Ketamine

Class: General Anesthetic

Indications: Induction and maintenance of general anesthesia

Unlabeled: Analgesia, sedation

Available dosage form in the hospital: Solution, Injection: 10 mg/mL (20 mL); 50 mg/mL (10 mL).

Trade Names:

Dosage: May be used in combination with anticholinergic agents to decrease hypersalivation.
Note: Titrate dose for desired effect.

Sedation/analgesia (unlabeled use):

I.M.: 2-4 mg/kg (White, 1982)

I.V.: 0.2-0.75 mg/kg (White, 1982)

Continuous I.V. infusion: 2-7 mcg/kg/minute (Hocking, 2003; Remérand, 2009; Zakine, 2008)

Critically-ill patients: Loading dose: 0.1-0.5 mg/kg; followed by 0.83-6.7 mcg/kg/minute (equivalent to 0.05-0.4 mg/kg/**hour**) (Barr, 2013)

Induction of anesthesia (unlabeled dosing):

I.M.: 4-10 mg/kg (Green, 1990; Miller, 2010; White, 1982)

I.V.: 0.5-2 mg/kg (Miller, 2010; White, 1982)

Maintenance of anesthesia: May administer supplemental doses of one-half to the full induction dose or a continuous infusion of 0.1-0.5 mg/minute (per manufacturer). **Note:** To maintain an adequate concentration of ketamine for maintenance of anesthesia, 1-2 mg/minute has been recommended (White, 1982); doses in the range of 15-90 mcg/kg/minute (~1-6 mg/minute in a 70-kg patient) have also been suggested (Miller, 2010). Concurrent use of nitrous oxide reduces ketamine requirements.

Renal Impairment: No dosage adjustment provided in manufacturer's labeling.

Hepatic Impairment: No dosage adjustment provided in manufacturer's labeling.

Common side effects: Cardiovascular: Arrhythmia, bradycardia/tachycardia, hyper-/hypotension

Central nervous system: Intracranial pressure increased

Dermatologic: Erythema (transient), morbilliform rash (transient)

Gastrointestinal: Anorexia, nausea, salivation increased, vomiting

Local: Pain at the injection site, exanthema at the injection site

Neuromuscular & skeletal: Skeletal muscle tone enhanced (tonic-clonic movements)

Ocular: Diplopia, intraocular pressure increased, nystagmus

Respiratory: Airway obstruction, apnea, bronchial secretions increased, respiratory depression, laryngospasm

Miscellaneous: Anaphylaxis, dependence with prolonged use, emergence reactions (~12%; includes confusion, delirium, dreamlike state, excitement, hallucinations, irrational behavior, vivid imagery)

Pregnancy Risk Factor: Not assigned

Adverse events have not been observed in animal reproduction studies. Ketamine crosses the placenta and can be detected in fetal tissue. Ketamine produces dose dependent increases in uterine contractions; effects may vary by trimester. The plasma clearance of ketamine is reduced during pregnancy. Dose related neonatal depression and decreased APGAR scores have been reported with large doses administered at delivery (Ghoneim, 1977; Little, 1972; White, 1982).