

## Acepromazine revisited

Nancy Brock

**A**cepromazine maleate (ACE) is a tranquilizer and anesthetic premedicant very commonly used in small and large animal medicine. Its predictable tranquilizing, antiemetic, and antiarrhythmic effects make ACE a popular premedication agent. The pharmacokinetic profile of ACE shows that it is a drug of rather slow onset but long duration of action.

### Acepromazine as a premedication tranquilizer

Acepromazine is thought to exert its tranquilizing effects by blocking central dopaminergic receptors in the basal ganglia, forebrain, chemoreceptor trigger zone, and hypothalamus. It also has local anesthetic properties that produce widespread inhibition of excitable tissues.

After ACE has been administered, it is important to leave an animal undisturbed in a quiet area for 15 minutes for the maximum tranquilizing effects to be achieved. Acepromazine frequently fails to provide the desired calming effects when administered on its own to an already agitated animal, such as a fractious dog or cat exhibiting aggressive behavior. Administering more ACE will not bring about the desired tranquilization. However, higher doses will potentiate the drug's hypotensive side effects (see below).

Occasionally, extrapyramidal signs manifesting as agitation or generalized muscle tremors can be precipitated with high doses of ACE. These effects are rare and transient, generally lasting no longer than 48 hours.

The dose of ACE that I use for premedication is seldom higher than 0.05 mg/kg bodyweight (BW), intramuscularly (IM) or subcutaneously, although the published recommended doses of ACE are much higher. To maximize the calming and restraining effects of such a low dose, I often employ ACE in combination with meperidine hydrochloride (4 mg/kg BW), butorphanol tartrate (0.2 mg/kg BW), oxymorphone hydrochloride (0.05 mg/kg BW), or morphine (0.5 mg/kg BW). This permits me to achieve proper tranquilization while minimizing ACE's undesirable side effects, which are discussed below. In very fractious cats, I administer ACE 0.05 mg/kg BW, along with ketamine 5 mg/kg BW, both IM.

This low dose of ACE can be expected to have its most pronounced tranquilizing effects for 1 to 2 hours. Higher

doses will last 4 to 6 hours and, occasionally, up to 24 hours.

Because ACE (Atravet, Ayerst, St Laurent, Quebec) is supplied in 10 mg/mL or 25 mg/mL strength solutions, I prepare a dilute solution of 1 mg/mL in sterile saline, which permits me to administer accurately to even the smallest patients.

### Other desirable effects of acepromazine

Although ACE is most often administered as premedication because of its tranquilizing effects, it has other beneficial preanesthetic properties. It is a potent central antiemetic agent, which makes it a logical agent to precede narcotics known to cause vomiting. It also has antiarrhythmic properties and thus raises the threshold for catecholamine-induced arrhythmias, when animals are under halothane anesthesia. Acepromazine's antihistamine properties have led some clinicians to administer it prior to mast cell tumor removal or other procedures associated with potential histamine release. However, there are no studies, to date, that confirm any protective effect of this antihistamine property.

### Undesirable properties of acepromazine

Unfortunately, ACE has some undesirable properties, which we must contend with when using it as an anesthetic premedicant. These properties usually do not contraindicate the use of ACE, except in certain circumstances, which are discussed below.

Acepromazine is a potent peripheral alpha receptor blocker and depressor of the central vasomotor center, both of which properties, as with other anesthetic agents, contribute to hypotension during general anesthesia. Acepromazine has also been implicated in lowering the seizure threshold. It causes a transient reduction in the packed cell volume, which is inconsequential to animals with a normal hematocrit but potentially deleterious to anemic patients.

Acepromazine very occasionally causes transient bradycardia. It should probably never be administered to boxers, because this breed is suspected of being strikingly sensitive to this property of ACE. I know of three instances in which the bradycardia became so severe that the dog required emergency resuscitation, even after very low doses of ACE.

Acepromazine also depresses the thermoregulatory center in the hypothalamus; this effect, combined with

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dilation of cutaneous blood vessels, may contribute (as do other anesthetic agents) to intraoperative hypothermia.

### Indications and contraindications for the use of acepromazine

There are few absolute contraindications to the use of ACE, except in boxers. I avoid administering it to debilitated, depressed animals or animals with hypovolemia, such as trauma victims or animals that have suffered blood or fluid loss within the past week. I do not use it in animals with a history of seizures or in those that are to undergo potentially seizure producing procedures, such as myelography or cerebrospinal fluid taps. Animals with a second or third degree heart block should probably not receive ACE premedication, and I refrain from administering ACE to hyperthyroid cats receiving propranolol as treatment for tachycardia.

Is ACE contraindicated in healthy outpatients or geriatric animals? Absolutely not! It is important to evaluate the premedication needs of each individual animal. After all, judicious use of anesthetic premedication will contribute to a quiet induction of unconsciousness. Premedication will also lower the requirements and hence the undesirable side effects of other anesthetic agents. If an outpatient or an older animal requires tranquilization to ease the stress of handling, ACE in low doses, such as 0.02 to 0.05 mg/kg BW, may safely be given. Higher doses of ACE in old animals may contribute to sluggish recovery or cause excessive sedation.

I hope that the information contained in this brief review clarifies those circumstances in which ACE is indicated and those in which it should sometimes be considered an inappropriate preanesthetic medicant. There are few absolutes!

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