CANINE ATOPIC DERMATITIS

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IOWA STATE UNIVERSITY

1

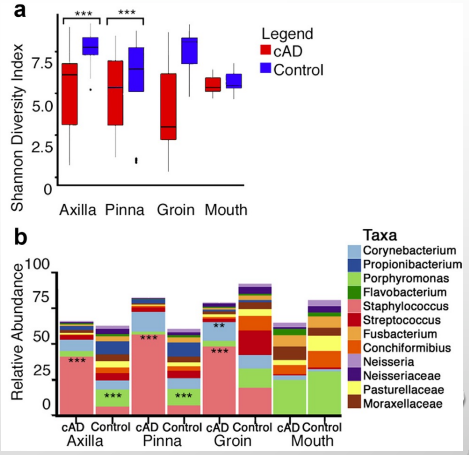
OUTLINE

- CASE BASED DESIGN
- DIAGNOSIS
- TREATMENT OPTIONS
  - MILD VS MODERATE VS SEVERE

2

CANINE ATOPIC DERMATITIS

- SKIN BARRIER
- SKIN CHEMICAL AND MICROBIOME
- ABERRANT IMMUNE RESPONSE



Bradley CW et al. Longitudinal Evaluation of the Skin Microbiome and Association with Microenvironment and Treatment in Canine Atopic Dermatitis. *Jour Invest Derm* 2016;136:1182-1190

3

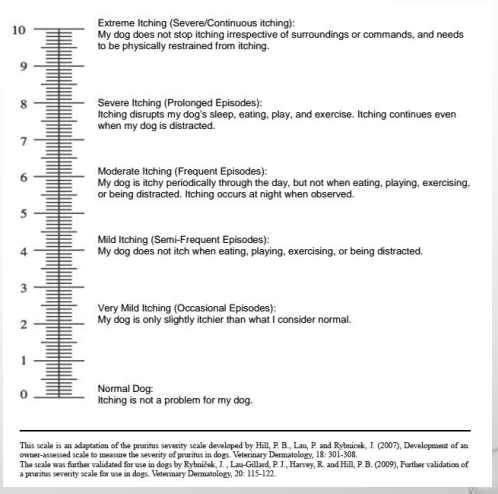
MAXINE 2.5 YO F(S) SHIH TZU

- ANNUAL EXAM
- ABDOMEN AND PAWS PINK
- RECENTLY, SLIGHTLY PRURITIC

4

MAXINE 2.5 YO F(S) SHIH TZU

- SEASONAL – SPRING AND FALL
- PRURITUS VISUAL ANALOG SCORE (PVAS) – 3/10



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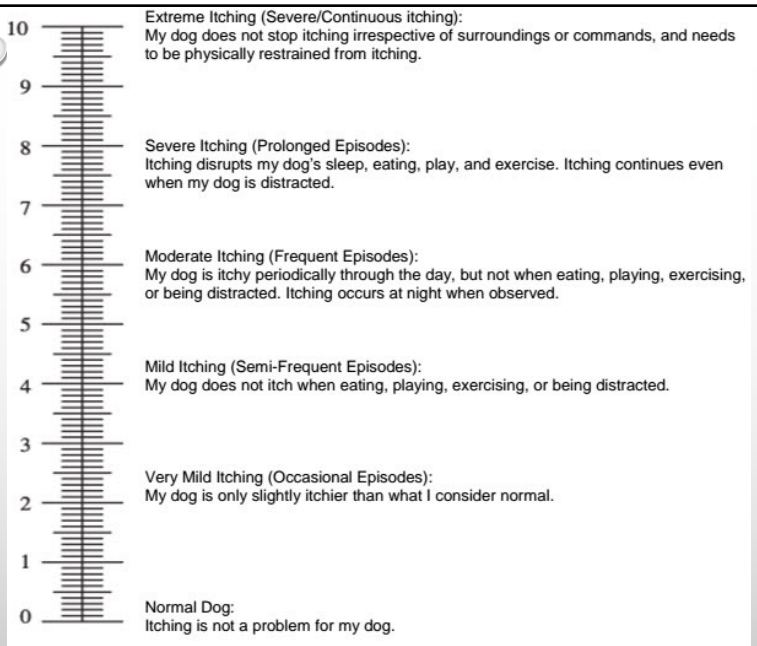

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MAXINE 2.5 YO F(S) SHIH TZU

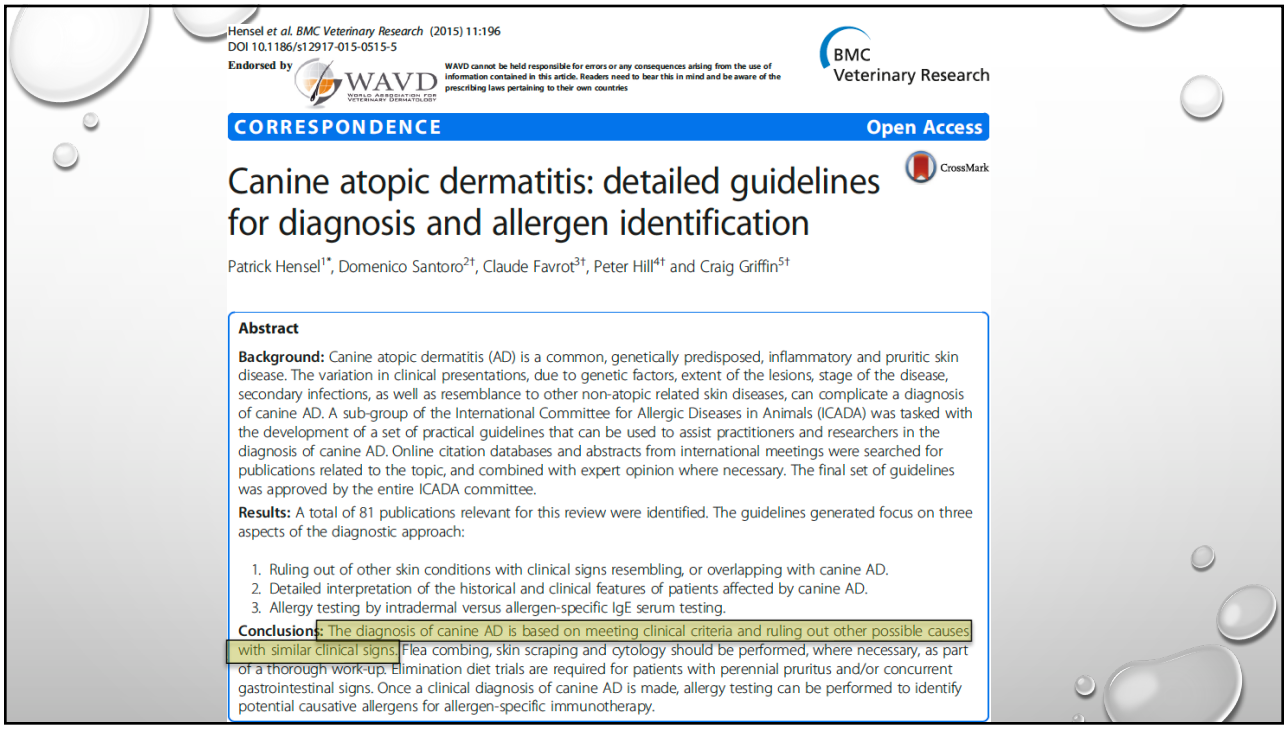
- CYTOLOGY – NO SIGNIFICANT FINDINGS
- SKIN SCRAPING – NO PARASITES OBSERVED
- TRICHOGRAM – NO SIGNIFICANT FINDINGS
- COMFORTABLE WITH DIAGNOSIS OF ATOPIC DERMATITIS?

