

Efficacy of a 0.0584% hydrocortisone aceponate spray in presumed feline allergic dermatitis: an open label pilot study

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Conflict of interest

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Abstract

This study evaluated the efficacy of a 0.0584% hydrocortisone aceponate (HCA) spray (Cortavance[®]; Virbac SA) in 10 cats with presumed allergic dermatitis. The cats initially received two sprays/100 cm² of skin once daily. Clinical lesions (a Feline Dermatitis Extent and Severity Index; FeDESI), pruritus (10 cm visual analog scale with grade descriptors) and owner assessments of efficacy, tolerance and ease of use (from 1 = very poor to 5 = excellent) were assessed every 14 days. The frequency of treatment was reduced after day 28 in cats with a >50% reduction in FeDESI and pruritus scores. One cat was lost to follow up at day 28 and two at day 42. Intention-to-treat data were analysed. The FeDESI [mean (SD): day 0, 42.2 (15.7) and day 56, 9.9 (11.7); $P < 0.0001$] and pruritus scores [day 0, 61.2 mm (20.1) and day 56, 14.6 mm (16.1); $P < 0.0001$] significantly decreased throughout the trial. The owner scores for tolerance [median (range): day 14, 4 (1–5) and day 56, 4 (3–5); $P = 0.003$] and ease of administration [day 14, 3 (2–5) and day 56, 4 (2–5); $P = 0.02$] significantly increased during the trial, but there was no significant change in efficacy scores [day 14, 4 (3–5) and day 56, 4 (2–5); $P = 0.5$]. There were no adverse effects attributable to the HCA spray, no significant changes in weight [mean (SD): day 0, 5.0 kg (1.4) and day 56, 5.0 kg (1.6); $P = 0.51$] and no significant changes in haematology, biochemistry or urinalysis ($n = 4$). Six cats required every-other-day treatment and four required

daily treatment. In conclusion, HCA spray appeared to be effective and safe in these cats, although it is not licensed for use in this species.

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Introduction

Feline allergic dermatitis is a common inflammatory and pruritic skin condition. Frequently recognized manifestations include head and neck dermatitis, eosinophilic granuloma, eosinophilic plaque and military dermatitis, and individual cats may exhibit any combination of these clinical patterns.^{1–3} The diagnosis is based on the history and clinical signs, excluding other causes of these lesions, such as flea allergic dermatitis, mosquito bites, other ectoparasites, cutaneous adverse food reactions, psychogenic dermatitis and hypereosinophilic syndrome.^{4–7}

Various treatments have been used to treat feline allergic skin disease. Some cats with positive environmental allergen-specific tests respond well to allergen-specific immunotherapy, although the evidence for efficacy and safety is less good than that for dogs.⁸ Many cats nevertheless require anti-inflammatory treatment. Traditionally, oral or parenteral glucocorticoids were most frequently used, but concerns over long-term safety have prompted exploration of alternative treatments.¹ Data on the efficacy of antihistamines and essential fatty acids are limited, and they are not considered potent anti-inflammatory agents.^{1,9} Ciclosporin is highly effective for the treatment of feline atopic dermatitis (AD) and eosinophilic granuloma complex.^{10–12} It appears to be well tolerated, with most adverse effects limited to mild gastrointestinal upsets.^{10–13} Immunosuppression, however, could lead to systemic toxoplasmosis,^{14,15} viral infections^{10,16} or neoplasia.¹⁷ The risk at the doses used to treat feline AD appears to be small,^{10–12,16} but there is an unmet need for a safe and efficacious anti-inflammatory treatment option for cats with inflammatory and/or pruritic dermatoses.

The topical diester glucocorticoid hydrocortisone aceponate (HCA; Cortavance[®]; Virbac SA, Carros, France) is licensed in a 0.0584% spray formulation for up to 70 days treatment of pyotraumatic dermatitis, flea allergic dermatitis and other inflammatory dermatoses in dogs. Nonhalogenated, diester topical glucocorticoids avoid many of the adverse effects seen with traditional topical glucocorticoids by virtue of their metabolism into largely inactive moieties within the skin.^{18,19} This is associated with better local and systemic tolerance, enhanced penetration of the

stratum corneum and increased anti-inflammatory potency.^{18,19} Two randomized, placebo-controlled trials (RCTs) demonstrated good efficacy in canine AD,^{20,21} and a further single-blind RCT²² showed similar efficacy to ciclosporin. Hydrocortisone aceponate appears to be well tolerated; no adverse effects were seen after 70–84 days treatment in the RCTs^{21,22} or after 8 weeks treatment of healthy dogs,²³ but a significant decrease in dermal thickness was noted after 14 days treatment in another study.²⁴ Recent practice guidelines recommended the use of this product in managing both acute and chronic canine AD.²⁵ The aim of this open-label pilot study was to provide preliminary proof-of-concept evidence that HCA could be used to manage presumed feline allergic dermatitis.

