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DEPARTMENT: PHARMACOLOGY

MOCK TEST ANSWERS

1. Blood-brain barrier and blood--CSF BARRIER
2. Neurotransmitter Synthesis.

Neurotransmitter Packaging

Neurotransmitters Release.

Neurotransmitter Binding

Stopping the Chemical Signal

1. α-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA) and N-methyl-d-aspartate (NMDA) for glutamate
2. Glycine and GABA (γ-Amino butyric acid) opens Cl- channels , resulting in post-synaptic target hyperpolarization.
3. Glutamate
4. Dopamine
5. Serotonin and
6. Parkinson’s diseases
7. Sedative, Hypnotics

* Benzodiazepines enhance the effect of the neurotransmitter gamma-aminobutyric acid (GABA) at the GABAA receptor.
* GABA needs to be present for benzodiazepine effects to be detectable
* Benzodiazepines increase the frequency of the chloride ion channel opening, thereby increasing the inhibitory effect of GABA on neuronal excitability
* Bind to “benzodiazepine receptors” located between alpha and gamma subunits of GABA-A receptor/channel complexes
* Benzodiazepine effects are especially pronounced in the limbic system, thalamus & hypothalamus.

1. The monoamine hypothesis of depression predicts that the underlying pathophysiologic basis of depression is a depletion in the levels of serotonin, norepinephrine, and/or dopamine in the central nervous system. that depression is caused by a functional deficit of the monoamine transmitters, noradrenaline and 5-hydroxytryptamine (5-HT) at certain sites in the brain, while mania results from a functional excess.
2. Centrally acting drugs act via the following broad mechanisms

* Transmitter-specific action (true)
* Neuron-specific action (true)
* Signal-specific action(true)
* All of the above(true)

1. These targets is/are of significance in the treatment of depression

* Selective serotonin reuptake inhibitors(true)
* Serotonin-noradrenaline reuptakeantagonists (true)
* NMDA receptor antagonists (false)
* Calcium channel blockers (false)

1. Match the following antidepressants with their respective groups

* Tricyclic antidepressant e.g. amitriptyline (true)
* Irreversible monoamine oxidase inhibitor e.g. mianserin (false)
* Monoamine receptor antagonist e.g. phenelzine (true)
* Tricyclic antidepressant e.g. imipramine(true)

1. The differences between brain and peripheral capillary bed includes:

* Brain capillaries have tight junctions while peripheral capillaries have fenestrated junctions(false)
* Brain capillaries have fenestrated junctions while peripheral capillaries have tight junctions(true)
* Brain capillaries have fewer mitochondria than peripheral capillaries(false)
* Brain capillaries have more mitochondria than peripheral capillaries(true)