

Chemical Restraint-Reversal with Medetomidine and Atipamezole in Veterinary Small Animal Practice: A Survey on the Opinions of the Dog Owners and Veterinarians

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Research Center, Orion Corp. Farnos, Turku, Department of Psychology, Åbo Akademy University, Turku, and Department of Biostatistics, University of Turku, Finland.

Vähä-Vahe, T., P. Niemi and J. Tuominen: Chemical restraint-reversal with medetomidine and atipamezole in veterinary practice: A survey on the opinions of the dog owners and veterinarian. *Acta vet. scand.* 1991, 32, 387–393. – The opinions of animal owners and practising veterinarians concerning a new restraint-reversal medication (medetomidine-atipamezole) for dogs were obtained by two questionnaires in connection with a clinical study. Four alternative answers to each statement question scored as "completely agree", "somewhat agree", "somewhat disagree" and "completely disagree". The questionnaires were completed by 21 veterinarians and 245 dog owners.

The overall response to the treatment was clearly positive. Both groups had a favourable attitude towards drug use with mean combined scores (from 1 to 4; 4 = most favourable) of 48.1 (max 56) for the dog owners and 39.2 (max 52) for the veterinarians. Only a little information was gained about the background of negative sentiments. Some pet owners (19 %) opposed to medication on a priori grounds, some (26 %) reacted strongly to the dizziness of their animals and some owners (21 %) complained because of general anxiety before, during and after their pets were treated.

sedation; analgesia.

Introduction

To build and to improve today's veterinary practice the veterinarian and the practice team must possess skills also in client management (*McCurnin* 1988). Obviously a consultation between the veterinarian and the animal owner is necessary before selecting e.g. the restraint method (mechanical restraint, sedation-analgesia, anaesthesia) and this will depend on the veterinarian-client relationship (*Blackshaw* 1986) and on their opinions of animal welfare. Pet owners are commonly thought of as a homogenous population. This is, however not the truth:

there are different groups of clients classified according to their basic attitudes toward their animals (*Beaver* 1981).

Until recently sedation-analgesia and its reversal in outpatient dogs with specific drugs (agonist/antagonist) has not been a common clinical procedure. Reversal of xylazine sedation in dogs has been reported using yohimbine (*Hatch et al.* 1985). Diprenorphine, an analgesic antagonist, has been used in reversing the action of a neuroleptanalgesic, etorphine mostly in wild animals. Nalorphine, a morphine derivative, acts as a narcotic antagonist most prominently pre-

venting or relieving respiratory-depressant activity of morphine and its derivatives (Booth 1988). These sedation-reversal medications have not been studied in veterinary social pharmacy.

With the administration of medetomidine/atipamezole the veterinarian can change his management of outpatient dogs. Medetomidine (DOMITOR®; Farnos) is a newly developed potent, selective and specific sedative-analgesic agent for dogs and cats in veterinary small animal practice (Vähä-Vahe 1989). During the maximum effect of the medetomidine the animal lies relaxed in a sleep-like condition unresponsive to external stimuli. Atipamezole (ANTISEDAN®; Farnos), a newly introduced, specific alpha-2 antagonist reverses the effects of medetomidine: the animal returns quickly to the state preceding the injection of medetomidine (Vähä-Vahe 1990) i.e. the animal can walk and looks normal. Deep sedation-analgesia allows the clinician to work effectively and safely and immediately after the clinical procedure, it is possible to reverse the dog back to normal.

The purpose of the present study was to investigate the ethical opinions of dog owners and practicing veterinarians on this medetomidine-atipamezole induced restraint-reversal medication as a management method in veterinary small animal clinics.

Materials and methods

The survey was carried out in 8 Finnish small animal clinics in connection with a clinical study of atipamezole effectiveness as a medetomidine antagonist in dogs (Vähä-Vahe 1990). The indications in which medetomidine-atipamezole was used were clinical examinations, procedures or minor surgical interventions. The clinician informed the dog owner about the use of the drugs. The owner was present during the treatment and

thus was able to observe the effects of the procedure.

Two questionnaires were prepared, each dealing with attitudes towards drug use in veterinary practice. One questionnaire (Table 1) was completed by the veterinarians and the other (Table 2) by the dog owners. The statements were arranged in natural groups and the sequence of statements in the questionnaires are presented in brackets. Four alternative answers were provided to each statement in the questionnaire: "completely agree", "somewhat agree", "somewhat disagree" and "completely disagree". In each questionnaire, one half of the statements were expressed in positive terms and the other half in negative terms. This was done in order to circumvent response biases and, in particular, to permit the expression of negative sentiments. Each questionnaire was pretested with a small number of respondents to ensure comprehensibility. The questionnaires were completed by 21 veterinarians and 245 dog owners.

