

# Drug Protocols for Single Epidural Injections in Dogs & Cats



Drug*	Dose (mg/kg) <sup>†</sup>	Onset (min)	Duration (h)	Species
<b>Local anesthetics</b>				
Lidocaine 2%	2–4	5	1–1.5	Dog, cat
Bupivacaine 0.5%	0.5–1	20–30	4–6	Dog, cat
Lidocaine 2% + bupivacaine 0.5%	2 + 0.5	5	4–6	Dog
<b>Opioids</b>				
Morphine <sup>‡</sup>	0.1–0.2	45–60	6–24	Dog, cat
Hydromorphone	0.1–0.2	20	6–8	Dog, cat
Oxymorphone	0.05–0.1	20–40	10–15	Dog, cat
Fentanyl	0.002–0.01	15–20	3–5	Dog
Fentanyl + morphine	0.002 + 0.1	15–20	6–24	Dog
<b>Alpha-2 agonists</b>				
Xylazine	0.02–0.2	30–45	2–3	Dog, cat
Medetomidine	0.002–0.015	30	2–4	Dog, cat
<b>Combinations</b>				
Bupivacaine 0.5% + morphine	0.5 + 0.1	20–30	18–24	Dog, cat
Lidocaine 2% + morphine	2 + 0.1	5	4–24	Dog, cat
Xylazine + morphine	0.02 + 0.1	30	6–10	Dog, cat
Medetomidine + morphine	0.005 + 0.1	20–30	10–16	Dog, cat

\* Preservative-free drugs are preferred. Combinations of bupivacaine and morphine more consistently provide analgesia of long duration compared with single-drug administration. Local anesthetics affect autonomic, sensory, and motor neurons, whereas opioids affect only sensory neurons. Alpha-2 agonists, especially xylazine, may affect all neuron types to some degree and may produce systemic effects due to systemic absorption.

† The doses are calculated (in mg) and the volume adjusted to approximately 0.22 mL/kg by adding sterile water or physiologic saline if necessary. In large dogs, a maximum volume of 6 mL is adequate for procedures involving the pelvis, perineum, or hindlimbs.

‡ Morphine may cause urinary retention. Patient should have the bladder expressed at the end of surgery and should be observed for adequate voiding at least for the following 24 hours. Urinary retention may be managed with careful bladder expression, placement of a urinary catheter, or systemic administration of an opioid antagonist, such as naloxone.