7

DIAGNOSING CAD

- HISTORY AND LESION DISTRIBUTION IMPORTANT!
- AVERAGE AGE OF ONSET
- SEASONALITY VS NON-SEASONAL

8



Hensel et al. BMC Veterinary Research (2015) 11:196
DOI 10.1186/s12917-015-0515-5

BMC Veterinary Research

CORRESPONDENCE Open Access

Canine atopic dermatitis: detailed guidelines for diagnosis and allergen identification

Patrick Hensel[1*], Domenico Santoro[2†], Claude Favrot[3†], Peter Hill[4†] and Craig Griffin[5†]

Abstract

Background: Canine atopic dermatitis (AD) is a common, genetically predisposed, inflammatory and pruritic skin disease. The variation in clinical presentations, due to genetic factors, extent of the lesions, stage of the disease, secondary infections, as well as resemblance to other non-atopic related skin diseases, can complicate a diagnosis of canine AD. A sub-group of the International Committee for Allergic Diseases in Animals (ICADA) was tasked with the development of a set of practical guidelines that can be used to assist practitioners and researchers in the diagnosis of canine AD. Online citation databases and abstracts from international meetings were searched for publications related to the topic, and combined with expert opinion where necessary. The final set of guidelines was approved by the entire ICADA committee.

Results: A total of 81 publications relevant for this review were identified. The guidelines generated focus on three aspects of the diagnostic approach:

1. Ruling out of other skin conditions with clinical signs resembling, or overlapping with canine AD.
2. Detailed interpretation of the historical and clinical features of patients affected by canine AD.
3. Allergy testing by intradermal versus allergen-specific IgE serum testing.

Conclusions: The diagnosis of canine AD is based on meeting clinical criteria and ruling out other possible causes with similar clinical signs. Flea combing, skin scraping and cytology should be performed, where necessary, as part of a thorough work-up. Elimination diet trials are required for patients with perennial pruritus and/or concurrent gastrointestinal signs. Once a clinical diagnosis of canine AD is made, allergy testing can be performed to identify potential causative allergens for allergen-specific immunotherapy.

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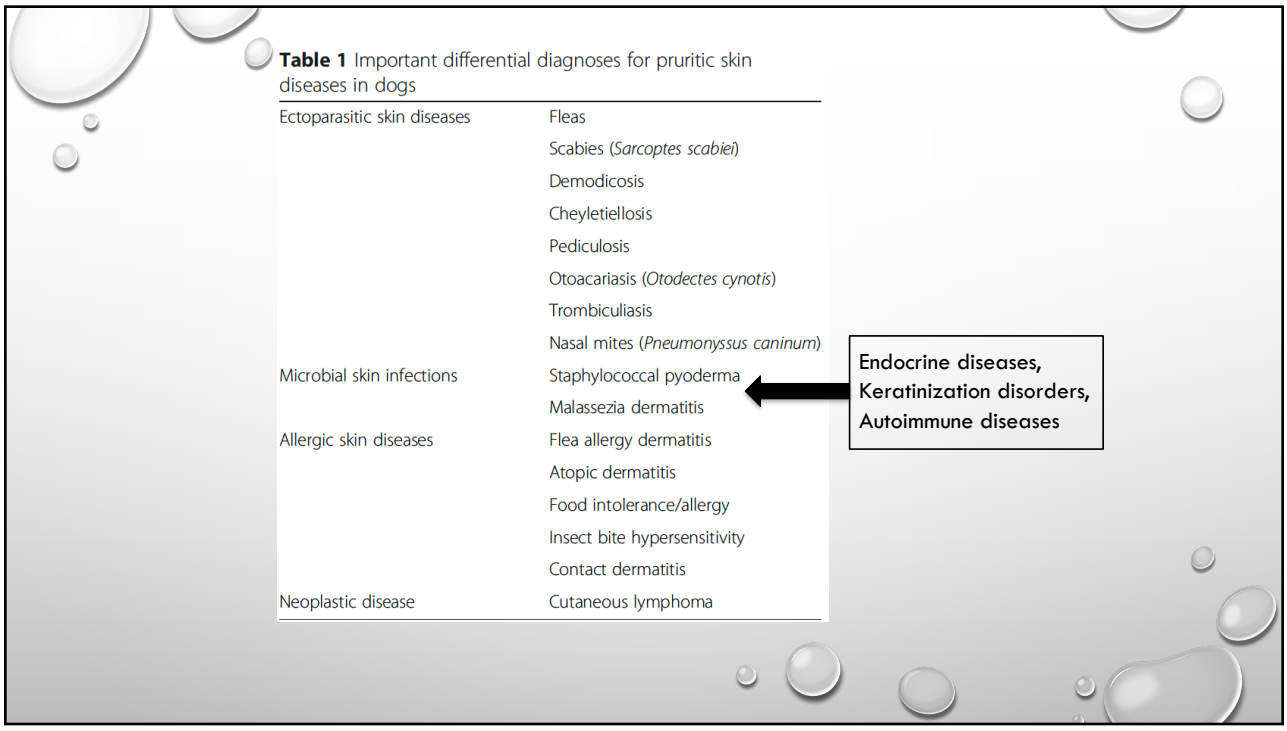

Table 1 Important differential diagnoses for pruritic skin diseases in dogs

Ectoparasitic skin diseases	Fleas
	Scabies (*Sarcoptes scabiei*)
	Demodicosis
	Cheyletiellosis
	Pediculosis
	Otoacariasis (*Otodectes cynotis*)
	Trombiculiasis
	Nasal mites (*Pneumonyssus caninum*)
Microbial skin infections	Staphylococcal pyoderma
	Malassezia dermatitis
Allergic skin diseases	Flea allergy dermatitis
	Atopic dermatitis
	Food intolerance/allergy
	Insect bite hypersensitivity
	Contact dermatitis
Neoplastic disease	Cutaneous lymphoma

Endocrine diseases,
Keratinization disorders,
Autoimmune diseases

10

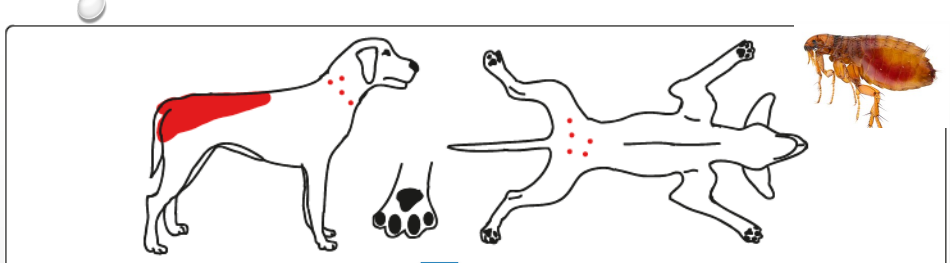

Fig. 1 Distribution of skin lesions and pruritus associated with FAD. Acute lesions: Erythematous macules, papules, crusted papules, hot spots. Chronic lesions: Self-induced alopecia, lichenification, and hyperpigmentation