The questionnaire to dog owners was given after the clinical procedure was finished. The respondents filled in the questionnaire at home and returned it to the veterinarian by mail. The veterinarian and the dog owner were unaware of each others' responses. All the veterinarians answered their questionnaire at the same time during a meeting with no mutual consultation.

The total score of an individual respondent was calculated. A certain response was given a score ranging from 1 to 4, "4" representing the most favourable attitude towards medication and "1" the least favourable.

In order to examine in more detail potential negative attitudes towards medication, the animal owners were subdivided in 2 groups with the median score 49 (max = 56) as the division point. It was decided that statement revealed at least some negative sentiment if

Table 1. Statements and answers of the veterinarian's questionnaire concerning restraint and recovery using medetomidine and atipamezole in dogs.

Statement	++ %	+ %	- %	-- %
<i>Ethical considerations:</i>				
I decide the restraint method on ethical and animal welfare aspects (2)*	9.5	66.7	23.8	0.0
Restraint-recovery method is manipulation and thus against animal welfare (6)	0.0	4.8	9.5	85.7
The laymen try to assert in animal welfare more than the experts (8)	0.0	57.1	38.1	4.8
Combining a sedative-analgesic and antagonistic drug leads to unnecessary medication (9)	0.0	0.0	23.8	76.2
People are deciding too many things for animals (12)	4.8	14.3	33.3	47.6
<i>Economical factors:</i>				
The high price of the drugs decreases their use in my practice (4)	4.8	23.8	57.1	14.3
The profitability of my practice is also an argument when choosing the restraint method (13)	33.3	42.9	19.0	4.8
<i>Evaluating the efficacy of the treatment with the aid of drugs:</i>				
When choosing the restraint method I try to keep the clinical procedure smooth (3)	61.9	33.3	4.8	0.0
Restraint-recovery method makes it possible to use higher doses for analgesia (5)	71.4	23.8	4.8	0.0
Restraint-recovery method makes the management of the clinic quicker (10)	71.4	19.0	9.5	0.0
<i>The veterinarian's personal feelings about the use of drug:</i>				
I feel it difficult to justify to the animal owner the increased use of drugs (7)	4.8	0.0	28.6	66.7
I do not want to increase the medication (11)	4.8	14.3	14.3	66.7

No. of statement in parenthesis.

++ "completely agree"; + "somewhat agree"; - "somewhat disagree";

-- "completely disagree".

25 % or more of the "negative" group answered with 1 of the 2 negative alternatives as opposed to less than 10 % of the "positive" group. All statements with a "negative"/"positive" distribution were cross-tabulated with all other 13 statements. The

differences between the groups were analysed by the chi-square test.

Results

Tables 1 and 2 give the distribution of the 4 alternative responses to each statement se-

Table 1. Statements and answers of the dog owner's questionnaire concerning restraint and recovery using medetomidine and atipamezole in dogs.

Statement	++ %	+ %	- %	-- %
<i>Evaluating pre-existing attitudes towards the drug use:</i>				
I think that the medication of pets is being increased for too marginal reasons (2)	2.1	12.9	50.2	34.9
I am interested in new drugs as they improve the treatment of the dog (4)	64.6	33.3	1.2	0.8
After all it is better that the animal is restless during the clinical procedure than muddled with drugs (5)	2.9	9.4	30.6	57.1
I think that the medication of pets should be avoided as it always involves unpredictable adverse reactions (6)	2.9	16.0	49.2	32.0
As the pets are increasingly considered as members of the family, it is good that new drugs have been developed also for them (8)	87.3	11.0	1.2	0.4
The animal benefits only a little from sedation (9)	2.9	12.9	35.7	48.5
<i>Reflecting the actual encounter with the veterinarian:</i>				
This time I was more excited than usually during the visit to the clinic as now restraint-recovery drugs were used (1)	6.9	11.8	29.4	51.8
I was informed sufficiently about the new method used (3)	60.0	26.1	8.6	5.3
I do not like to see my pet under sedation (7)	6.1	20.0	19.6	54.3
The sedation made the clinical procedure smoother (10)	86.0	13.2	0.0	0.8
I was very pleased to see my pet recover after the second injection (11)	64.5	31.4	3.3	0.8
The second injection was too much as my pet would have recovered even without it (12)	2.1	8.0	39.2	50.6
<i>The animal owner's subsequent feelings when back home:</i>				
This time I was more excited than usual about how many my pet will behave at home after the visit to the clinic (13)	7.4	15.2	33.6	43.9
Would you agree in the future that restraint-recovery medication could be used for your pet in connection with clinical procedures (14)	58.0	40.8	0.8	0.4
What other observations and thoughts would you like to bring to our attention? (15)	Answered	29 % (mostly expressions of gratitude)		
	No answer	71 %		

No. of the statement in parenthesis.

