How to Sedate and Anesthetize the Untouchable Horse

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1. Introduction

Untouchable horses may vary from truly feral horses in open range areas to unhandled youngsters in the clinic or pasture environment. All are potentially dangerous and require careful assessment of the patient as well as assessment of what facilities and what personnel are available. Extreme caution should be used to prevent injuries to both handlers and horses. The veterinarian must think carefully about what they are taking on, and whether they are equipped for success before starting.

2. Feral Horses in Open Range Where Corral, Fenced Areas or Chutes are not Available

These situations will usually require dart administration of drugs and is beyond the scope of this talk, although some references have been provided.[1–4]

3. Nondomesticated or Minimally Handled Horses Where Restraint Is Available (e.g., Cattle or Roping Chute)

Many horses that have not been handled may still be fairly familiar with being around humans. For example, rodeo bucking horses are used to standing in chutes and can be injected intravenously (IV) or intramuscularly (IM) through the chute. This is also true for horses at Bureau of Land Management facilities which are run through chutes and anesthetized for castration. They may also be used to some restraint such as being haltered. The key is that appropriate dosages of drugs are given, preferably on the first attempt. Unfortunately, the horse's weight usually has to be estimated visually and perhaps corrected for body condition. If the patient is in extremely poor body condition it may be better to postpone whatever procedure is planned until that patient is in better shape. Obesity in these patients is much less common and the author would not adjust drug dosage for the overweight horse. The author's experience agrees with a previous report[5]; usual premedication doses of α_2 agonists should be 2 to 3 times standard dose for IV administration and higher for IM administration. The author recommends 3 to 5 mg/kg xylazine when given IM and 0.04 to 0.06 mg/kg detomidine when given IM. Induction with higher-than-normal doses of ketamine (2–4 mg/kg IV) should be used and diazepam (0.1 mg/kg, IV) is helpful to increase muscle relaxation and duration of anesthesia. Triple drip can be used for maintenance—the author typically uses a mixture of 500 mg xylazine with 2000 mg ketamine in 1 L of 5% guaifenesin. For longer procedures these horses can be intubated and maintained with inhalant anesthesia, as one would

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do for any other horse. Recovery usually occurs back in the patient's stall or corral; if the horse has been moved from the induction area, it must be moved back to a suitable area for recovery. Covering the horse's eyes with a towel may be helpful as the patient is left to self recover. Manual assistance in a minimally handled horse is probably not productive; even if ropes would help in recovery, the stimulus of trying to get them off might be dangerous. The addition of appropriate analgesics, additional sedatives, and/or local blocks will help produce a better recovery.

If there is a history of the patient (or relatives) being "refractory" to ketamine it is wise to start with other drugs. Sometimes this history is not known and the veterinarian may be faced with a horse that has received appropriate sedation and then has not become anesthetized (or only briefly anesthetized) with a full dose of ketamine. If the procedure is elective, the author would advise quitting for the day and planning another approach. In the past, the approach for these patients was to use thiopental, usually mixed with guaifenesin, for induction and maintenance of anesthesia. Since thiopental is no longer available in the United States, the best option may be to use tiletamine-zolazepam[a]. This drug can be given IM (by pole syringe if necessary) or IV (see Magdalena et al[1] and Matthrews et al[3] for dosages). Recoveries from tiletamine-zolazepam may be longer and rougher and sedation in recovery may be necessary. Although the component drugs in tiletamine-zolazepam are very similar to diazepam and ketamine, the potency of both drugs is greater, which is likely why they are more effective for the "refractory" patient. Combinations using propofol have been used for ketamine-resistant horses, but the incidence of apnea is extremely high when using propofol in horses. Equipment for ventilation should be available and some experience with the drug is required.

4. Uneducated or Needle-Shy Horses

These may be weanlings to 2-year-olds who have not been handled much yet (think, haltered for the first time today and transported to your clinic for castration). The author is very quick to get out the detomidine gel[b] for oral administration. Many of these horses will have been paste wormed and will accept oral gel. Although the detomidine gel label recommends that the product be placed under the tongue, the author's experience with the gel is that it sticks quite nicely to gums and oral mucosa so if you get it into the mouth most of it will be well absorbed. It is imperative to wait a full 40 minutes for optimal sedation (using the label dose); then it is possible to place an IV catheter or give IV premedications for anesthesia. Although this is off-label use of the product (i.e., as a premedication for anesthesia), the author thinks it is safer for all involved than to get the horse very excited. In the author's experience it has been more dependable sedation than IM administration. Depending on how much time has elapsed since oral drug is given, the author may "top up" with additional α_2 or not, depending on how sedate the horse looks. The goal is trying to get the horse in a "head to the knees" position before administering the induction drugs. The author's usual "top-up" dose is ¼–½ of my usual dose. Then the author uses standard induction doses of ketamine with diazepam for induction, and maintains with triple drip or inhalant anesthesia depending on expected duration of the procedure. Recovery may be slightly longer, depending on the length of the procedure, but is not greatly extended by the oral detomidine, probably because of the initial 40-minute delay after oral administration.

5. Discussion and Summary

All horses are dangerous and all equine anesthesia is inherently dangerous. Although other techniques and drug combinations that might be used for unhandled horses exist, the author has had success with these combinations and techniques.

Acknowledgments

Declaration of Ethics

The Author has adhered to the Principles of Veterinary Medical Ethics of the AVMA.

Conflict of Interest

The Author has no conflicts of interest.

References and Footnotes

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[a]Telazol, Zoetis, Inc., Kalamazoo, MI 49007.
[b]Dormosedan paste, Zoetis, Florham Park, NJ 07932.