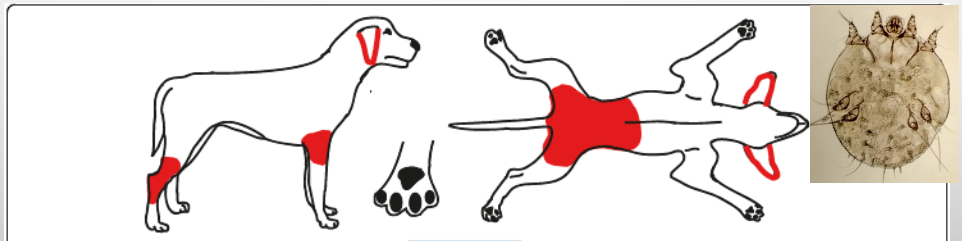

Fig. 3 Distribution of skin lesions and pruritus associated with sarcoptic mange. Lesions include papular eruption, erythema, scaling, excoriations

Hensel et al. Canine atopic dermatitis: detailed guidelines for diagnosis and allergen identification. *BMS Vet Res.* 2015;11:196

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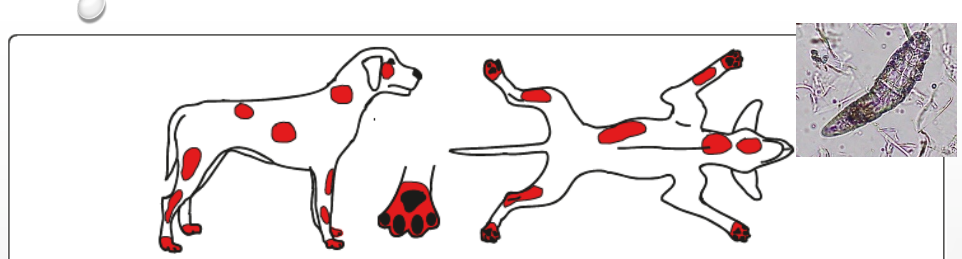

Fig. 6 Distribution of skin lesions and pruritus associated with demodicosis. Lesions include focal, multi-focal or generalised alopecia, scaling, erythema, follicular casts, comedones, Furunculosis

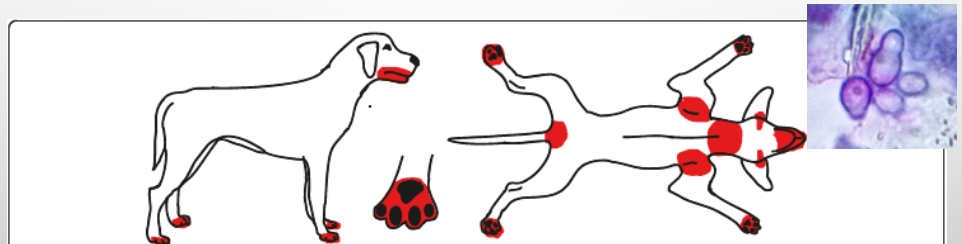

Fig. 7 Distribution of skin lesions and pruritus associated with *Malassezia* dermatitis. Lesions include erythema, yellowish or brownish greasy scale, hyperpigmentation

Hensel et al. Canine atopic dermatitis: detailed guidelines for diagnosis and allergen identification. *BMS Vet Res.* 2015;11:196

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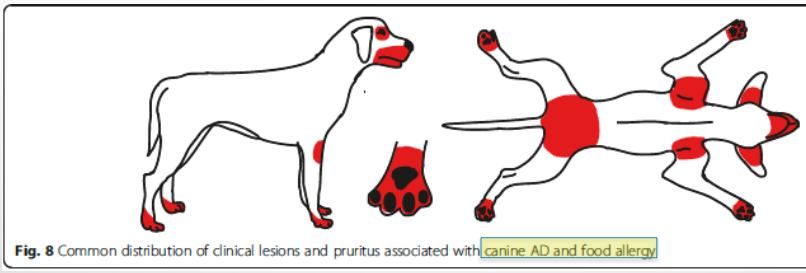

Fig. 8 Common distribution of clinical lesions and pruritus associated with canine AD and food allergy

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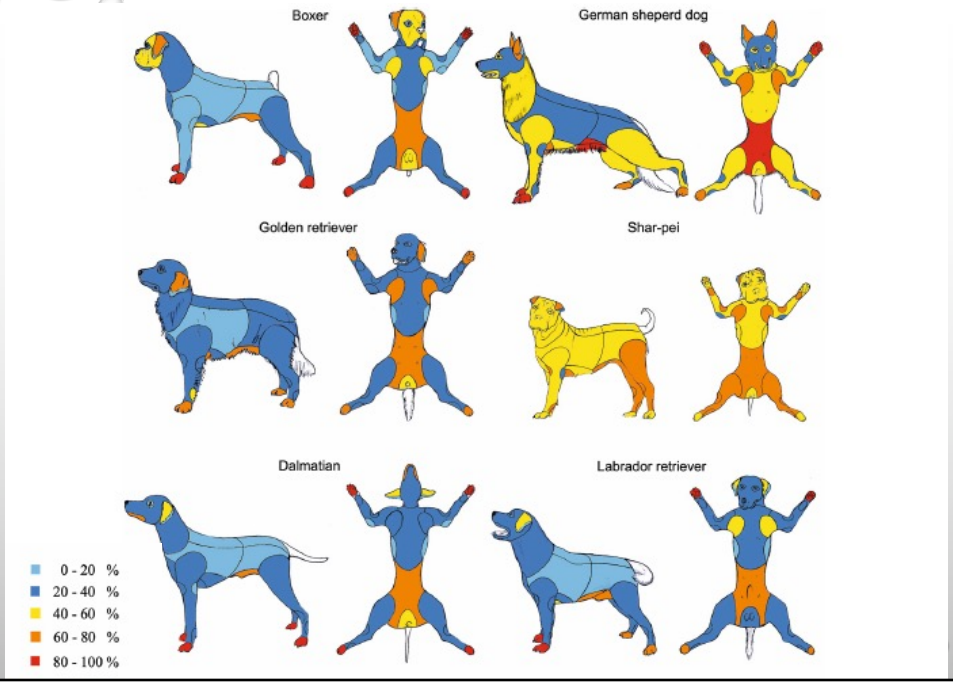