++ "completely agree"; + "somewhat agree"; - "somewhat disagree";

-- "completely disagree".

parately. 29 % of dog owners responded to the last question where space was provided under the heading "additional comments". The responses were generally positive.

General positivity/negativity

The veterinarians had a favourable attitude towards drug use with a mean score $M = 39.19$, $SD = 0.75$ and range 31–44. The theoretical maximum total score was 52 and minimum was 13. Only 7 of the 21 veterinarians had a mean score lower than 3.

In general, the dog owners were also positive, $M = 48.09$, $SD = 0.32$ and range 32–56. The theoretical maximum total score was 56 and the minimum was 14. Only 16 of the 245 dog owners had a mean score less than 3.

Items differentiating between the positive and less positive ("negative") dog owner groups

There were 4 items fulfilling the criteria for the "negative"/"positive" distribution. The one which evaluated preexisting attitudes was: "Medication is to be avoided because of adverse side-effects" (no. 6: 27 % of the "negative" group answered with 1 of the 2 negative alternatives as opposed to only 5 % of the "positive" group responding in the same manner). Those describing the psychosocial atmosphere during the treatment were the following: "This time I was more excited than usual" (no. 1: 26 % vs. 7 %), "I do not like to see my pet under sedation" (no. 7: 39 % vs. 7 %). Finally, statement no. 13 reflected the back-home feelings: "I was excited about my pet's behaviour when back home" (35 % vs. 7 %). The response distributions of the positive and less positive subgroups differed highly significantly from each other as measured by chi-square test. Interestingly, 33 % of the less positive group reported a supplemental comment in the

provided space concerning their feelings about the treatment as opposed to only 18 % of the positive group.

Control question no. 14 ("Would you agree to use the same medication with your pet in the future?") did not attract negative responses. This question was agreed completely by 142 dog owners and 100 agreed somewhat. On the other hand, the "positive" and "negative" group differed significantly in terms of these 2 response alternatives. In the former group, 96 persons agreed completely and 18 somewhat. The corresponding figures for the latter group were 46 and 82 persons. A lesser interest of having the same treatment in the future did not feature in responses to other statements. The only exception was statement no. 12 ("The second injection was unnecessary") which attracted 17 or 20 % negative responses from those agreeing only somewhat with the idea of having the same treatment again. Those agreeing completely reported this negative response only 5 times (4 %).

Discussion

The overall response to the treatment was clearly positive. This was particularly evident from the answers of dog owners to question no. 14. In all 142 of them agreed completely about the possibility of using the same treatment again for their pet, 100 agreed somewhat, and only 3 disagreed either somewhat or completely. No obvious explanation for this outcome exists. One possibility is that the general credibility and trustworthiness of the treatment was enhanced by the questionnaire. In other words, the favourable attitude could be due to a socio-psychological effect based on the fact that the veterinarians empathized with the feelings of the clients. It is also well-known that the attitudes of pet owners towards their veterinarians are generally positive (*Anonimus* 1982).

However, it is still interesting that the treatment was favourably received in the present case. Further important information can be obtained from examining the negative sentiments expressed about the new medication, although the attitudes towards the medication were markedly positive in both "negative" and "positive" groups, this procedure gave clues about opinions which may be crucial for rejection or acceptance of new treatment forms.

The origins of the negative sentiments were delineated by cross-tabulating the most potentially discriminating statements with all other statements. This procedure allows one to check whether a negative statement is associated with other negative feelings in the same person. As already stated, the response distributions were heavily biased towards an overrepresentation of positive responses. As there was no evidence for accumulating negative sentiments, such cross-tabulations are reported such that they display an approximately normal distribution of negative responses to 1 statement compared with others. It is hypothesized that persons answering negatively to 2 statements constitute evidence for a potential negative sentiment of which the veterinarian ought to be aware. As would be expected, a key position was occupied by no. 6 ("medication ought to be avoided") which indicated an attitude that correlated with 2 related statements: "Medication is increased for too marginal reasons" (no. 2) and "The animal benefits only a little from sedation" (no. 9). Moreover, statement no. 6 displayed a relationship with the atmosphere and feelings during the treatment: "This time I was more excited" (no. 1); and "I do not like to see my pet under sedation" (no. 7). Finally, there was a relationship with statement no. 13 ("I was more excited than usual when back home with my pet"). The aforementioned statement no. 7 ("I do