Materials and methods

Study patients

The study was performed in accordance with ethical guidelines laid down by The University of Liverpool and Virbac SA. Ten cats with perennial inflammatory and pruritic dermatoses [head and neck dermatitis with trunk miliary dermatitis (2), eosinophilic plaque of the ventral abdomen and medial limbs (7), and trunk miliary dermatitis (1)] were diagnosed with presumed allergic dermatitis based on their history, clinical signs, cytology and exclusion of other skin diseases. Hair plucks, skin scrapes and fungal cultures were normal. There was no response to an 8 week flea control trial with on-animal [selamectin spot-on (Stronghold®; Pfizer Animal Health, Sandwich, UK; three treatments, once every 14 days) in six cats, and imidacloprid/moxidectin spot-on (Advocate®; Bayer Animal Health, Newbury, UK; three treatments, once every 14 days) in four cats] and environmental treatment [one application of a permethrin/piperonyl butoxide/pyriproxifen spray (Indorex®; Virbac Animal Health, Bury St Edmunds, UK)], and a food trial with novel home-cooked ($n = 1$), novel commercial ($n = 3$) or hydrolysed proteins ($n = 6$). Three cats completed an 8 week food trial, but the food trials had to be abandoned early in the remaining cats (after 3 weeks in four cats, 4 weeks in two cats and 5 weeks in one cat). None of the cats had a history or clinical signs compatible with a psychogenic dermatosis. Drug withdrawal periods were as follows: topical or systemic antimicrobials, 7 days; oral glucocorticoids, 28 days; parenteral glucocorticoids, 56 days; antihistamines, 14 days; and ciclosporin, 28 days. None of the cats had been treated with allergen-specific immunotherapy or essential fatty acids. The cats were maintained on their usual diets, and regular flea control [selamectin, $n = 5$; imidacloprid/moxidectin, $n = 2$; or fipronil/s-methoprene (Frontline Combo®; Merial Animal Health, Harlow, UK) spot-on every 28 days]. No other treatments were permitted.

Trial protocol

The owners applied the HCA spray once daily to affected skin (two sprays from 10 cm per 100 cm² of affected skin). Hydrocortisone aceponate was wiped onto head lesions using cotton wool if necessary. Full clinical assessments were performed on days 0, 14, 28, 42 and 56. Clinical lesions were scored using a Feline Dermatitis Extent and Severity Index (FeDESI; Figure 1).²⁶ The owners assessed pruritus using a 10 cm visual analog scale with grade descriptors.²⁷ From day 14, the owners independently scored ease of use, tolerance and efficacy from 1 (very poor) to 5 (excellent). The cats were weighed at each visit, and blood and urine samples were collected from four cats on days 0 and 56. It was not possible to collect adequate samples from the remaining cats conscious, and it was decided to not sedate the cats for sampling, unless their condition warranted further investigation. The owners recorded the number of sprays administered, adverse events, concomitant treatments and other information in a daily diary.

The frequency of treatment at days 28 and 42 was reduced to every other day in cats with a >50% reduction in FeDESI score compared with day 0. If the improvement was maintained, the frequency was

further reduced to twice weekly. Owners were instructed to increase the frequency of treatment if the skin lesions or pruritus worsened.

The cats were withdrawn if they required treatment with a prohibited medication, if there was poor compliance or if they showed unacceptable discomfort. Owners were free to withdraw their animals at any point.

Data analysis

Intention-to-treat data were analysed. Descriptive statistics were used to describe the demographic data because there was no control group for comparison. The data were tested for normality before analysis (Kolmogorov–Smirnov test; Instat 3®; Graphpad Inc., San Diego, CA, USA). One-way repeated-measures ANOVAS with Tukey's *post hoc* tests (Prism 4®; Graphpad Inc.) were used to assess the changes in FeDESI and pruritus scores throughout the trial. The FeDESI and pruritus scores for each cat at each time point were correlated using Pearson's correlation test (Instat 3®; Graphpad Inc.). Friedman tests with Dunn's *post hoc* tests (Prism 4®; Graphpad Inc.) were used to analyse the owner assessment scores throughout the trial. The proportion of treated cats that achieved >50% reductions in FeDESI or pruritus compared with baseline and that could be maintained on daily, every-other-day or twice-weekly therapy was reported.

Results

Demographic data

Ten cats were enrolled. Eight were domestic short hairs, one was a domestic long hair and one was a British short hair. Six were neutered females and four were neutered males. At entry, the mean age was 6.4 years (SD 3.2 years) and the mean weight was 5.0 kg (SD 1.4 kg).

Intention-to-treat analyses

Three cats were prematurely withdrawn. Two cats were withdrawn at the owner's request, one at day 28 (perceived poor efficacy) and one at day 42 (because the owner found it difficult to return for re-examinations). One cat required systemic antibiotic treatment for a cat bite abscess and was withdrawn at day 42. On-treatment data were available for all these cats. Intention-to-treat analyses were performed using the last treatment carried forward technique. There were no other significant protocol deviations.