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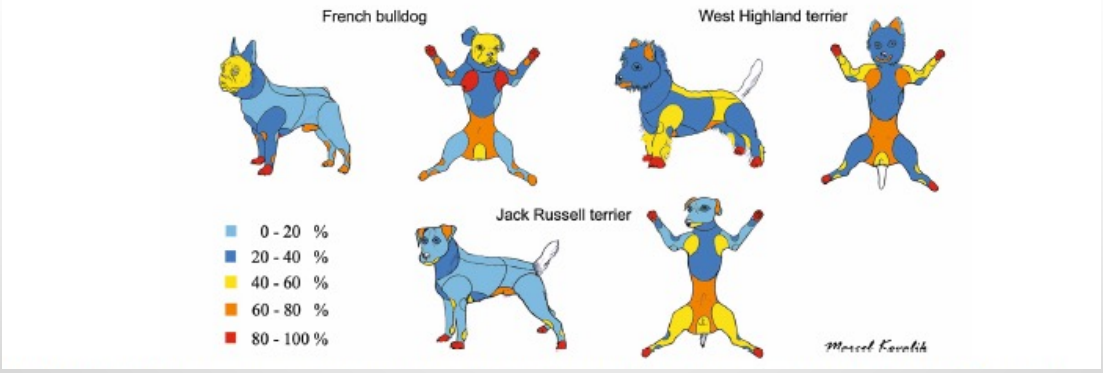

Hensel et al. Canine atopic dermatitis: detailed guidelines for diagnosis and allergen identification. *BMS Vet Res.* 2015;11:196

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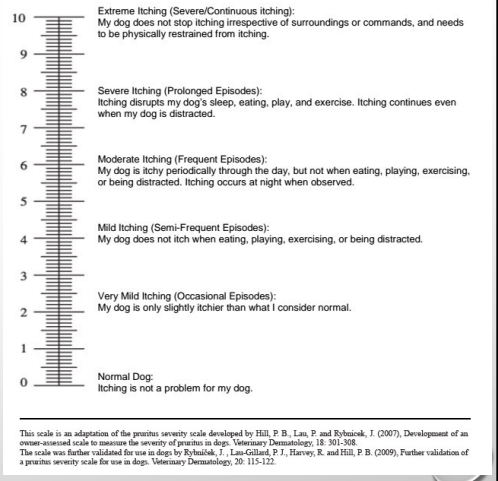
MAXINE 2.4 YO F(S) SHIH TZU

- TREATMENT RECOMMENDATIONS?

16

TREATMENTS FOR CAD

- THOROUGH DISCUSSIONS WITH OWNER
  - EXPECTATIONS OF TREATMENTS
  - EXPECTATIONS OF OWNER
  - OWNER FATIGUE
- ALWAYS ITCHES MORE THAN NORMAL DOG!



17

Veterinary Dermatology

Vet Dermatol 2019; **30**: 3–e2 DOI: 10.1111/vde.12696

Caregiver burden in the veterinary dermatology client: comparison to healthy controls and relationship to quality of life

Mary Beth Spitznagel*, Meghan Solc†, Kimberly R. Chapman*, John Updegraff*, Angela L. Albers‡ and Mark D. Carlson‡

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†Dermatology for Animals, 1321 Centerview Circle, Akron, OH 44321, USA
‡Stow Kent Animal Hospital, 4559 Kent Rd, Kent, OH 44240, USA

Results – Caregiver burden was greater in dermatology clients overall relative to healthy controls ($P < 0.001$); it was comparable for those reporting good skin disease control ($P > 0.05$). Within the dermatology group, correlations between caregiver burden and CSD-QoL were high ($r = 0.58$; $P < 0.001$). CG-QoL was predicted by caregiver burden ($P < 0.001$) but not significantly by CSD-QoL ($P > 0.05$).

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Veterinary Dermatology

Vet Dermatol 2021; **32**: 192–e50 DOI: 10.1111/vde.12938

Treatment complexity and caregiver burden are linked in owners of dogs with allergic/atopic dermatitis

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*Department of Psychological Sciences, Kent State University, Kent, OH 44242, USA
†Zoetis, 10 Sylvan Way, Parsippany, NJ 07054, USA
‡Stow Kent Animal Hospital, 4559 Kent Rd, Kent, OH, USA

Conclusions and clinical importance – Greater treatment plan complexity is associated with higher caregiver burden in owners of dogs with atopic or other chronic allergic dermatitis. The independence of this relationship highlights the importance of simplicity in effective treatment planning.

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Vet Dermatol 2022; **33**: 208–e59 DOI: 10.1111/vde.13065

Caregiver burden, treatment complexity, and the veterinarian–client relationship in owners of dog with skin disease

Mary Beth Spitznagel*, Karlee Patrick*, Andrew Hillier†, Margaret Gober† and Mark D. Carlson‡

*Department of Psychological Sciences, Kent State University, Kent, OH, USA
†Parsippany, NJ, USA
‡Kent, OH, USA

Conclusions and clinical importance – Findings support the notion that greater treatment complexity is related to the owner's perception of the veterinarian–client relationship via caregiver burden. Efforts to reduce caregiver burden by using the simplest effective treatment may benefit the veterinarian–client relationship.

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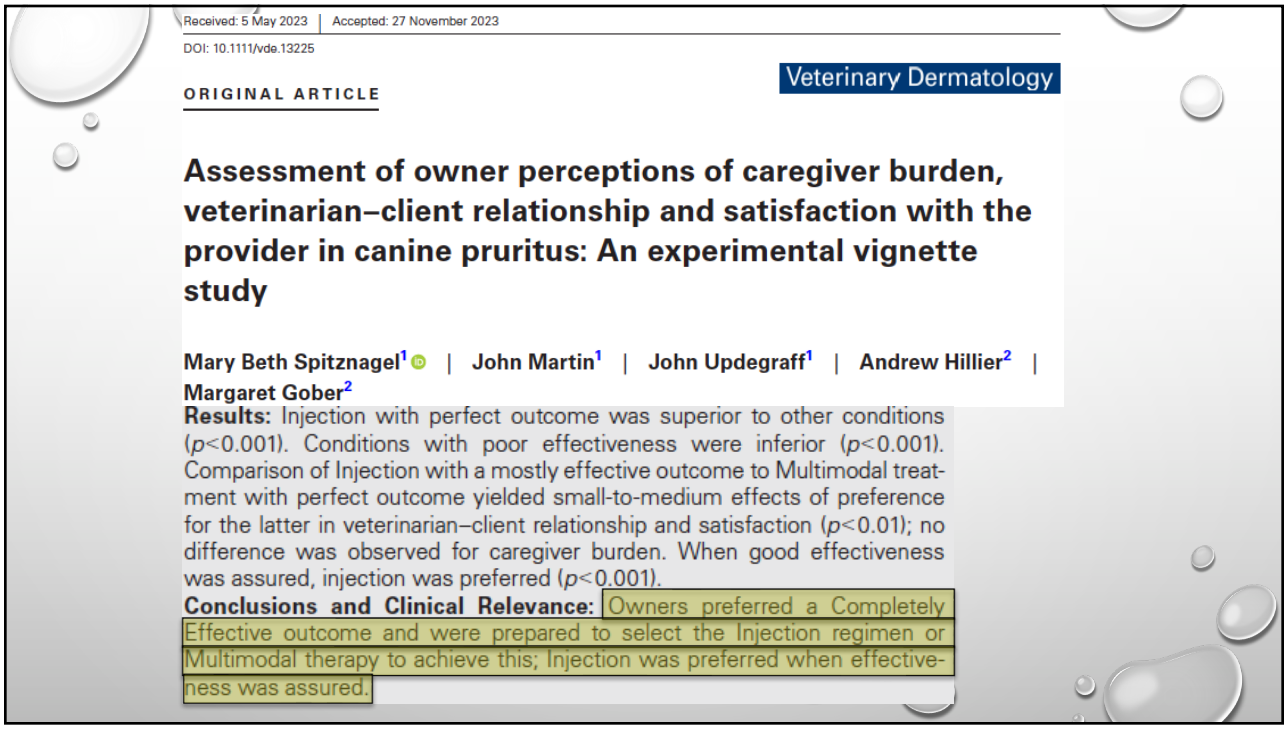

