Ambulatory Anesthesia for the Exotic Veterinary Practitioner

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KEYWORDS

• Ambulatory • Anesthesia • Avian • Exotic • Reptile • Small mammal

KEY POINTS

- Anatomic nuances that make intubation, intravenous access, and monitoring challenging are critical factors to understand before attempting to anesthetize a new species, especially in remote locations.
- Adaptation of anesthetic monitoring devices designed for humans and domestic animals to exotic animals is challenging but necessary for safe field anesthesia.
- Literature regarding anesthesia in companion exotic animal species continues to grow, emphasizing the importance of safe anesthesia and reliable anesthetic monitoring.
- Routinely used inhalant delivery devices can be modified for field/portable use for exotic animal patients; commercially manufactured portable machines are also available.
- Remote capture equipment is often needed for field anesthesia of large or dangerous exotic animals, so practitioners are cautioned to train and seek experienced instruction before attempting to use these devices on patients.

INTRODUCTION

With the growing popularity in the ownership of nontraditional species, there is a growing need for veterinarians to be able to provide out-of-clinic health assessments on privately owned exotic species. Ambulatory (field/portable) anesthesia is often required for diagnostic and surgical procedures in remote or nonhospital settings. Anesthesia for diagnostic procedures is commonly used to ensure the safety of personnel and exotic veterinary patients, particularly in instances when there is an inability to transport the animal to the clinic owing to logistical or safety reasons. Often, the stress associated with handling even for the most minimally invasive procedures (ie, transport, physical examination, and blood collection) can result in injury from

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self-inflicted trauma or iatrogenically owing to struggling during restraint and handing. Performing heavy sedation or general anesthesia in the field is not without its difficulties and can be a source of stress for many veterinarians and their animal patients; even under the most ideal of circumstances, there is an increased risk of morbidity and mortality. This article focuses on the preparation of such an anesthetic event, as well as the implementation of ambulatory anesthesia in a host of privately owned exotic and wild animals.

PLANNING

Preparation in the perianesthetic period is paramount to ensure a safe and effective anesthetic event for both veterinary subjects and human clinicians. Whether it be for capture, surgery, examination, or treatment, the anesthetist should ascertain if the anesthesia is necessary and whether the benefits outweigh the potential risks to the animals and human personnel. If anesthesia is truly necessary, several factors must be considered during the perianesthetic period. When planning the anesthetic protocol, the ambulatory veterinarian should consider the species of interest, purpose of immobilization, and the procedural requirements including type and degree of restraint needed to provide safe capture and immobilization, as well as the environmental elements associated with the field setting (ie, temperature, terrain, bodies of water for terrestrial animals, and other hazards).

Species of Interest

It is important that the anesthetist has knowledge of the historical response of the species to restraint, capture, and immobilization. Drug protocol selection, doses and animal's response change between species and vary within species.[1] Therefore, the anesthetist must tailor the ambulatory anesthetic protocol to the species of interest, considering age, sex, body weight range, basic feeding habits, seasonal reproductive and condition cycles, habitat, and response to currently available drugs.

Herd animals such as wild equids, ungulates, and large birds (ostriches, emus) have an instinctual flight response to stressful situations, such as chase, capture, and confinement, which makes them more prone to self-trauma, collision, catastrophic fractures, and myopathies. Visual barriers or appropriately sized holding areas may help to decrease the flight distance and allow for closer access to animals. In contrast, large carnivores may choose to stand their ground in an aggressive manner if confronted with the likelihood of capture and restraint. For an assessment of a flock, aviary, or aquarium enclosure, it is important to consider the depth and height of the enclosure to allow for appropriate catch and release of individual animals.

The anesthetist must consider the likelihood of the animal's responses when developing a safe and effective anesthetic protocol. In many situations, remote drug delivery to an unrestrainable exotic animal is faster, less stressful, and with different, although no less deleterious, side effects, than physical restraint. Chase and capture techniques as well as extended periods of physical restraint have an increased risk of injury and mortality.

For the assessment of individual animals that are housed in a pair or group setting, it may be prudent to recommend an additional holding area be constructed to allow for the separation of animals when not immobilizing the group. For instance, many big cat hobbyists have multiple conspecific animals housed in the same enclosure. The ability to separate these animals is essential for both the safety of the animals and the human personnel. In herd animals, however, the premature separation of animals may be deleterious to the individuals that are housed separately for extended periods of time.