

Aggressive Behavior Associated with the Use of Xylazine and Detomidine

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Unprovoked aggressive behavior in horses under the influence of xylazine and detomidine can pose a hazard to practitioners or other persons. Horses sedated with xylazine showed a greater tendency toward aggressive behavior than those sedated with detomidine. Breed, sex, and nonsedated personality did not correlate with instances of aggressive behavior. Authors' address: LaSalle Veterinary Clinic, 3620 Highway 2, East Kalispell, MT 59901. © 1998 AAEP.

1. Introduction

Xylazine (Rompun^a) and detomidine (Dormosedan^b) are classified as nonnarcotic sedatives and analgesic compounds. They are widely used and effective sedative-hypnotics that are utilized for various procedures in an equine practice. They have muscle relaxant effects that are related to their peripheral α_2 -adrenoreceptor agonist activity and the inhibition of neural impulses in the central nervous system.¹ It is recognized that horses under the influence of xylazine and detomidine may demonstrate a quick response to auditory or tactile stimuli.² It has been recommended that the use of alpha agonists can calm excitable horses and may even blunt aggressive behavior.³ Recent accounts concerning instances of unprovoked aggressive behavior by horses under the influence of these sedative agents have shown an alarming concern for safety.^c The purpose of this study was to survey practitioners about their clinical experiences relating to instances of unprovoked aggressive behavior in horses under the influence of these drugs.

2. Materials and Methods

A total of 1800 questionnaires were sent to AAEP member veterinarians involved in either private or institutional practice. Responses were either by mail return or e-mail. Twenty-four questions were presented to potential respondents. These questions addressed the frequency of usage, dosage, and the specifics of any unprovoked aggressive behavior instances associated with the use of xylazine and detomidine in equine patients. An additional question indicated years of equine practice experience. An area was available for subsequent comments concerning any aggressive behavior situation that occurred as a result of these nonnarcotic sedative compounds.

3. Results

A total of 327 completed questionnaires (18.1%) were returned. The largest group of respondents (35.3%; 85/241) had between 11 and 20 years of clinical equine practice experience.

The frequency of xylazine usage per month for

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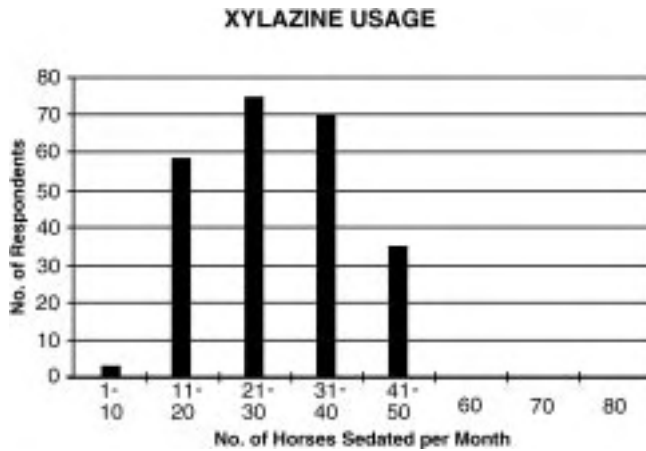


Fig. 1. Graph of xylazine usage per month.

sedation was distributed as shown in Fig. 1. The most common intravenous dose of xylazine used for sedation in a 450-kg horse was 0.55 mg/kg (according to 137 of 302 respondents, or 45.4%).

One hundred twenty-nine of 316 respondents (40.8%) indicated that they had witnessed an unprovoked aggressive behavior change in a horse under the influence of xylazine. The majority (94/119, or 79%) had witnessed fewer than five instances of such behavior. Thirty-eight percent (54/142 respondents) who witnessed this unprovoked aggressive behavior indicated it as extreme, because it resulted in an attack on a person or another horse. Medical attention was required in 20.8% (21/101 instances) of the aggression cases associated with xylazine.

Aggressive behavior instances predominated with xylazine used alone (68.3%; 84/123 respondents), although other drugs used in combination with xylazine also resulted in instances of aggressiveness.

Of the horses that showed unprovoked aggressive behavior, 36.1% (44/122) showed no evidence of an aggressive personality while not sedated, 38.5% (47/122) tended to possess an aggressive personality by nature, and 25.4% (31/122) had a personality of unknown nature.

There was no noted breed predilection (87.8%; 108/123 respondents) or sex predilection (81.5%; 101/124 respondents) for instances of unprovoked aggressive behavior while the horse was sedated with xylazine.