Received: 5 May 2023 | Accepted: 27 November 2023
DOI: 10.1111/vde.13225

Veterinary Dermatology

ORIGINAL ARTICLE

Assessment of owner perceptions of caregiver burden, veterinarian–client relationship and satisfaction with the provider in canine pruritus: An experimental vignette study

Mary Beth Spitznagel[1] | John Martin[1] | John Updegraff[1] | Andrew Hillier[2] | Margaret Gober[2]

Results: Injection with perfect outcome was superior to other conditions ($p<0.001$). Conditions with poor effectiveness were inferior ($p<0.001$). Comparison of Injection with a mostly effective outcome to Multimodal treatment with perfect outcome yielded small-to-medium effects of preference for the latter in veterinarian–client relationship and satisfaction ($p<0.01$); no difference was observed for caregiver burden. When good effectiveness was assured, injection was preferred ($p<0.001$).

Conclusions and Clinical Relevance: Owners preferred a Completely Effective outcome and were prepared to select the Injection regimen or Multimodal therapy to achieve this; Injection was preferred when effectiveness was assured.

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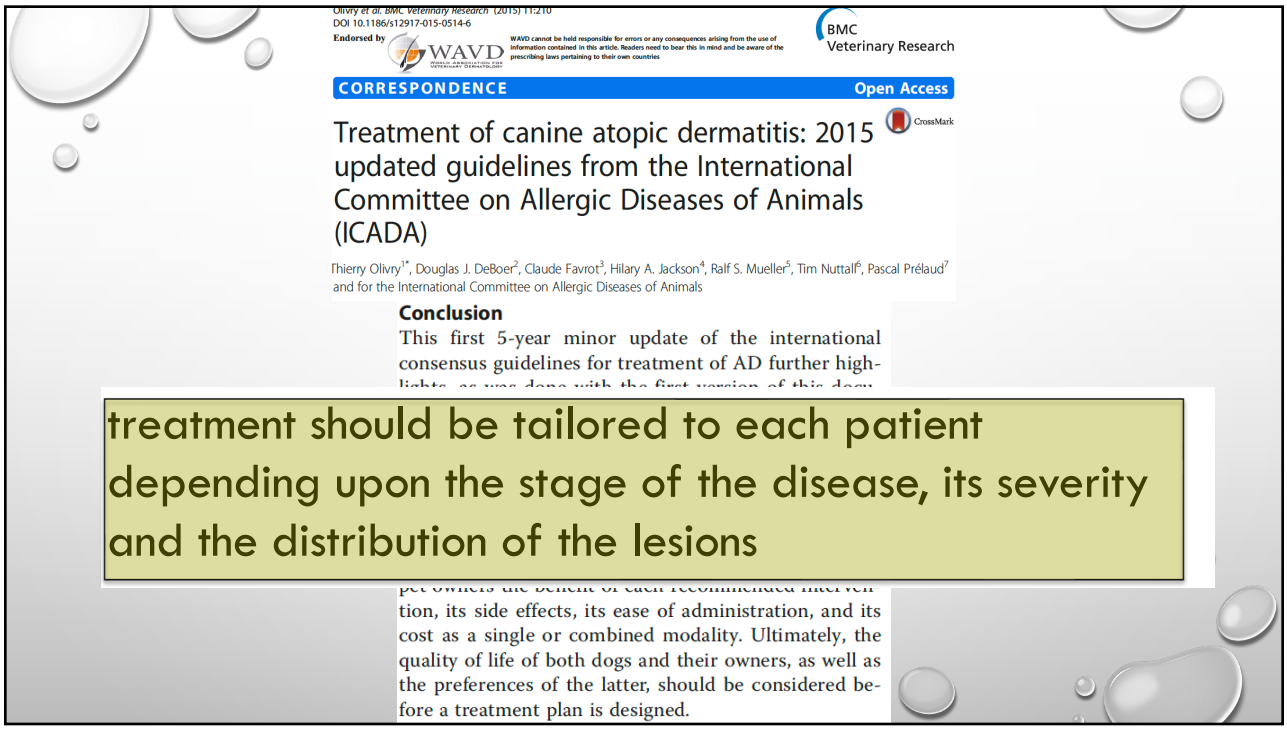

Olivry et al. BMC Veterinary Research (2015) 11:210
DOI 10.1186/s12917-015-0514-6

BMC Veterinary Research

CORRESPONDENCE Open Access

Treatment of canine atopic dermatitis: 2015 updated guidelines from the International Committee on Allergic Diseases of Animals (ICADA)

Thierry Olivry[1*], Douglas J. DeBoer[2], Claude Favrot[3], Hilary A. Jackson[4], Ralf S. Mueller[5], Tim Nuttall[6], Pascal Prélaud[7] and for the International Committee on Allergic Diseases of Animals

Conclusion

This first 5-year minor update of the international consensus guidelines for treatment of AD further high-

treatment should be tailored to each patient depending upon the stage of the disease, its severity and the distribution of the lesions

tion, its side effects, its ease of administration, and its cost as a single or combined modality. Ultimately, the quality of life of both dogs and their owners, as well as the preferences of the latter, should be considered before a treatment plan is designed.

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TREATMENTS FOR CAD

- MILD DISEASE
  - ADJUNCTIVE THERAPIES
- MODERATE DISEASE

23

ADJUNCTIVE THERAPIES FOR CAD

- TOPICALS
  - BUILD UP SKIN BARRIER
  - PREVENT OVERGROWTH
    - DEBATABLE TOPIC WITH ANTIMICROBIAL STEWARDSHIP

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TOPICAL THERAPIES FOR ATOPY

- SHAMPOOS
- FATTY ACIDS
- SPRAYS
- MOUSSE

25

Olivry *et al. BMC Veterinary Research* (2015) 11:210
DOI 10.1186/s12917-015-0514-6

BMC Veterinary Research

CORRESPONDENCE Open Access

Treatment of canine atopic dermatitis: 2015 updated guidelines from the International Committee on Allergic Diseases of Animals (ICADA)

Thierry Olivry[1*], Douglas J. DeBoer[2], Claude Favrot[3], Hilary A. Jackson[4], Ralf S. Mueller[5], Tim Nuttall[6], Pascal Prélaud[7]
ar ...s of Animals

A. Treatment of acute flares of AD

A.2. Improvement of skin and coat hygiene and care

A.2a. Bathing with a non-irritating shampoo

Summary of the 2010 guidelines:

Bathing with an emollient shampoo containing lipids, complex sugars and antiseptics (Allermyl, Virbac) has been shown to have a modest and short-lived antipruritic effect. Other topical emollients have not been proven to reduce pruritus. The intensity and frequency of bathing may be the most important factors to relieve itch [1].