FeDESI and pruritus scores

The FeDESI (Figure 2) and pruritus scores (Figure 3) significantly decreased throughout the trial (one-way repeated-measures ANOVA, $P < 0.0001$ in each case). Tukey's *post hoc* tests revealed that the day 0 scores were significantly higher than the scores at days 14, 28, 42 and 56 ($P < 0.001$ in each case). There were no significant differences between the scores at any of the other time points. The FeDESI and pruritus scores for each cat at each time point were highly correlated (Pearson's correlation test, $P < 0.0001$; Figure 4).

At day 56 five of 10 cats had >50% decreases in both FeDESI and pruritus scores compared with day 0. Two cats had >50% decreases in pruritus only, two cats had >50% decreases in FeDESI only, and the remaining cat had <50% decreases in both FeDESI and pruritus scores.

Owners' global evaluation scores

The owners' scores for tolerance (Friedman test, $P = 0.003$) and ease of administration ($P = 0.02$)

				Erythema	Excoriations /erosions	Self-Induced Alopecia	Total
1	Face	Periocular					
2		Chin					
3	Head						
4	Ear Pinnae	Left	Convex				
5			Concave				
6		Right	Convex				
7			Concave				
8	Neck	Dorsal					
9		Ventral					
10		Lateral	Left				
11			Right				
12	Axilla	Left					
13		Right					
14	Sternum						
15	Thorax	Dorsal					
16		Lateral	Left				
17			Right				
18	Inguinal	Left					
19		Right					
20	Abdomen						
21	Lumbar	Dorsal					
22	Flank	Left					
23		Right					
24	Front Limb	Left	Medial				
25			Lateral				
26		Right	Medial				
27			Lateral				
28	Hind Limb	Left	Medial				
29			Lateral				
30		Right	Medial				
31			Lateral				
32	Front Foot	Left	Dorsal				
33			Ventral				
34		Right	Dorsal				
35			Ventral				
36	Hind Foot	Left	Dorsal				
37			Ventral				
38		Right	Dorsal				
39			Ventral				
40	Perianal						
41	Perigenital						
42	Tail						
Normal = 0 Mild = 1 Moderate = 2–3 Severe = 4–5				Total =			

Figure 1. Feline Extent and Severity Index (FeDESI). Forty-two body sites were scored 0–5 for erythema, excoriation/erosion and self-induced alopecia, giving a total score ranging from 0 to 630.

significantly improved during the trial (Figure 5). There was, however, no significant difference in the owners' scores for efficacy throughout the trial ($P = 0.5$). Dunn's *post hoc* tests did not reveal any significant differences between any time points for any of the scores.

Frequency of treatment

By day 56, four cats required daily therapy to maintain remission, and six cats could be maintained on every-other-day treatment. Six of the seven cats that completed the whole trial could be maintained on

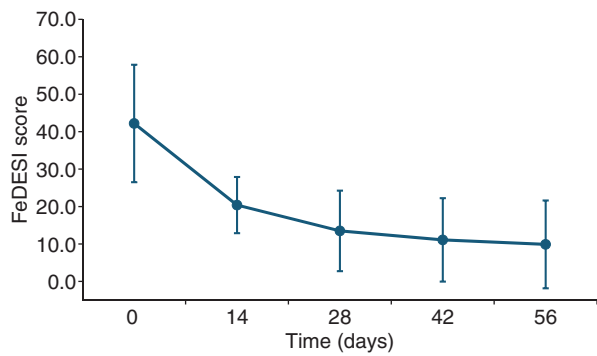


Figure 2. Changes in FeDESI score in cats treated with hydrocortisone aceponate spray (means $\pm$ SD).

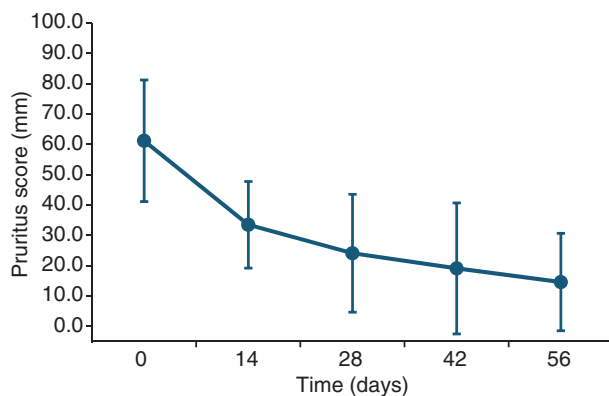


Figure 3. Changes in pruritus score (in millimetres) in cats treated with hydrocortisone aceponate spray (means $\pm$ SD).

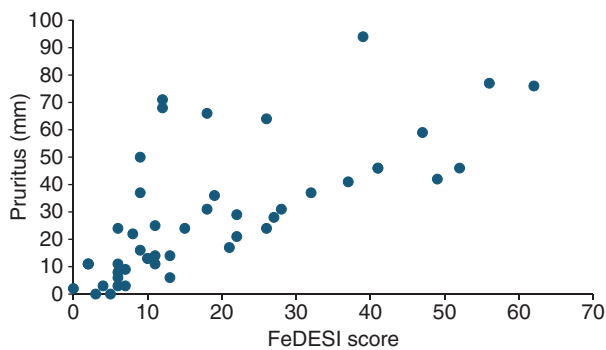


Figure 4. Correlation between the FeDESI score and pruritus score (in millimetres) for each cat at each time point.

every-other-day therapy. Switching to twice-weekly treatment led to a relapse in clinical signs in all cases.

