# Common Analgesic Drugs

<table>
<thead>
<tr>
<th>DRUG</th>
<th>DOSE</th>
<th>ROUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Mu Opioids</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>0.05–0.1 mg/kg</td>
<td>SC, IM, IV</td>
</tr>
<tr>
<td>Morphine</td>
<td>0.3–1.0 mg/kg</td>
<td>SC, IM, IV</td>
</tr>
<tr>
<td>Methadone</td>
<td>0.2–0.5 mg/kg</td>
<td>SC, IM, IV</td>
</tr>
<tr>
<td>Oxymorphone</td>
<td>0.02–0.06 mg/kg</td>
<td>SC, IM, IV</td>
</tr>
<tr>
<td><strong>Partial Agonists</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>10–20 mcg/kg</td>
<td>IM, IV</td>
</tr>
<tr>
<td>Simbadol (cats only)</td>
<td>0.24 mg/kg</td>
<td>SC</td>
</tr>
<tr>
<td><strong>Mixed Agonist</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butorphanol</td>
<td>0.2–0.4 mg/kg</td>
<td>SC, IM, IV</td>
</tr>
<tr>
<td><strong>Alpha₂-Agonists</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dexmedetomidine</td>
<td>2.5–10 mcg/kg</td>
<td>IM, IV</td>
</tr>
<tr>
<td>Dexmedetomidine (postanesthetic recovery dose)</td>
<td>0.05–2 mcg/kg</td>
<td>IV</td>
</tr>
<tr>
<td><strong>Alpha₂-Antagonists</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atipamezole</td>
<td>10× dexmedetomidine dose; same volume as dexmedetomidine</td>
<td>IM</td>
</tr>
<tr>
<td><strong>NMDA Antagonists</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ketamine (sedation)</td>
<td>5–10 mg/kg</td>
<td>SC, IM</td>
</tr>
<tr>
<td>Ketamine + midazolam (induction)</td>
<td>Ketamine: 5 mg/kg; Midazolam: 0.3 mg/kg</td>
<td>IV</td>
</tr>
<tr>
<td>Ketamine + diazepam (induction)</td>
<td>Ketamine: 5 mg/kg; Diazepam: 0.5 mg/kg</td>
<td>IV</td>
</tr>
<tr>
<td>Amantadine (treatment of pain)</td>
<td>3–5 mg/kg once daily</td>
<td>PO</td>
</tr>
<tr>
<td><strong>Adjunct Drugs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gabapentin</td>
<td>Generally start at 5–10 mg/kg twice daily; increase or decrease based on the individual patient</td>
<td>PO</td>
</tr>
<tr>
<td>Tramadol</td>
<td>Dogs: 3–5 mg/kg 3 times daily; Cats: 2–4 mg/kg twice daily</td>
<td>PO</td>
</tr>
</tbody>
</table>
Common Constant-Rate Infusions

<table>
<thead>
<tr>
<th>DRUG</th>
<th>LOADING DOSE</th>
<th>CRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ketamine</td>
<td>0.5–1 mg/kg</td>
<td>10–20 mcg/kg/min</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>Cats: 5 mcg/kg</td>
<td>Dogs: 5–10 mcg/kg</td>
</tr>
<tr>
<td></td>
<td>Dogs: 0.2–0.4 mcg/kg/min (anesthetic dose)</td>
<td>Dogs: 0.5–0.7 mcg/kg/min (anesthetic dose); 0.05–0.3 mcg/kg/min (analgesic dose)</td>
</tr>
<tr>
<td>Remifentanil</td>
<td>None</td>
<td>Cats: 0.2–0.4 mcg/kg/min (anesthetic dose)</td>
</tr>
<tr>
<td>Lidocaine (dogs only)</td>
<td>1 mg/kg</td>
<td>50–100 mcg/kg/min</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>0.05 mg/kg</td>
<td>0.05–0.1 mg/kg/h (anesthetic dose)</td>
</tr>
<tr>
<td>Morphine</td>
<td>0.5 mg/kg</td>
<td>0.1–0.2 mg/kg/h</td>
</tr>
</tbody>
</table>

Common Injectable NSAIDs for Postoperative Analgesia

- Carprofen (dogs only): 2 to 4 mg/kg SC, IV; note that this usage is off-label in the United States
- Meloxicam: 0.2 mg/kg SC
- Robenacoxib: 2 mg/kg SC

Local Anesthetic Blockades

- Lidocaine: 1–4 mg/kg
- Bupivacaine: 0.5–2 mg/kg

Epidural Analgesia and Anesthesia

- Lidocaine: 1–2 mg/kg
- Bupivacaine: 0.5–1 mg/kg
- Morphine: 0.1 mg/kg
- Buprenorphine: 12.5 mcg/kg

Drugs should be added to preservative-free saline for proper delivery. To calculate total volume of drug and saline needed for epidural administration, use the following:

\[
\text{Weight} \times 0.3 \text{ mL} = \text{total volume}
\]

* Drug protocols should be tailored to each individual patient. Debilitated, pediatric, and geriatric patients may require smaller doses than animals that are considered healthy. All drug doses are commonly used at and printed with permission from the UC Davis Veterinary Medical Teaching Hospital.