Emollient formulations containing either lipids, complex sugars and antiseptics (Allermyl, Virbac) or phytosphingosine, raspberry oil and lipids (Douxo Calm, Ceva) have been shown to provide a modest effect on skin lesions and pruritus in allergic dogs (SOR B); this benefit is likely highest in dogs with mild AD (SOR C). The intensity and frequency of bathing may be the most important factor in relieving pruritus (SOR B). Other topical emollients have not been proven to consistently reduce signs of AD in dogs (SOR C).

Basis for the updated recommendations:

A recent three-week small RCT revealed the nearly equivalent reduction of skin lesions and pruritus in allergic dogs using either Allermyl shampoo or a Douxo Calm shampoo and foam combination (QOE 2) [8]. These results mirror those from a previous small trial employing Allermyl, Douxo Calm shampoo or a Douxo Calm shampoo and spray regimen (QOE 2) [9].

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Veterinary Dermatology 2004, **15**, 137–145

A randomized, controlled study to evaluate the steroid sparing effect of essential fatty acid supplementation in the treatment of canine atopic dermatitis

BENTE K. SÆVIK*, KERSTIN BERGVALL†¶, BIRGIT R. HOLM‡,
LEENA E. SAIJONMAA-KOULUMIES§, ÅKE HEDHAMMAR¶, STIG LARSEN**
and FLEMMING KRISTENSEN††

The Veterinary Journal 210 (2016) 77–81

Contents lists available at ScienceDirect

The Veterinary Journal

journal homepage: www.elsevier.com/locate/tvjl

Evaluation of cyclosporine-sparing effects of polyunsaturated fatty acids in the treatment of canine atopic dermatitis

M.R. Müller [a,*], M. Linek [b], C. Löwenstein [c], A. Röthig [d], K. Doucette [e], K. Thorstensen [e], R.S. Mueller [a]

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Veterinary Dermatology

Vet Dermatol 2015; **26**: 432–e101 DOI: 10.1111/vde.12250

Efficacy of ultra-micronized palmitoylethanolamide in canine atopic dermatitis: an open-label multi-centre study

Chiara Noli*, M. Federica della Valle†, Alda Miolo†, Cristina Medori†, Carlo Schievano‡ and The Skinalia Clinical Research Group[1]

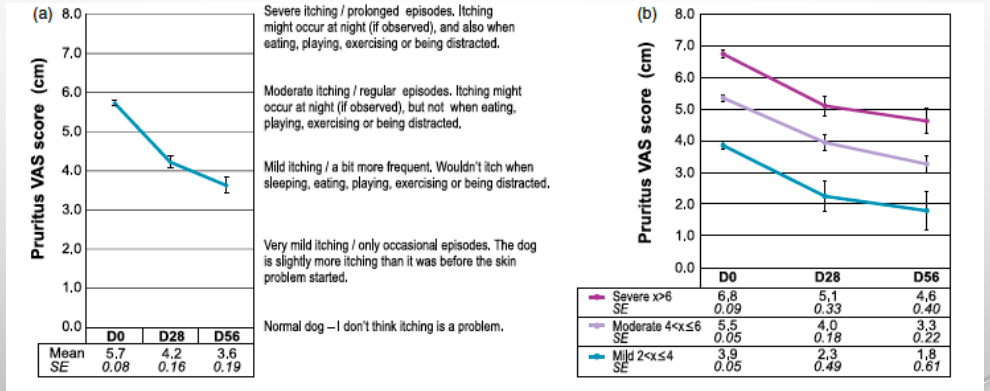

Figure 2. Effect of treatment on pruritus. (a) Mean reduction of pruritus severity as assessed by the owner. (b) Change of pruritus severity in response to treatment; comparing three sub-groups initially based on the severity at Day 0 (x, mean Visual Analog Scale score; SE, standard error).

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The Veterinary Journal 212 (2016) 58–64

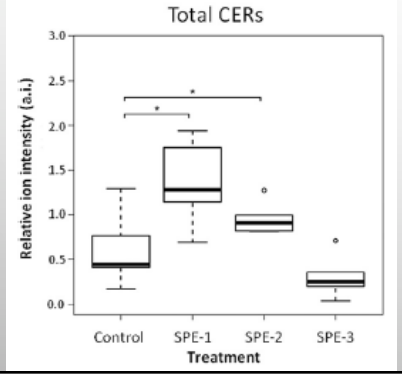
Contents lists available at ScienceDirect

The Veterinary Journal

journal homepage: www.elsevier.com/locate/tvjl

Effects of sphingolipid extracts on the morphological structure and lipid profile in an in vitro model of canine skin

Santiago Cerrato [a], Laura Ramió-Lluch [a], Pilar Brazís [a], Dolors Fondevila [b], Sergi Segarra [c], Anna Puigdemont [d,*]



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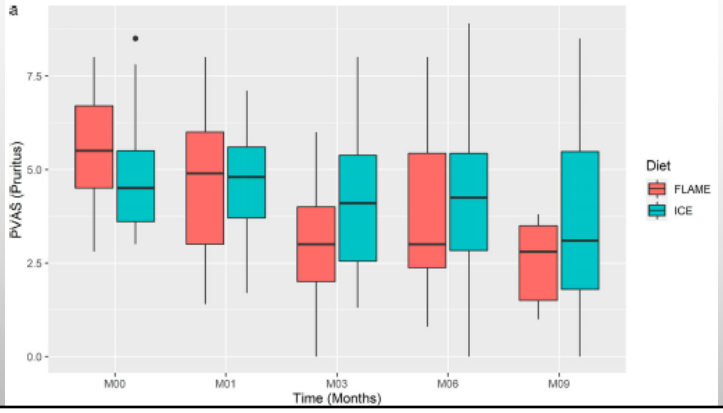
Veterinary Dermatology

Vet Dermatol 2022; **33**: 55–e18

DOI: 10.1111/vde.13020

A novel therapeutic diet can significantly reduce the medication score and pruritus of dogs with atopic dermatitis during a nine-month controlled study

Adrian Watson* , Ana Rostaher† , Nina M Fischer† and Claude Favrot†



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ADJUNCTIVE THERAPIES FOR CAD

- TOPICALS
  - BUILD UP SKIN BARRIER
  - PREVENT OVERGROWTH
- ANTIHISTAMINES
  - VARIABLE RESPONSE

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MAXINE 2.5 YO F(S) SHIH TZU

- ROYAL CANIN SKINTOPIC
- ALLERMYL SHAMPOO BATHS WEEKLY
- CETIRIZINE (ZYRTEC) – 1 MG/KG/DAY
  - GIVEN SEASONALLY
- ABOUT 3 MONTHS LATER – PVAS WAS 1/10