Adverse events

No adverse events attributable to the trial therapy were reported in any of the cats, and adverse events were not cited as reasons for premature withdrawal from the trial. One cat developed lymphocytic inflammatory bowel disease in the last week of treatment, but this was not thought to be associated with the HCA spray (as the condition was acute, the cat was not observed to ingest the spray after application, and the condition has been

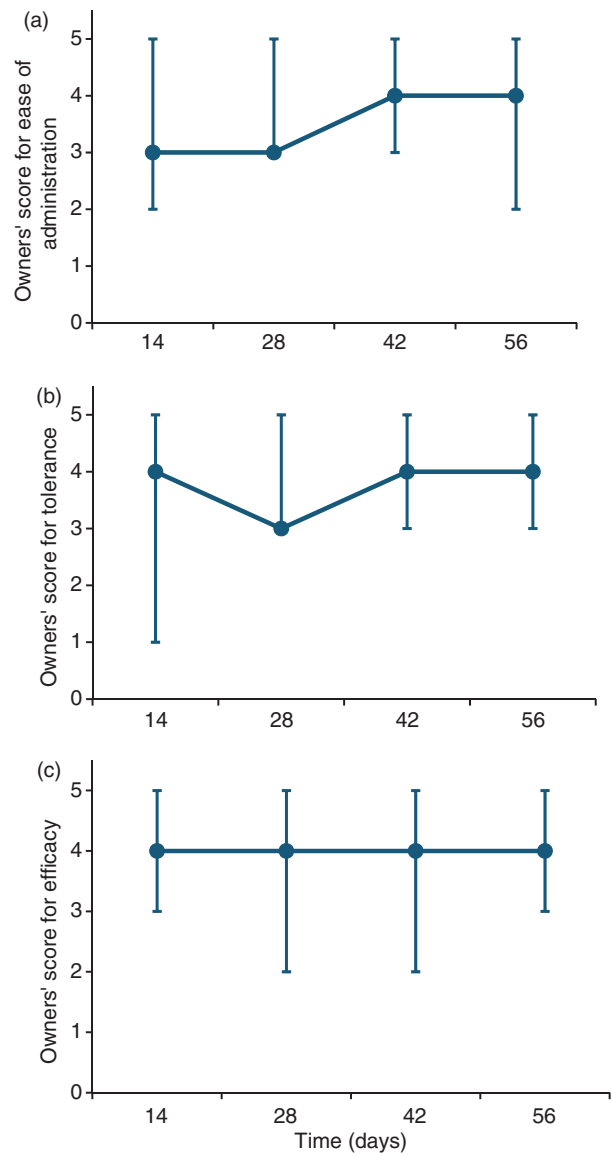


Figure 5. Owners' scores (median and range) for ease of administration (a), tolerance (b) and efficacy (c) in the cats treated with hydrocortisone aceponate.

managed through diet and intermittent systemic prednisolone with continued HCA treatment). There was no significant change in weight during the trial [day 0, mean 5.0 kg (SD 1.4); day 56, mean 5.0 kg (SD 1.6); one-way repeated-measures ANOVA, $P = 0.8$]. All the blood and urine parameters were within normal limits in the four sampled cats, and there were no clinically significant changes between days 0 and 56 (data not shown). Four owners reported that their cats (two cats with head and neck dermatitis and two cats with eosinophilic plaque of the ventral abdomen/medial hindlimbs) would not tolerate the spray, but accepted the HCA solution applied to lesional skin using cotton wool.

Discussion

This study shows that a topical 0.0584% HCA spray appears to be a highly effective treatment for cats with presumed allergic dermatitis. There were highly significant improvements in both clinical lesions and pruritus.

Five of 10 cats, furthermore, achieved >50% decreases in both FeDESI and pruritus scores by day 56, the point conventionally used to denote a significant clinical improvement. Four more cats achieved >50% reductions in one of these scores. The FeDESI and pruritus scores were highly correlated, suggesting that the HCA spray did not preferentially ameliorate clinical lesions, and that the improvement was probably relevant to the cats' quality of life. It can, however, be difficult to assess pruritus in cats. The pruritus scale in this study has proved accurate in dogs,²⁷ but it has not been validated in cats. It is therefore possible that the correlation was due to owners perceiving the improvement in the lesions as evidence of decreased pruritus. These results compare favourably with ciclosporin, where remission in 50–100% of cats has been reported.^{10–12}

The owners' global evaluation scores corroborated the clinical scores. There was significant improvement in ease of administration and tolerance throughout the trial, suggesting that the owners and their cats found treatment easier with experience. In some cases, this was achieved by indirectly applying the HCA solution using cotton wool, although this method makes it difficult to determine the dose applied. There was no significant change in the efficacy score, but the majority of owners rated the efficacy as good or excellent at each time point.

