

Ketamine is a phencyclidine derivative.

PHARMACOLOGY

- **MOA:** It is NMDA Antagonist. It exerts its effect through a wide range of spinal and cortical pathways via dopamine, norepinephrine, serotonin and opioid receptor antagonism.
- Ketamine produces profound analgesia, amnesia and dissociative anesthesia, a cataleptic state where the patient may have their eyes open, move their limbs involuntarily and breathe spontaneously.
- It is characterized by slightly increased skeletal muscle tone, normal pharyngeal and laryngeal reflexes with a patent airway.
- It increases cerebral blood flow and ICP with minimal alteration of cerebral metabolism.
- Ketamine is a potent bronchodilator and is well suited for anesthetizing patients at high risk for bronchospasm.

Pharmacokinetics and Metabolism

Onset of action < 1 minute

Duration : 10 -15 minutes

Adverse Effect

- **CNS**
 - Ketamine Emergence Reaction appears abruptly at a dose of 1- 1.5mg/kg and ranges from mild agitation to night mares & hallucination.
 - Cataleptic state : ketamine has indirect sympathomimetic activity. Ketamine induced cataleptic state is accompanied by nystagmus with pupillary dilation, salivation, lacrimation and spontaneous limb movements with increased overall muscle tone.
 - Emergence Delirium : Characterized by hallucinations is a frequent complication of ketamine. Delirium is most frequent in the first hour after emergence and appear to occur less frequently in children's; benzodiazepines reduce the incidence of emergence delirium.
 - Midazolam dose 0.03mg/kg IV can be administered to reduce risk of emergence reaction and reduce chance of postprocedural vomiting.
- **CVS** : Increases the heart rate, blood pressure and cardiac output. Ketamine increases myocardial oxygen consumption and is not an ideal drug at risk for myocardial ischemia.

- RS :
 - Ketamine can cause transient apnea (approx 20 seconds), particularly when administered rapidly IV. Induction dose produces a small and transient decrease in minute ventilation.
 - Although rare, hypersalivation and bronchorrhea have also been reported with ketamine.
- Nausea, vomiting

Dose

- Low Dose Analgesia : 0.1- 0.3mg/kg
- Procedural sedation : .1 - 1.5mg/kg IV over 30 - 60 seconds . Repeat dose: 0.5 - 1 mg/kg.
- Induction: 1-3mg/kg.

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