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Short communication

Efficacy of mepyramine maleate treatment in dogs with angioedema

C. Cingi[1], K. Ural[2], A. Acar[1], E. Uzlu[3]

[1] Department of Internal Medicine, Faculty of Veterinary Medicine, Afyon Kocatepe University, Afyonkarahisar, Turkey
[2] Department of Internal Medicine, Faculty of Veterinary Medicine, Adnan Menderes University, Aydin, Turkey
[3] Department of Internal Medicine, Faculty of Veterinary Medicine, Kafkas University, Kars, Turkey

Abstract

Twenty-seven dogs with angioedema, were enrolled in this clinical study. The cases were randomly assigned to the treatment group (n=15) and untreated placebo control group (n=12). It was concluded that mepyramine maleate has the potential to be helpful for dogs with angioedema.

Key words: dog, angioedema, treatment, mepyramine maleate, clinical study

Introduction

Angioedema, a classic type 1 hypersensitivity disorder (Bircher 1999), is an abrupt asymmetrical swelling of tissue (Khalaf et al. 2008) and occurs as a result of increased permeability of subcutaneous or submucosal capillaries and post capillary venules. The latter local permeability increase causes localized plasma extravasation against histamine and bradykinin (Bas et al. 2006). Although the cause of angioedema is often undiagnosed, the suspected causes may include drugs, vaccines, infections, food intolerance, and insect bites (Bircher 1999).

Traditional H_1-type antihistamines have been suggested as symptomatic and alternative therapeutic agents for angioedema treatment alone (Black and Greaves 2002) or in combination with prednisolone (Borazan et al. 2003).

The purpose of this controlled clinical study was to investigate the clinical efficacy of mepyramine maleate in treating angioedema in dogs.

Materials and Methods

A total of 27 dogs with history of acute onset angioedema were enrolled in this study. Breeds investigated included: 7 Golden Retriever, 5 German Shepherd dog, 4 Belgian Shepherd dog, 3 Turkish Shepherd dog, 2 Boxer, 1 Doberman Pinscher and 5 cross-breed. Their age ranged between 3 months to 4 years. They included 16 puppies, five females and six males.

Historical data, aetiologies, clinical features, course of the angioedema, treatment and outcome by monitorization were studied. Drug or vaccine reactions were regarded as likely causes if observed within the 24 hours period prior to onset of angioedema. Food intolerance was regarded as a possible cause, if other relevant causes were lacking, based on the admittedly owners history.

The dogs were randomly divided into two groups. One group, consisting of 15 dogs, received intramuscular mepyramine maleate administration twice a day

Correspondence to: C. Cingi, e-mail: cagricingi@gmail.com, tel.: +90 272 2149309

Table 1. Clinical score and the severity of angioedema was graded as: (absent = 0, mild = 1, moderate = 2, severe = 3) on hours 0, 6, 12, 18 and 24.

Groups	Hour 0				Hour 6				Hour 12				Hour 18				Hour 24			
	Clinical Score																			
	3	2	1	0	3	2	1	0	3	2	1	0	3	2	1	0	3	2	1	0
Treatment group (n=15)	9	5	1	0	5	2	6	2	1	1	3	10	0	0	2	13	0	0	0	15
Placebo control group (n=12)	8	3	1	0	7	4	1	0	5	4	3	0	3	3	4	2	1	2	5	4

for three days (1 mg/kg bw), while the other group, consisting 12 dogs, received the placebo (0.9 % NaCl 1 mg/kg bw).

During the study, clinical symptoms were scored by the same investigator using a scale from 0 to 3. Clinical lesions subject to evaluation included the swelling located on the face. The signs of resolution and the improvement angioedema were scored by the same investigator. Besides, all the dogs were checked for 24 hours a day for evidence of adverse reactions to the treatment. Clinical follow-up was further carried out for one week for evaluation of possible recurrence. Student T test and Paired-Samples T test were used.

Results and Discussion

Based on history and excluding other causes presumed causes of angioedema in this study included post-vaccinal complication (n=9), drug allergy (n=4), food-allergy dermatitis (n=3), ascaridiosis (n=3) and ancylostomiasis (n=2). In six cases, the underlying causes were not identified.

In the dogs (n=15) treated the lesions improved gradually within 6 to 24 hours. Complete clinical remission by mepyramine maleate was detected within 24 hours. No clinical healing was observed in eight out of 12 untreated control dogs. No recurrence and adverse post-treatment reaction were observed in any of the dogs treated.

Mepyramine maleate treatment group showed significant improvement in scores from hour 6 ($p<0.05$), 12, 18 and 24 ($p<0.001$), while the placebo group showed no significant changes in scores in hour 6. Comparison of the two groups revealed that the clinical scores did not differ between the groups on hour 6, whereas the treatment group showed a significantly lower clinical score than placebo group on hour 6 ($p<0.05$) and hours 12, 18 and 24 ($p<0.001$) (Table 1). No grossly evident side effects were found.

In this study, mepyramine maleate treatment was found to be effective in decreasing clinical scores. As a clinical practice, evaluation of angioedema including scoring was the main outcome measure considered in this clinical study. The scoring system used in this study is the first clinical trial regarding scoring system in dogs with angioedema. This scoring system, however, was purposely designed to capture both extent and severity of angioedema as in other scoring systems accepted in veterinary and human medicine. Comparison of the two groups revealed that the clinical scores did not differ between the groups at the beginning of the study, while the mepyramine maleate treated group showed a significantly lower clinical score than the placebo group on hours 6 ($p<0.05$), and 12, 18 and 24 ($p<0.001$).

Post-vaccinal side effects and immune responses in canine species have previously been discussed in several papers (Brooks 1991, Tjalve 1997). In this study, angioedema was observed in nine dogs following vaccination. As a common clinical entity, none of the dogs were receiving any other medication at time of vaccination, none of them had a history of any contact to chemicals or offending substances. In addition, none of them had dietary changes. Based on the admittedly history, and excluding the other possible causes it has been observed that vaccination adverse reactions, especially angioedema, should be considered in canine cases with acute onset. In conclusion, in the treatment of the angiodema, mepyramine maleate has the potential to be helpful for the dog.

References

Bas M, Hoffmann TK, Kojda G (**2006**) Evaluation and management of angioedema of the head and neck. Curr Opin Otolaryngol Head Neck Surg 14: 170-175.

Bircher AJ (**1999**) Drug-induced urticaria and angioedema caused by non-IgE mediated pathomechanisms. Eur J Dermatol 9: 657-663.

Black AK, Greaves MW (**2002**) Antihistamines in urticaria and angioedema. Clin Allergy Immunol 17: 249-286.

Borazan A, Ustün H, Yilmaz A (**2003**) Angioedema induced by angiotensin II blocker telmisartan. Allergy 58: 454.

Brooks R (**1991**) Adverse reactions to canine and feline vaccines. Aust Vet J 68: 342-344.

Khalaf AT, Li W, Jinquan T (**2008**) Current advances in the management of urticaria. Arch Immunol Ther Exp 56: 103-114.

Tjälve H (**1997**) Adverse reactions to veterinary drugs reported in Sweden during 1991-1995. J Vet Pharmacol Ther 20: 105-110.