The response to treatment was rapid, with most of the clinical improvement evident by day 14. Clinical scores tended to improve thereafter in most cats, but there were no significant differences from day 14 to 56. Individual lesion scores showed that eight of 10 cats were effectively in remission by day 28 (data not shown). This response appears to be similar to that in canine AD, where most dogs are improved by 14 days but full remission usually takes 28 days.^{21,22} The response times to the HCA spray in presumed feline allergic dermatitis also appear to be similar to those following treatment with ciclosporin, where clinical improvement is evident in most cats by 10–28 days but full remission takes 30–90 days.^{10–12} The longer response times appear to be associated with eosinophilic granuloma and indolent ulcers.

It was possible to reduce the frequency of treatment with HCA to every other day in most cats. It was not, however, possible to reduce the frequency further to twice weekly. This is in contrast to canine AD, where seven of 21 dogs²¹ and 10 of 24 dogs²² could be maintained on twice-weekly therapy in two trials. Variation in the frequency of long-term medication may be due to the inherent severity of condition, environment (e.g. allergen or irritant exposure) and/or genotypic differences in response to drug therapy or compliance. Coat length did not affect treatment outcome in dogs,²¹ although the denser coat in cats may limit penetration of HCA to the skin. This would not be expected early in treatment when most affected skin will be alopecic, but may affect the dose and/or frequency required to maintain remission once the coat regrows. It is also possible that additional therapy, such as essential fatty acids, antihistamines, allergen avoidance and allergen-specific immunotherapy, would permit less frequent treatment in cats.

The HCA treatment was well tolerated, with no adverse events attributable to the spray. No significant changes were seen in blood and urine parameters, although only four cats could be sampled. The remaining cats would have required sedation, and it was decided that this would only be performed if the cats' condition gave cause for concern. Four cats would not tolerate the spray, although HCA could be applied indirectly using cotton wool. The results of this trial indicate that HCA spray has a better benefit:risk profile than other anti-inflammatory agents, such as antihistamines, glucocorticoids and ciclosporin.^{1,9–17} This study, however, only followed 10 cats for a maximum of 56 days, and larger and longer term studies of safety are warranted.

Where possible, this study used reported and validated outcome measures. The CADESI-03 is a relevant and reliable assessment of clinical severity in canine AD,²⁸ and the system has been used as a basis for assessing skin lesions in cats.^{12,26} The FeDESI²⁶ used in this study has good intra- and interobserver reliability across a number of presentations, including eosinophilic plaque, symmetrical alopecia, miliary dermatitis, and head and neck dermatitis, although it only provides an indirect assessment of pruritus through excoriation. Direct pruritus scores have not been validated for cats, although the visual analog scale with behavioural descriptors used in this study has been found to be accurate in dogs.²⁷ Nevertheless, while validated lesion and pruritus scores are useful for evaluating and comparing treatment, it is likely that quality of life is more important to owners and their cats. It has been difficult to assess quality of life reliably, and studies have often reported global evaluation scores. These, however, can be misleading; for example, in an earlier trial of the HCA spray, some owners found that the global score contradictory because they found the spray efficacious but difficult to apply.²¹ In this study, therefore, the owners' evaluation was divided into efficacy, ease of application and tolerance. Very recently, quality-of-life questionnaires have been developed and validated for dogs.^{29,30} Similar questionnaires validated for cats could prove useful in future studies.

This study was carried out to good clinical practice standards. Rigorous inclusion and exclusion criteria were established before the trial to ensure, as far as possible, a diagnosis of feline allergic skin disease. The diagnosis, however, can be challenging. In particular, it was difficult to carry out the food trials because most cats refused the trial food before completing the 8 week trial. It is therefore possible that some of the cats had cutaneous adverse food reactions. Selection bias in breed, age, sex, weight and clinical severity was not apparent. Detection bias by the investigator and owners was, however, likely because this was an open label study. Performance bias was considered unlikely because there were no concomitant treatments apart from flea control. Attrition bias was present, with three cats withdrawn, although on-treatment data permitting intention-to-treat analysis were available for all 10 cats. It is possible that this biased towards a favourable response to treatment, although poor efficacy was cited as a reason for withdrawal in only one case.

In conclusion, this study demonstrated that a 0.0584% HCA spray was efficacious and well tolerated in 10 cats with presumed allergic skin disease. It is not, however, licensed for use in cats. This was, furthermore, a small, open label pilot study, and these findings should be confirmed in larger, longer term, blinded RCTs.