SUCCESS

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HEMI 7 YO M(N) YORKIE

- PRURITUS STARTING AT 2 YEARS OF AGE
- ORIGINALLY SEASONAL, NOW NON-SEASONAL WITH SEASONAL EXACERBATIONS
- NO RESPONSE TO 8-WEEK DIET TRIAL WITH ROYAL CANIN HP
- PVAS – 6/10

33

HEMI 7 YO M(N) YORKIE

- NO RESPONSE TO BENADRYL NOW
- BATHS HELP FOR A DAY OR TWO
- NO OTHER TREATMENTS PERFORMED

34

HEMI 7 YO M(N) YORKIE

- CYTOLOGY – MILD NEUTROPHILS
- SKIN SCRAPING – NO PARASITES OBSERVED
- TRICHOGRAM – NO SIGNIFICANT FINDINGS
  - FUNGAL CULTURE - NEGATIVE
- BLOODWORK (CBC/CHEM/UA/T4) – WITHIN NORMAL LIMITS

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HEMI 7 YO M(N) YORKIE

- DIAGNOSIS – CANINE ATOPIC DERMATITIS
- TREATMENT OPTIONS?

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TREATMENTS FOR CAD

- MODERATE DISEASE
  - APOQUEL®
  - CYTOPOINT®
  - ZENRELIA™

  → Anti-Pruritic
  - GLUCOCORTICOIDS
  - CYCLOSPORINE
  - IMMUNOTHERAPY

  → Anti-Inflammatory

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APOQUEL® (OCLACITINIB)

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APOQUEL® (OCLACITINIB)

- JANUS KINASE INHIBITOR

Indications: Control of pruritus associated with allergic dermatitis and control of atopic dermatitis in dogs at least 12 months of age.

Dosage and Administration: The dose of APOQUEL (oclacitinib maleate) tablets is 0.18 to 0.27 mg oclacitinib/lb (0.4 to 0.6 mg oclacitinib/kg) body weight, administered orally, twice daily for up to 14 days, and then administered once daily for maintenance therapy. APOQUEL may be administered with or without food.

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Vet Dermatol 2014; **25**: 512–e86 DOI: 10.1111/vde.12166

Efficacy of oclacitinib (Apoquel®) compared with prednisolone for the control of pruritus and clinical signs associated with allergic dermatitis in client-owned dogs in Australia

Caroline Gadeyne*, Peter Little†, Vickie L. King‡, Nigel Edwards†, Kylie Davis† and Michael R. Stegemann*

Table 3. Owner Pruritus VAS (least-squares means and confidence intervals; per protocol analyses)

	Prednisolone			Oclacitinib		
Study time	VAS score (cm)	Percentage reduction from baseline	Percentage of dogs with ≥50% reduction	VAS score (cm)	Percentage reduction from baseline	Percentage of dogs with ≥50% reduction
0 h (62/60)†	7.17 [6.71–7.64]‡	–	–	7.31 [6.86–7.76]	–	–
4 h (61/60)	5.32 [4.55–6.09]	28.1 [18.5–37.6]	24	4.96 [4.23–5.68]	31.1 [21.3–40.9]	34
Day 1 (58/57)	4.24 [3.49–4.99]	43.1 [33.6–52.6]	41	4.22 [3.48–4.95]	41.3 [31.4–51.2]	40
Day 6 (57/57)	2.91 [2.29–3.53]	60.3 [51.5–69.0]	59	3.24 [2.65–3.83]	54.7 [46.3–63.0]	56
Day 14 (56/54)	3.45* [2.74–4.16]	52.2** [42.5–62.0]	47***	2.33* [1.73–2.92]	67.5** [59.0–76.0]	74***
Day 28 (53/51)	3.30 [2.57–4.02]	55.0 [45.4–64.5]	57	3.33 [2.62–4.05]	52.5 [42.3–62.7]	51

Methods – Dogs were randomized to treatment with either oclacitinib (0.4–0.6 mg/kg orally twice daily for 14 days, then once daily) or prednisolone (0.5–1.0 mg/kg once daily for 6 days, then every other day) for 28 days.

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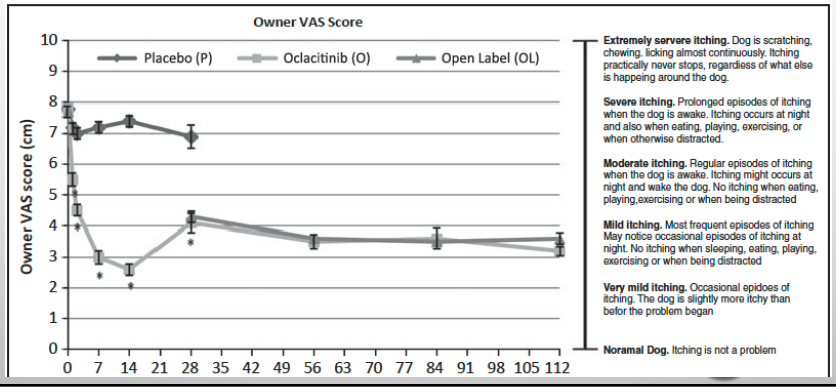
SUCCESS

Vet Dermatol 2013; **24**: 587–e142 DOI: 10.1111/vde.12088

A blinded, randomized, placebo-controlled trial of the efficacy and safety of the Janus kinase inhibitor oclacitinib (Apoquel®) in client-owned dogs with atopic dermatitis



