

MEDICINAL CHEMISTRY-I – BP402T

UNIT: 2

CLASS: 3

TOPIC: METABOLISM OF CATECHOLAMINES AND ADRENERGIC RECEPTORS

Metabolism:

MAO (mono amine oxydase) and COMT (Catechol-o-methyl transferase),play a vital role in the metabolism of norepinephrine and epinephrine which are widely distributed in body

ADRENERGIC RECEPTORS

Adrenergic agents bind to adrenergic receptors to produce the required action.

These are classified into 2 types

Alpha

Beta

ALPHA RECEPTORS

These are classified into two types

Alpha one

It is a Gq protein coupled receptors.

When activated it causes Stimulatory response.

These are located on the vascular smooth muscles of the whole body. When activated they causes

Blood vessels ----vasoconstriction

Eye mydriasis

Urinary sphincters contraction and urinary retention

Liver glycogenolysis

Kidney inhibition of renin enzyme release

Alpha two

It is a Gi protein coupled receptors

They are primarily located on presynaptic nerve endings when activated they cause decrease in intracellular cAMP which in turn leads to inhibition of further release of noradrenaline.

These are also found on the pancreatic islets when activated they lead to decrease in insulin secretions.

BETA RECEPTORS

These are of three types

Beta one receptors

Beta receptors are coupled with GS protein

BETA ONE RECEPTORS

These are located on the heart when activated they lead to increase in heart rate, contractility, AV node conduction.

Kidney increase renin release which in turn Increases bp.

BETA TWO RECEPTORS

Located on lungs causes dilation of bronchial smooth muscle.

Located on vascular smooth muscles and arteries of skeletal muscles causes vasodilation.

Located on smooth muscles of GI tract and uterus decreases GI motility and inhibition of labor.

Located on pancreas Increases insulin secretion.

BETA THREE RECEPTORS

Located on adipose tissue Increases Lipolysis.

Located on urinary bladder causes relaxation of bladder and stops urination.