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References

1. Scott DW, Miller WH, Griffin C. Skin immune system and allergic skin disease. In: Muller and Kirk's Small Animal Dermatology 6th edn. Philadelphia, PA: W. B. Saunders Co., 2001: 543–666.
2. Bardagi M, Fondati A, Fondevila D *et al.* Ultrastructural study of cutaneous lesions in feline eosinophilic granuloma complex. *Veterinary Dermatology* 2003; 14: 297–303.
3. Taglinger K, Day MJ, Foster AP. Characterization of inflammatory cell infiltration in feline allergic skin disease. *Journal of Comparative Pathology* 2007; 137: 211–23.
4. Foster AP, O'Dair HA. Allergy testing for skin disease in the cat: *in vivo* versus *in vitro* tests. *Veterinary Dermatology* 1993; 4: 111–5.
5. Mason KV, Evans AG. Mosquito bite-caused eosinophilic dermatitis in cats. *Journal of the American Veterinary Medical Association* 1991; 198: 2086–8.
6. Nagata M, Ishida T. Cutaneous reactivity to mosquito bites and its antigens in cats. *Veterinary Dermatology* 1997; 8: 19–26.
7. White SD, Sequoia D. Food hypersensitivity in cats – 14 cases (1982–1987). *Journal of the American Veterinary Medical Association* 1989; 194: 692–5.
8. Loewenstein C, Mueller RS. A review of allergen-specific immunotherapy in human and veterinary medicine. *Veterinary Dermatology* 2009; 20: 84–98.
9. Nuttall TJ, McKeever PJ, Harvey RG. Feline eosinophilic granuloma complex. In: A Colour Handbook of Skin Diseases of the Dog and Cat, 2nd edn. London: Manson Publishing Ltd, 2009: 102–5.
10. Vercelli A, Raviri G, Cornegiani L. The use of oral cyclosporin to treat feline dermatoses: a retrospective analysis of 23 cases. *Veterinary Dermatology* 2006; 17: 201–6.
11. Wisselink MA, Willemse T. The efficacy of cyclosporine A in cats with presumed atopic dermatitis: a double blind, randomized prednisolone-controlled study. *Veterinary Journal* 2009; 180: 55–9.
12. Noli C, Scarpella F. Prospective open pilot study on the use of ciclosporin for feline allergic skin disease. *Journal of Small Animal Practice* 2006; 47: 434–8.
13. Latimer KS, Rakich PM, Purswell BJ *et al.* Effects of cyclosporin A administration in cats. *Veterinary Immunology and Immunopathology* 1986; 11: 161–73.
14. Beatty J, Barrs V. Antemortem diagnosis and treatment of toxoplasmosis in two cats on cyclosporin therapy. *Australian Veterinary Journal* 2006; 84: 30–5.
15. Last RD, Suzuki Y, Manning T *et al.* A case of fatal systemic toxoplasmosis in a cat being treated with cyclosporin A for feline atopy. *Veterinary Dermatology* 2004; 15: 194–8.
16. Robson DC, Burton GG. Cyclosporin: applications in small animal dermatology. *Veterinary Dermatology* 2003; 14: 1–9.
17. Gregory CR, Madewell BR, Griffey SM *et al.* Feline leukemia virus-associated lymphosarcoma following renal transplantation in a cat. *Transplantation* 1991; 52: 1097–9.
18. Brazzini B, Pimpinelli N. New and established topical corticosteroids in dermatology: clinical pharmacology and therapeutic use. *American Journal of Clinical Dermatology* 2002; 3: 47–58.
19. Schackert C, Korting HC, Schafer-Korting M. Qualitative and quantitative assessment of the benefit-risk ratio of medium potency topical corticosteroids *in vitro* and *in vivo* – characterization of drugs with an increased benefit-risk ratio. *Biodrugs* 2000; 13: 267–77.
20. Bryden SL, Burrows AK, Rème CA *et al.* Efficacy of a 0.0584% hydrocortisone aceponate spray (Cortavance) for the management of pedal pruritus in atopic dogs: a pilot study. *Veterinary Dermatology* 2008; 19(suppl. 1): 40–1.
21. Nuttall TJ, Mueller RS, Bensignor E *et al.* Efficacy of a 0.0584% hydrocortisone aceponate spray in the management of canine atopic dermatitis: a randomized, double blind, placebo-controlled trial. *Veterinary Dermatology* 2009; 20: 191–8.
22. Nuttall TJ, McEwan NA, Bensignor E *et al.* Equal efficacy of a 0.0584% hydrocortisone aceponate spray and ciclosporin in treating canine atopic dermatitis. *Veterinary Dermatology* 2010; 21: 534. (abstract).
23. Rème CA, Dufour P. Effects of repeated topical application of a 0.0584% hydrocortisone aceponate spray on skin thickness in Beagle dogs. *International Journal of Applied Research in Veterinary Medicine* 2010; 8: 1–6.
24. Bizikova P, Linder KE, Paps J *et al.* Effect of a novel topical diester glucocorticoid spray on immediate- and late-phase cutaneous allergic reactions in Maltese-beagle atopic dogs: a placebo-controlled study. *Veterinary Dermatology* 2010; 21: 70–9.
25. Olivry T, DeBoer DJ, Favrot C *et al.* Treatment of canine atopic dermatitis: 2010 clinical practice guidelines from the International Task Force on Canine Atopic Dermatitis. *Veterinary Dermatology* 2010; 21: 233–48.
26. Nuttall TJ, Steen RV, Cawood MI *et al.* FC-49 Feline Dermatitis Extent and Severity Index: a pilot study. *Veterinary Dermatology* 2004; 15: 36.
27. Hill PB, Lau P, Rybníček J. Development of an owner-assessed scale to measure the severity of pruritus in dogs. *Veterinary Dermatology* 2007; 18: 301–8.
28. Olivry T, Marsella R, Iwasaki T *et al.* Validation of CADESI-03, a severity scale for clinical trials enrolling dogs with atopic dermatitis. *Veterinary Dermatology* 2007; 18: 78–86.
29. Favrot C, Linek M, Mueller R *et al.* Development of a questionnaire to assess the impact of atopic dermatitis on health-related quality of life of affected dogs and their owners. *Veterinary Dermatology* 2010; 21: 63–9.
30. Linek M, Favrot C. Impact of canine atopic dermatitis on the health-related quality of life of affected dogs and quality of life of their owners. *Veterinary Dermatology* 2010; 21: 456–62.

