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Lecture title: CNS Drugs

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Anticonvulsant Drugs

Are drugs used to control seizure through depressing the CNS.

Types

Barbiturates

Benzodiazepines

Phenytoin

Mechanism of action

It stabilizes the neuronal membranes and selectively depresses the motor areas in the brain.

It is not hypnotic, well absorbed orally, induces liver microsomal enzymes, metabolized in the liver and excreted in the bile.

Side effects

1. Transient incoordination.

2. Polyphagia.

3. Polyurea.

Primidone

The structure of this drug and its mechanism of action is similar to phenobarbital and about 25 % of the drug is metabolized into phenobarbital. It causes nausea, ataxia and not used in cats because it causes neurotoxicity.

Narcotic Analgesics

Are drugs used to produce analgesia through its action on the CNS.

Opioids agonists

Types

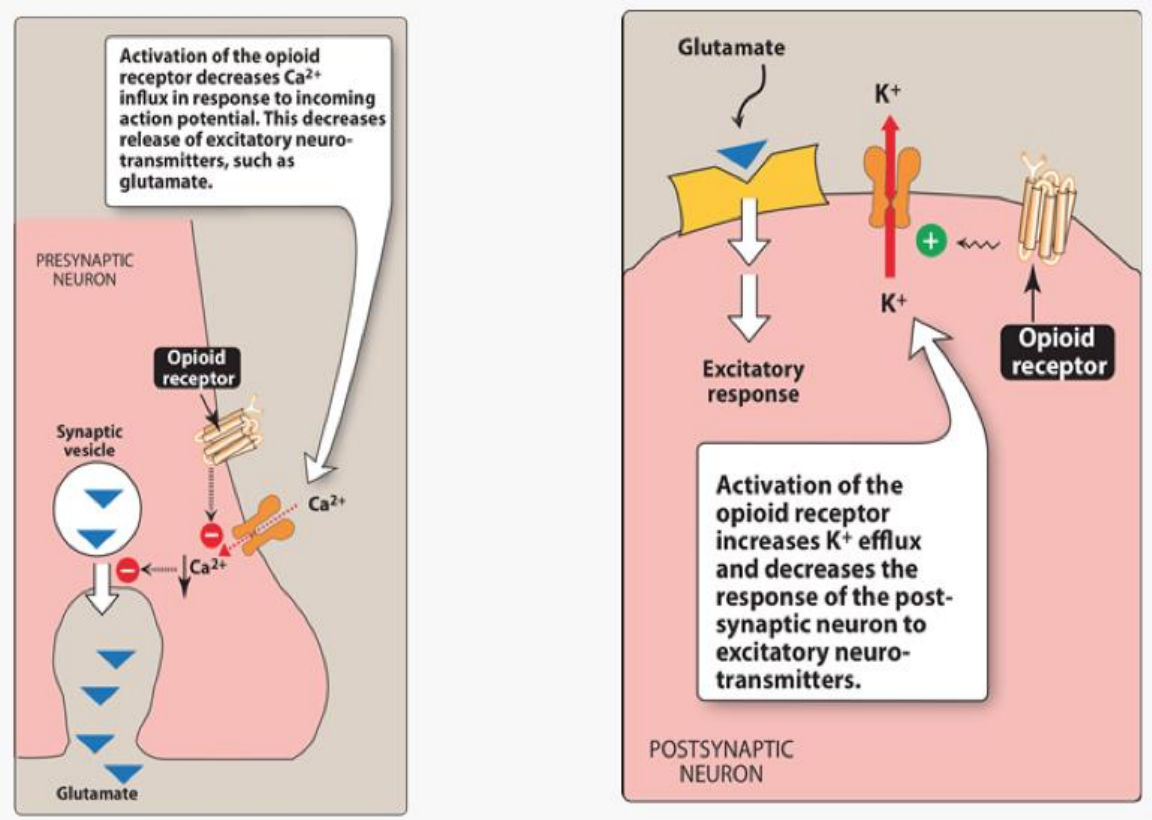
1. Natural like Morphine.

2. Synthetic like Fentanyl.

Morphine

Mechanism of action

It acts on opioid receptor (Mu receptor) in the CNS leading to depression of the brain and causing analgesia.



Pharmacological effects

A. On the brain:

1. Depresses the brain in dogs, monkey and human but it causes CNS excitation in cats, horses and ruminants.

2. Produces analgesia by increasing the pain threshold.

3. Produces euphoria in human.

4. Stimulates the Chemoreceptor Trigger Zone (CTZ) in the brain leading to emesis in dogs.

5. Depresses the cough center.

6. Depresses the respiratory center in the brain.

B. On the GIT:

The initial dose of morphine causes defecation but chronic use causes constipation.

C. On the skin:

Morphine causes itching because of histamine release.

Clinical uses

1. Analgesic.

2. Preanesthetic.

Contraindications

1. In case of shock because morphine causes respiratory depression.

2. In case of liver diseases.

3. In case of pulmonary edema.

Toxicity

Death may result from respiratory depression and it can be treated by giving opioid receptor antagonist like Naloxone.

Tranquilizers

Are drugs used to tranquilize and control of the animals and they are called also Neuroleptics.

Phenothiazine derivatives

Types

Chlorpromazine, Acepromazine and Promazine.

Chlorpromazine

Mechanism of action

They antagonize dopamine receptors in the brain leading to depression of the CNS.

It also has anticholinergic and antiadrenergic effects.

Clinical uses

1. Control the nervous animals.
2. Preanesthetic.
3. Antipruritus.
4. Antiemetic.
5. Antistress in transporting of animals.

Side effects

1. Incoordination in horses.
2. Dry mouth.
3. Constipation.
4. Hypotenstion.
5. Decreases body temperature.