One hundred and twenty-two (44.7%) and 67 (24.5%) of a total of 273 respondents indicated that they sedated either 1–10 horses/month or 11–20 horses/month, respectively, with detomidine. The most commonly used intravenous dose of detomidine (157/286 respondents, 54.9%) was 11 µg/kg.

Unprovoked aggressive behavior was noted by 34 of 296 respondents (11.5%) in horses sedated with detomidine. An extreme attack on another horse or person was indicated in eight (24.2%) of 33 instances, with medical treatment required in two cases. On 29 occasions of aggressive behavior, 19 instances (65.5%) occurred when detomidine was the

sole sedative and ten instances (34.5%) were experienced in combination with other drugs.

An aggressive personality of the horse, in the nonsedated state, was noted by 9/28 respondents (32.2%) as being associated with an unprovoked aggressive behavior experience while the horse was sedated with detomidine. Detomidine and aggressive behavior did not have a breed predilection (96.2%; 25/26 respondents) or a sex predilection (77.8%; 21/27 respondents).

4. Discussion

The use of xylazine and detomidine in clinical equine practice is widespread. Both drugs are potent non-narcotic sedatives that allow for a good degree of chemical restraint for a variety of procedures. The results of this questionnaire indicate that practitioners utilize these drugs frequently and with confidence at the manufacturer's recommended dose.

Unfortunately, it is apparent that unprovoked aggressive behavior occurrences are a concern while horses are sedated with either xylazine or detomidine. These instances range from a determined aggressive posture (i.e., teeth bared, ears flattened, and head and neck extended) to extreme aggressive attacks on humans or other horses, which required medical attention (e.g., severe wounds or broken bones). The reason for this unprovoked aggressive behavior while under the influence of alpha₂-adrenoreceptor agonists is not fully understood. It may be the disinhibition that is afforded while on these drugs that ablates the fear of humans and thus causes an attempt to determine the dominant-subordinate hierarchy. There may be a hallucinogenic effect of these drugs that causes a heightened agitation factor or dysphoria, which leads to the disinhibition. Some respondents indicated that simple external stimuli (i.e., movement, sounds, or other animals) set off an aggressive incident, while in the nonsedated animal these stimuli are tolerated with no response.

A higher percentage of respondents (40.8% vs. 11.5%) noted instances of aggressive behavior more frequently in horses sedated with xylazine than in those sedated with detomidine. The incidence of extreme aggressive attacks was similar with either xylazine (38%) or detomidine (24.2%). More severe injuries, to either horses or people, from these attacks were produced while horses were under the influence of xylazine (20.8% vs. 8%).

A number of respondents experienced instances of unprovoked aggressive behavior while these alpha-agonist drugs were used in combination with other drugs from different classifications. These included acepromazine, pentazocine, butorphanol, ketamine, and chloral hydrate. Caution should be exercised when these combinations are used in the horse.

There was a slight tendency by respondents to indicate that some of the horses that showed unprovoked aggressive behavior while on xylazine had an aggressive personality by nature. This was not the

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case with horses that showed aggression while under the influence of detomidine.

Overall, respondents did not feel there was a breed or sex predilection for instances of unprovoked aggressive behavior. In the respondents that felt sex was a factor, the stallion appeared to be mentioned more often. This may reflect the stallion's disinhibition while on these drugs and his attempt to regain a dominant position.

5. Conclusions

The comments and anecdotes associated with these surveys indicate a real concern for the safety of persons and other animals in the vicinity of horses that are sedated with either xylazine or detomidine. Severe injury and potential liability concerns are paramount. The idea of dispensing these medica-

tions to clients for future use should be approached with caution, education, and warnings.

References and Footnotes

1. Harvey SC. Hypnotics and sedatives: miscellaneous agents. In: Goodman LS, Gilman A, eds. *Pharmacological basis of therapeutics*. New York: Macmillan, 1975;124.
2. Hubbell JAE, Muir WW III. Standing chemical restraint. In: Reed SM, Bayly WM, eds. *Equine internal medicine*. 1st ed. Philadelphia: Saunders, 1998;187-192.
3. Bednarski RM. Chemical restraint of the standing horse. In: Robinson NE, ed. *Current therapy in equine medicine III*. Philadelphia: Saunders, 1992;22-25.

^aRompun, Miles Inc., Agriculture Division, Animal Health Products, Shawnee Mission, KS 66223.

^bDormosedan, Pfizer Animal Health, West Chester, PA 19341.

^cGrisedale M. Unpublished data. December 1996.