not like to see my pet under sedation") showed noteworthy relationships with 2 statements purported to test pre-existing attitudes: "It is better for the animal to be restless during the clinical procedure than muddled with drugs" (no. 5) and "The animal benefits only a little from sedation" (no. 9). The same group tended also to be more excited than usually during the visit to the clinic (no. 1). Finally, they also felt unusually excited when back home with their pet (no. 13).

One additional feature in the data deserves to be mentioned. Those who were excited during the treatment (no. 1) also tended to be excited when back home (no. 13) which might have given rise to the more frequent comments on the response form (no. 15).

Conclusions

The present data can be characterized in 2 ways. Firstly, the administration of the new medication was well received by the dog owners. In one sense the present data were disappointing, however. The responses were so favourable towards the new medicine that only little information was gained about the background of negative sentiments against pet medication. The data suggested 3 general reaction patterns which display a cautious or negative attitude against medication. Firstly, some pet owners (19 %) were opposed to medication on a priori grounds which made them critical of the treatment. Secondly, some pet owners (26 %) reacted strongly to the animal's dizziness due to the sedatives. Thirdly, some owners (21 %) displayed signs of general anxiety before, during and after the treatment. All these reaction patterns can easily be taken into account in a preliminary interview performed by the veterinarian or receptionist.

Acknowledgements

The authors thank the staff of the Finnish Small Animal Clinics participating in the study (Eura-joki, Helsinki, Lahti, Tampere, Turku and Uusi-kaupunki) and the dog owners for collecting the data.

References

- Anonymous*: What your clients think of you! *Mod. vet. Pract.* 1982, 63, 96–101.
- Beaver BV*: Knowing our clients and patients. *Vet. med./Small anim. Clin.* 1981, 76, 1551–1554.
- Blackshaw JK*: Human – animal inter-relationships. Review series 8: Veterinarian-client relationships. *Austral. vet. Pract.* 1986, 16, 24–27.
- Booth NH*: Neuroleptanalgesics, narcotic analgesics, and analgesic antagonists. In: Booth NH, McDonald LE (eds.): *Veterinary Pharmacology and Therapeutics*. Ames, Iowa State University Press 1988, 323–325.
- Hatch RC, Kitzman JV, Zahner JM, Clark JD*: Antagonism of xylazine sedation with yohimbine, 4-aminopyridine, and doxapram in dogs. *Amer. J. vet. Res.* 1985, 46, 371–375.
- McCurnin DM*: *Veterinary Practice Management*. J. B. Lippincott Company, Philadelphia PA, 1988, p. ix.
- Vähä-Vahe T*: Clinical evaluation of medetomidine, a novel sedative and analgesic drug for dogs and cats. *Acta vet. scand.* 1989, 30, 267–273.
- Vähä-Vahe T*: The clinical effectiveness of atipamezole as a medetomidine antagonist in dogs. *J. vet. pharmacol. Ther.* 1990, 13, 198–205.

Sammanfattning

Kemisk inaktivering-upphävning med medetomidin och atipamezol i veterinär små djurspraktik: Ett sammandrag av djurägares och praktiserande veterinärers åsikter.

Djurägares och praktiserande veterinärers åsikt angående en ny restraint-recovery-medikation (medetomidin-atipamezol) för hundar framgick ur frågeformulär som fylldes i samband med en klinisk prövning. De fyra svarsalternativen var "överensstämmer helt", "överensstämmer nästan helt", "oöverensstämmer nästan helt" och "oöverensstämmer helt". Tjugoen veterinärer och 245 hundägare fyllde i formulären.

Den allmänna responsen gentemot läkemedelsbehandlingen var klart positiv: både hundägarna och veterinärerna visade en gynnsam attityd med medeltalpoäng (från 1 till 4; 4 = gynnsammast) för en enskild deltagare på 48,1 (max 56) och 39,2 (max 54). Mycket litet information framkom angående bakgrunden för negativ inställning. Några djurägare (19 %) godkände inte medikationen p.g.a. tidigare erfarenhet, några (26 %) reagerade starkt för djurens yrsel och några ägare (21 %) klagade över ångest före, under och efter djurets behandling.

(Received August 10, 1990; accepted October 29, 1990).

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