

Improving Analgesia and Monitoring in Sterilization Clinics



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Balanced Anesthesia Protocols for Cats

Premedication					
Drugs	Recipe ^a	Dose	Induction ^b	Cost ^c	Comments
Buprenorphine (0.02 mg/kg), acepromazine (0.02 mg/kg), glycopyrrolate (0.01 mg/kg)	10 mL buprenorphine, 0.4 mL acepromazine, 9.6 mL glycopyrrolate	0.5 mL/10 lb (4.5 kg) IM	Ketamine (5 mg/kg) and diazepam (0.25 mg/kg) IV	\$\$; substitute Telazol = \$	Buprenorphine has a slow onset of action. Addition of a faster-acting opioid such as morphine or butorphanol will provide immediate analgesia.
Morphine (0.5 mg/kg), acepromazine (0.02 mg/kg), glycopyrrolate (0.01 mg/kg)	6.1 mL morphine, 0.4 mL acepromazine, 9.5 mL glycopyrrolate, 4.0 mL sterile saline	0.5 mL/10 lb (4.5 kg) IM	Ketamine (5 mg/kg) and diazepam (0.25 mg/kg) IV	\$	—
Morphine (0.5 mg/kg), acepromazine (0.02 mg/kg), ketamine (3 mg/kg)	6.0 mL morphine, 0.5 mL acepromazine, 5.5 mL ketamine, 8.0 mL sterile saline	0.5 mL/10 lb (4.5 kg) IM	Ketamine (5 mg/kg) and diazepam (0.25 mg/kg) IV	\$\$	Can be used for patients that are difficult to handle.

\$ = <\$2, \$\$ = \$2–\$5

^aStability data for premixed drug combinations are not available.

^b1 mL/20 lb (9.1 kg) of a 50:50 mixture.

^cFor a 9-lb (4.1-kg) cat when followed by 2% isoflurane at 1.0 L/O₂ for 20 min.

Intramuscular Induction Protocols for Cats

Drugs	Recipe ^a	Dose	Cost ^b	Comments
Telazol, medetomidine, butorphanol	1 vial of Telazol reconstituted with 2.5 mL medetomidine (1 mg/mL) and 2.5 mL butorphanol (10 mg/mL)	0.1–0.3 mL/20 lb (9.1 kg); this results in a dose of 2.0 mg/kg Telazol, 0.01 mg/kg medetomidine, 0.1 mg/kg butorphanol	\$–\$\$	Castration can usually be performed using this combination without inhalant. Add another opioid for OVH.
Medetomidine, ketamine, butorphanol	2.0 mL medetomidine, 3.3 mL ketamine, 1.7 mL butorphanol, 3.0 mL sterile saline	0.5 mL/9 lb (4.1 kg); this results in a dose of 25 µg/kg medetomidine, 4 mg/kg ketamine, 0.2 mg/kg butorphanol	\$–\$\$	Castration can usually be performed using this combination without inhalant. Add another opioid for OVH.
Telazol, ketamine, xylazine	1 vial of Telazol reconstituted with 4 mL ketamine (100 mg/mL) and 1 mL large animal xylazine (100 mg/mL)	0.25 mL/adult cat; 0.15 mL/kitten; this results in a dose of 2.8 mg/kg Telazol, 2.2 mg/kg ketamine, 0.6 mg/kg xylazine	\$–\$\$	An opioid should be added. When this protocol is used, castration and most OVHs can be performed without supplemental inhalant.
Ketamine, acepromazine	1 mL acepromazine (10 mg/mL) added to a 10-mL vial of ketamine (100 mg/mL)	0.7–1.0 mL/adult cat; this results in an approximate dose of 10 mg/kg ketamine, 0.1 mg/kg acepromazine	\$–\$\$	Recoveries can be particularly rough, and intraoperative hypotension is likely. Provide subcutaneous fluids, if possible. An opioid should be added.

\$ = <\$2, \$\$ = \$2–\$5, OVH = ovariohysterectomy

^aStability data for premixed drug combinations are not available.

^bFor a 9-lb (4.1-kg) cat when followed by 2% isoflurane at 1.0 L/O₂ for 20 min.

Balanced Anesthesia Protocols for Dogs

Premedication					
Drugs ^a	Recipe ^b	Dose	Induction ^c	Cost ^d	Comments
Morphine (0.5 mg/kg), acepromazine (0.02 mg/kg), glycopyrrolate (0.01 mg/kg)	6.1 mL morphine, 0.4 mL acepromazine, 9.5 mL glycopyrrolate, 4.0 mL sterile saline	1 mL/20 lb (9.1 kg) IM	Ketamine (5 mg/kg) and diazepam (0.25 mg/kg) IV	\$\$; substitute Telazol induction = \$\$	—
Buprenorphine (0.02 mg/kg), acepromazine (0.02 mg/kg), glycopyrrolate (0.01 mg/kg)	10 mL buprenorphine, 0.4 mL acepromazine, 9.6 mL glycopyrrolate	1 mL/20 lb (9.1 kg) IM	Ketamine (5 mg/kg) and diazepam (0.25 mg/kg) IV	\$\$\$	Buprenorphine has a slow onset of action. Addition of a faster-acting opioid such as morphine or butorphanol will provide immediate analgesia until the buprenorphine takes effect.
Medetomidine (0.01 mg/kg), morphine (0.5 mg/kg) IM	—	—	Ketamine (5 mg/kg) and diazepam (0.25 mg/kg) IV	\$\$; substitute Telazol induction = \$\$\$	Medetomidine sedation may not be reliable for aggressive dogs.
Telazol (5 mg/kg), morphine (0.5 mg/kg) IM	—	—	Ketamine (5 mg/kg) and diazepam (0.25 mg/kg) IV	\$\$\$	IM dissociatives provide reliable sedation for aggressive patients.

\$ = <\$2, \$\$ = \$2–\$5, \$\$\$ = >\$5

^aAnticholinergics may not be indicated for every patient.

^bStability data for premixed drug combinations are not available.

^c1 mL/20 lb (9.1 kg) of a 50:50 mixture.

^dFor a 50-lb (23-kg) dog when followed by 2% isoflurane at 1.5 L/O₂ for 30 min.

Intramuscular Induction Protocol for Dogs

Drugs	Recipe ^a	Dose	Cost ^b	Comments
Telazol, medetomidine, butorphanol	1 vial of Telazol reconstituted with 2.5 mL medetomidine (1 mg/mL) and 2.5 mL butorphanol (10 mg/mL)	0.1–0.3 mL/20 lb (9.1 kg) provides premedication and induction. 0.2 mL/20 lb results in a dose of 2.0 mg/kg Telazol, 0.01 mg/kg medetomidine, 0.1 mg/kg butorphanol.	\$\$\$	Add a longer-lasting opioid for OVH procedures.

\$\$\$ = >\$5, *OVH* = ovariectomy
^aStability data for premixed drug combinations are not available.
^bFor a 50-lb (22.6-kg) dog when followed by 2% isoflurane at 1.5 L/O₂ for 30 min.