Ketamine Parenteral and Oral Dose Recommendations

- **Pharmacology**
  - Inhibits glutamate binding to NMDA-R receptor; activity at norepinephrine, serotonin, and muscarinic cholinergic, kappa opioid, and voltage-sensitive calcium channel receptors

- **Pharmacokinetics**
  - Lipophilic; Crosses blood brain barrier
  - **Protein binding:** 47%
  - **Onset of action:** 1-5 min IV/IM, 15-30 min SC; 30 min
  - **Plasma half-life:** 1-3 hrs (oral); 10-15 min IV
  - **Duration of action:** 4-12 hrs (oral) norketamine metabolized via hydroxylation and conjugation
  - **Elimination:** Primarily hydroxylated or conjugated norketamine metabolites in urine; 4% unchanged ketamine or norketamine; <5% elimination in feces

- **Drug Interactions**
  - Increased ketamine levels with concurrent use of CYP2B6 or CYP2C8/9 inhibitors

- **Adverse effects**
  - **Central nervous system:** Alterations in body image/mood, floating sensations, vivid dreams, hallucinations, delirium, purposeless movement, drowsiness, increased intraocular pressure, increased intracranial pressure, increased muscle tone, memory impairment (long-term use)
  - **Gastrointestinal:** Nausea and vomiting, hepatic damage (long-term oral use)
  - **Cardiovascular:** HTN, tachyarrhythmias
  - **Misc:** Lacrimation, salivation, ulcerative cystitis (long term oral use)

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<th>How product is stocked</th>
<th>Usual Doses</th>
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| Oral                    | Compounded capsules | 30mg, 60mg capsules | 1mg PO Ketamine = 1mg IV Ketamine  
  - Reported Range: 0.3mg– 1.15mg PO Ketamine = 1mg IV Ketamine  
  Administer in divided doses Q8h  
  - Reported Range: Q4h to Q12h  
  If converting patients from Ketamine infusion to oral, administer first oral dose 4 to 8 hrs after infusion stopped  
  - May titrate every 48-72 hrs  
  - Typical starting dose in ketamine naïve patient: 10mg-30mg PO Q8h  
  - Maximum Reported Oral Dose: 800mg/day |
**Route of Administration**

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<tr>
<td>Intravenous or Subcutaneous</td>
<td>Compounded Infusion</td>
<td>Concentration: 2mg/ml Volume: 500mg/250ml in dextrose 5%</td>
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Bolus: 0.1mg/kg-0.4mg/kg Slow IV push
Maintenance Infusion: 0.1 mg/kg/hr – 1mg/kg/hr
- Once pain stabilized, may titrate maintenance infusion by 0.05-0.1mg/kg/hr every 24 hrs
Due to lack of concrete data, recommend conservative initial doses and dose titrations
Maximum Reported Parenteral Dose: 3600mg/day

**Example of an IV to Oral Ketamine Conversion**

70kg patient on a ketamine infusion at 0.2mg/kg-hr
70kg (ketamine IV 0.1mg/kg-hr)(24 hrs/day) = 336mg IV ketamine/day
336 mg IV ketamine/day (1 mg PO ketamine/1 mg IV ketamine) = 336 mg PO ketamine/day 336 mg PO ketamine/day (3 doses/day) = 112mg [Round to available capsule size 60mg] Final oral regimen: Ketamine 120mg PO Q8h

**References**


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