Résumé Cette étude évalue l'efficacité d'un spray d'acéponate d'hydrocortisone (HCA) à 0.0584% (Cortavance®; Virbac SA) sur dix chats supposés atteints de dermatite allergique. Les chats ont initialement reçus deux sprays/100 cm² de peau une fois par jour. Les lésions cliniques (FeDESI, Feline Dermatitis Extent and Severity Index), le prurit (échelle visuelle de 10 cm avec description des grades) et l'évaluation par les propriétaires de l'efficacité, la tolérance et la facilité d'utilisation (1 = faible à 5 = excellent) ont été évalués tous les 14 jours. La fréquence de traitement a été réduite après J28 chez les chats ayant des scores de FeDESI et de prurit de plus de 50% de réduction. Un chat a été perdu après D28 et deux à D42. Les données d'ITT (Intention-to-treat) ont été analysées. Le score de FeDESI (moyenne [SD]: J0 42.2 [15.7] et J56 9.9 [11.7]; $P < 0.0001$) et le score de prurit (J0 61.2mm [20.1] et J56 14.6mm [16.1];

$P < 0.0001$) ont significativement diminué au cours de l'essai. Les scores des propriétaires pour la tolérance (médiane [écart]: J14 4 [1–5] et J56 4 [3–5]; $P = 0.003$) et la facilité d'administration (J14 3 [2–5] et J56 4 [2–5]; $P = 0.02$) ont significativement augmenté au cours de l'essai mais il n'y a eu aucune modification significative dans les scores d'efficacité (J14 4 [3–5] et J56 4 [2–5]; $P = 0.5$). Il n'y a eu aucun effet indésirable lié au spray d'HCA, aucun changement significatif du poids (moyenne [SD]: J0 5.0kg [1.4] et J56 5.0kg [1.6]; $P = 0.51$), et aucun changement significatif des valeurs hématologiques, biochimiques ou d'analyses urinaires ($n = 4$). Six chats ont nécessité un traitement tous les deux jours et quatre chats ont été traités tous les jours. En conclusion, le spray d'HCA semble efficace et sûr pour ces chats bien que le produit ne soit pas accrédité dans cette espèce.

Resumen Este estudio evaluó la eficacia de un aerosol con 0,0584% de aceponato de hidrocortisona (HCA) (Cortavance®; Virbac SA) en diez gatos con presunta dermatitis alérgica. Los gatos recibieron inicialmente dos pulverizados/100 cm² de la piel una vez diaria. Se determinaron cada 14 días las lesiones clínicas (grado de dermatitis e índice de severidad felino [FeDESI]), el prurito (escala visual-análoga de 10 cm con descripciones del grado), y la valoración de la eficacia, tolerancia y facilidad de empleo por los propietarios (1 = muy mala a 5 = excelente). La frecuencia del tratamiento se redujo después del día 28 en gatos con una reducción >50% en FeDESI y valores del prurito. Un gato se perdió del seguimiento al día 28 y dos más al día 42. Se analizaron los datos según intención de tratar. Los valores de FeDESI (media [SD]: día 0 42,2 [15,7] y día 56 9,9 [11,7]; $P < 0,0001$) y prurito (día 0 61,2mm [20,1] y día 56 14,6mm [16,1]; $p < 0,0001$) disminuyeron perceptiblemente a lo largo del estudio. Los valores de los propietarios para tolerancia (media [rango]: día 14 4 [1–5] y día 56 4 [3–5]; $P = 0,003$) y facilidad de la administración (día 14 3 [2–5] y día 56 4 [2–5]; $P = 0,02$) aumentaron perceptiblemente durante el ensayo, pero no hubo cambio significativo en los valores de eficacia (día 14 4 [3–5] y día 56 4 [2–5]; $P = 0,5$). No se observaron efectos nocivos atribuibles al aerosol de HCA, no hubo cambios significativos en el peso (media [SD]: día 0 5,0kg [1,4] y día 56 5,0kg [1,6]; $P = 0,51$), ni tampoco hubo cambios significativos en hematología, bioquímica y urianálisis ($n = 4$). Seis gatos requirieron tratamiento en días alternos y cuatro requirieron tratamiento diario. En conclusión, el aerosol de HCA parece ser eficaz y seguro en estos gatos, aunque no está aprobado para el uso en esta especie.

