WALTHAM® Feline Medicine Symposium 2003
in association with The North American Veterinary Conference

Safe Anesthesia in Older Cats

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General anesthesia in older cats can be safely performed by following the basic anesthetic principles and steps. These steps should include a thorough physical examination, good history taking, appropriate selection and administration of perianesthetic drugs, careful monitoring and watchful post-anesthetic care. It is important to recognize that older cats may have a reduction in the functional reserve in different organ systems. These reductions may not be manifested in the blood work at all. Despite these possibilities, it is prudent to run a complete preanesthetic laboratory workup to identify problems. Based on the findings from the physical examination and laboratory workup, additional diagnostic tests like radiography, echocardiography or ultrasonography may be needed.

The choice of specific drugs and techniques depends on the specific disease processes older cats have. Here are some general guidelines in performing safe anesthesia in older cats:

1. Use lower doses of the drugs (up to 25–50% reduction) including inhalant agents.
2. Avoid drugs with profound cardiovascular and respiratory depressant effects (e.g., alpha-2 agonists). If ever these agents are used in older cats, the dose should be markedly reduced.
3. Use anesthetic drugs that are rapidly cleared from the body.
4. Provide appropriate pain relief.
5. Use balanced anesthetic techniques.
6. Administer drugs to effect.
7. If possible, use reversible drugs with minimal cardiopulmonary depressant effects.
8. Watch and check for drug interactions. Older cats are more likely to be receiving medications used in treating and managing pre-existing disease.

In addition to the above-mentioned guidelines, careful monitoring of anesthetized older cats is a must. Since older patients are more sensitive to anesthetic agents, vigilant monitoring of anesthetic depth is important. An anesthetic plane that is appropriate for the procedure being performed should be attained. Indirect blood pressure measurement using a Doppler should be done. Other monitoring devices that will be helpful are ECG, pulse oximetry, and temperature monitor. Capnography with the appropriate gas aspiration rate, if available, will be useful in monitoring ventilatory adequacy.

During anesthesia, oxygen supplementation, respiratory support, and fluid administration will minimize the depressant effects of the anesthetic agents being used. Any problems that occur during anesthesia should be addressed and managed accordingly.

For premedication, a neuroleptanalgesic combination of a benzodiazepine (diazepam or midazolam) and an opioid (buprenorphine, hydromorphone, morphine or butorphanol) will be appropriate. Induction of anesthesia can be achieved either by using injectable agents (propofol, ketamine, diazepam or etomidate) or an inhalant (isoflurane or sevoflurane). See Table 1 for suggested dosages. Ketamine can be used in cats as long as the cat does not have renal insufficiency, hypertrophic cardiomyopathy, or neurologic disease with increased intracranial pressure. Maintenance of anesthesia using isoflurane or sevoflurane is preferred over injectable agents.

Postoperatively, pain control can be achieved using a systemic opioid (hydromorphone, buprenorphine, or butorphanol). The patient should have stable cardiopulmonary function during recovery. Normal body temperature should be attained as soon as possible during the recovery period.

As the saying goes, "there are no safe anesthetic agents, there are only safe anesthetists." Remember safe anesthetists always follow the basic principles of safe anesthesia.

Table 1. Suggested Dosages in Older Cats

Drug	Dose
Diazepam	0.1–0.2 mg/kg IM IV
Midazolam	0.05–0.2 mg/kg IM SC IV
Morphine	0.1–0.3 mg/kg IM SC
Hydromorphone	0.05–0.1 mg/kg IM SC IV
Oxymorphone	0.05–0.1 mg/kg IM SC IV
Buprenorphine	0.005–0.01 mg/kg IM SC IV
Butorphanol	0.1–0.3 mg/kg IM SC IV
Diazepam and ketamine combination (2.5: 50 mg/ml) 50:50 mixture	1 ml/10 kg titrate to effect for induction starting at 1/4th of the calculated dose
Propofol	Calculated dose of 4 mg/kg; ½ of the dose slow bolus (over 40–60 sec), the rest to effect
Etomidate	Calculated dose of 2 mg/kg; ¼ of the dose slow bolus, the rest to effect

REFERENCES

References are available upon request.