduce congestion

Side effects

Long time use is not preferred due to rebound congestion independence.

5. Phenylephrine

Structure

Iupac name

Uses

It is a alpha one receptor sympathomimetic drug, so it increases systolic and diastolic BP.

It is used as a nasal decongestant.

Side effects

Large doses can cause Hypertensive head ache and cardiac irregularities.

Synthesis

6. Clonidine

Structure

Iupac name

Uses

Used in the treatment of hypertension.

Used to minimize symptoms that accompanied by the withdrawal of opiates, tobacco smoking and benzodiaepines.

Side effects

Lethargy, sedation, constipation, xeroatomia

7. Salbutamol

Structure

Iupac name

Uses

It is a short acting beta two agonist bronchodilator

Used in the management of acute asthma.

Side effects

Drowsiness, dizziness, nausea, vomiting