Zusammenfassung Diese Studie evaluierte die Wirksamkeit eines 0,0584%igen Hydrokortison Aceponat (HCA) Sprays (Cortavance®; Virbac SA) bei 10 Katzen mit der Verdachtsdiagnose einer allergischen Dermatitis. Die Katzen wurden anfangs einmal täglich zweimal/100 cm² Haut besprüht. Klinische Veränderungen (ein Feliner Extent und Severity Index [FeDESI], Juckreiz (10cm visuelle-analoge Skala mit Beschreibung der Grade), und die Beurteilungen der BesitzerInnen in Bezug auf Wirksamkeit, Toleranz und Leichtigkeit der Verabreichung (1 = sehr schwierig bis 5 = exzellent) wurden alle 14 Tage erfasst. Die Behandlungsfrequenz wurde nach D28 bei Katzen mit einer > als 50%igen Reduktion der FeDESI- und Juckreizwerte reduziert. Es gab keinen Follow-Up für eine Katze am D28 und für zwei Katzen am D42. Intention-to-treat Daten wurden analysiert. FeDESI (Mittelwert [SD]: D0 42,2 [15,7] und D56 9,9 [11,7]; $P < 0,0001$) und Juckreiz (D0 61,2mm [20,1] und D56 14,6mm [16,1]; $P < 0,0001$) Werte wurden während der Studie signifikant vermindert. Die Bewertungen der BesitzerInnen für Toleranz (Medianwert [von-bis]: D14 4 [1–5] und D56 4 [3–5]; $P = 0,003$) und Leichtigkeit der Verabreichung (D14 3 [2–5] und D56 4 [2–5]; $P = 0,02$) erhöhten sich während der Studie signifikant, aber es bestand kein signifikanter Unterschied bei den Wirksamkeitswerten (D14 4 [3–5] und D56 4 [2–5]; $P = 0,5$). Es traten keine Nebenwirkungen auf, die auf den HCA Spray zurückgeführt werden konnten, es gab keine signifikanten Unterschiede beim Gewicht (Mittelwert [SD]: D0 5,0kg [1,4] und D56 5,0kg [1,6]; $P = 0,51$), und keine signifikanten Unterschiede in der Hämatologie, Biochemie oder bei der Urinanalyse ($n = 4$). Bei sechs Katzen war jeden zweiten Tag eine Behandlung, bei vier Katzen war eine tägliche Behandlung nötig. Zusammenfassend kann man sagen, dass der HCA Spray bei diesen Katzen wirksam und sicher schien, obwohl er nicht für diese Spezies zugelassen ist.

要約 この研究は 0.0584% ヒドロコルチゾンアセポン酸エステル(HCA) スプレー (Cortavance®; Virbac) の効果を、10 頭のアレルギー性皮膚炎と考えられた猫で評価した。猫には当初 2 回/100cm² の噴霧を 1 日 1 回を行った。臨床症状 (猫の皮膚炎範囲と重症度指数 [FeDESI])、そう痒 (程度の詳細を加えた 10 cm ビジュアル-アナログスケール) と飼主による効果の評価、寛容度と使用しやすさ (1 = 非常に乏しいから 5 = すぐれている) を 14 日毎に評価した。治療の頻度は 28 日目に猫の FeDESI とそう痒スコアが >50% 以上減少していた場合に減少させた。28 日目までに 1 頭の猫が追跡不能となり、42 日目に 2 頭が追跡不能となった。入症したすべての個体を解析データに組み入れた。FeDESI (平均 [SD]: 0 日目 42.2 [15.7] と 56 日目 9.9 [11.7]; $P < 0.0001$) とそう痒 (0 日目 61.2 mm [20.1] と 56 日目 14.6 mm [16.1]; $P < 0.0001$) スコアは試験期間を通じて有意に減少した。寛容度に関する飼主スコア (中央値 [範囲]: 14 日目 4 [1–5] と 56 日目 4 [3–5]; $P = 0.003$) と投薬しやすさ (14 日目 3 [2–5] と 56 日目 4 [2–5]; $P = 0.02$) は試験中に有意に増加したが、効果スコアには有意な変化は見られなかった。HCA スプレーによる副作用は認められず、体重の有意な変化や血液学的、生化学的、尿検査に変化は認められなかった ($n = 4$)。6 頭のネコは 1 日おきの治療を必要とし、4 頭は毎日の治療を必要としていた。結論として、HCA スプレーはこの動物種では使用が認可されていないが、効果があり安全であることが判明した。