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REBOUND EFFECT

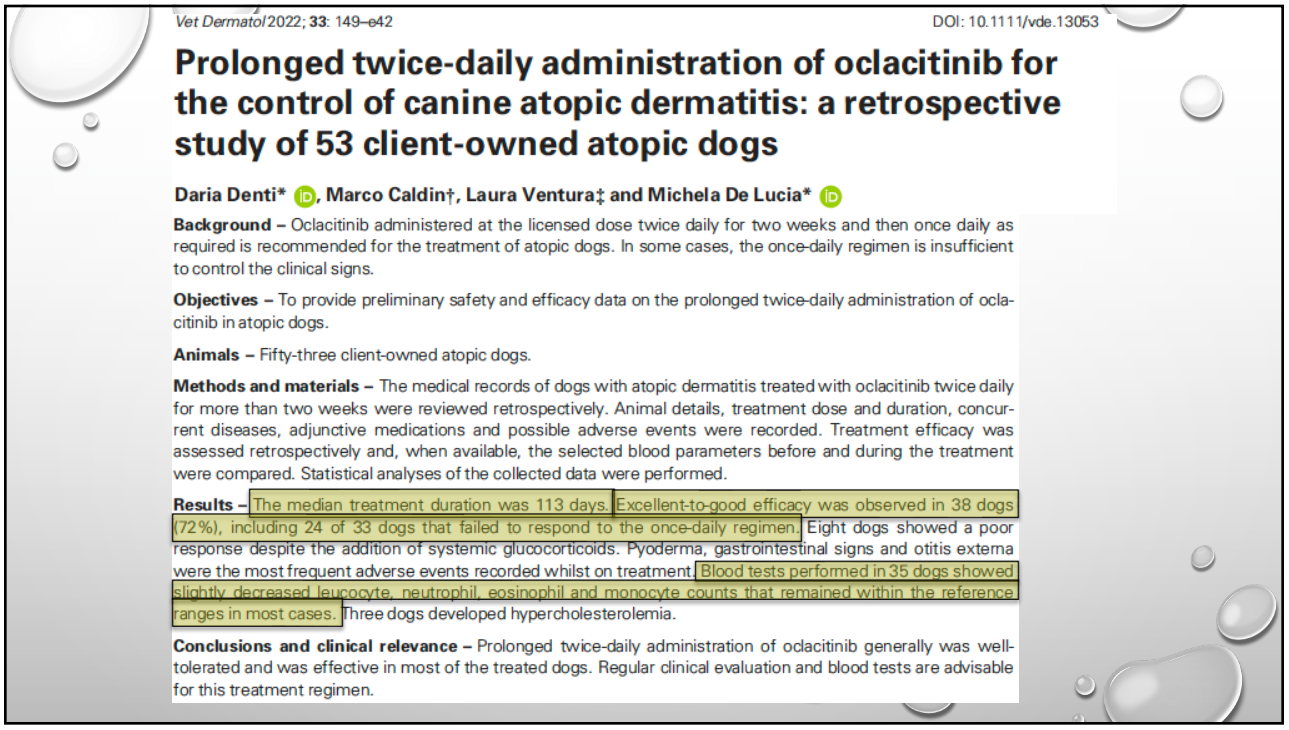
Veterinary Dermatology

ORIGINAL ARTICLE

A randomised controlled trial testing the rebound-preventing benefit of four days of prednisolone during the induction of oclacitinib therapy in dogs with atopic dermatitis

Results: On D21, there were significantly fewer rebounds in the dogs receiving prednisolone (three of 20, 15%) compared to those given oclacitinib alone (nine of 20, 45%; Fisher's test, $p = 0.041$). Compared to oclacitinib monotherapy, the concurrent administration of prednisolone for the first 4 days led to significantly lower PVAS10 on D4 and D28, CADESI4 and 2D-IGA on D28, and OGATE on D21 and D28 (Wilcoxon–Mann–Whitney U-tests). Adverse effects of therapy were minor, intermittent and self-resolving.

42



Vet Dermatol 2022; **33**: 149–e42 DOI: 10.1111/vde.13053

Prolonged twice-daily administration of oclacitinib for the control of canine atopic dermatitis: a retrospective study of 53 client-owned atopic dogs

Daria Denti*, Marco Caldin†, Laura Ventura‡ and Michela De Lucia*

Background – Oclacitinib administered at the licensed dose twice daily for two weeks and then once daily as required is recommended for the treatment of atopic dogs. In some cases, the once-daily regimen is insufficient to control the clinical signs.

Objectives – To provide preliminary safety and efficacy data on the prolonged twice-daily administration of oclacitinib in atopic dogs.

Animals – Fifty-three client-owned atopic dogs.

Methods and materials – The medical records of dogs with atopic dermatitis treated with oclacitinib twice daily for more than two weeks were reviewed retrospectively. Animal details, treatment dose and duration, concurrent diseases, adjunctive medications and possible adverse events were recorded. Treatment efficacy was assessed retrospectively and, when available, the selected blood parameters before and during the treatment were compared. Statistical analyses of the collected data were performed.

Results – The median treatment duration was 113 days. Excellent-to-good efficacy was observed in 38 dogs (72%), including 24 of 33 dogs that failed to respond to the once-daily regimen. Eight dogs showed a poor response despite the addition of systemic glucocorticoids. Pyoderma, gastrointestinal signs and otitis externa were the most frequent adverse events recorded whilst on treatment. Blood tests performed in 35 dogs showed slightly decreased leucocyte, neutrophil, eosinophil and monocyte counts that remained within the reference ranges in most cases. Three dogs developed hypercholesterolemia.

Conclusions and clinical relevance – Prolonged twice-daily administration of oclacitinib generally was well-tolerated and was effective in most of the treated dogs. Regular clinical evaluation and blood tests are advisable for this treatment regimen.

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Safety of the Selective JAK1 Inhibitor Oclacitinib in Dogs

Steven M. Nederveld[1] | Matthew J. Krautmann[2] | John Mitchell[1]

PostApproval Experience (2020)	[new section added]	The following adverse events reported in dogs are listed in decreasing order of reporting frequency. Vomiting, lethargy, anorexia, diarrhea, elevated liver enzymes, dermatitis (i.e., crusts, pododermatitis, pyoderma), seizures, polydipsia, and demodicosis Benign, malignant, and unclassified neoplasms, dermal masses (including papillomas and histiocytomas), lymphoma and other cancers have been reported Death (including euthanasia) has been reported	Data recorded in the pharmacovigilance process after launch. Statement in the label: "The following adverse events are based on postapproval adverse drug experience reporting for APOQUEL. Not all adverse events are reported to FDA/CVM. It is not always possible to reliably estimate the adverse event frequency or establish a causal relationship to product exposure using these data"

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ZENRELIA™ (ILUNOCITINIB)

- JAK INHIBITOR

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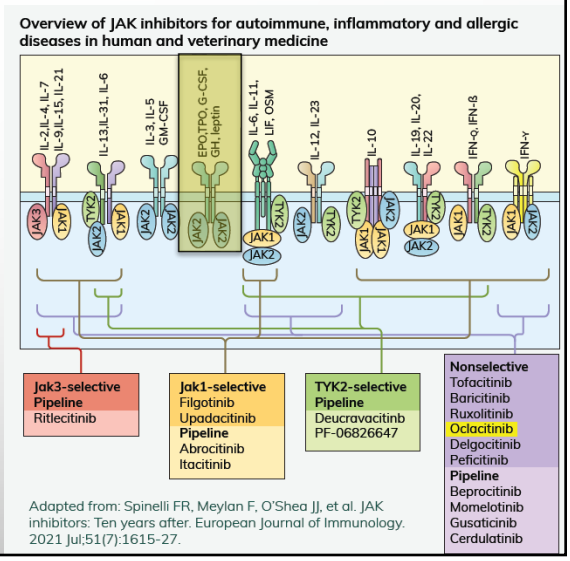
ZENRELIA™ (ILUNOCITINIB)

- APOQUEL – JAK1 & JAK3
- ZENRELIA – JAK1, JAK2 & TYK2



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ZENRELIA™ (ILUNOCITINIB)

INDICATIONS
Zenrelia is indicated for control of pruritus associated with allergic dermatitis and control of atopic dermatitis in dogs at least 12 months of age.

DOSAGE AND ADMINISTRATION
The dose of Zenrelia (ilunocitinib tablets) is 0.27 to 0.36 mg ilunocitinib/lb (0.6 to 0.8 mg ilunocitinib/kg) body weight, administered orally, once daily, with or without food.

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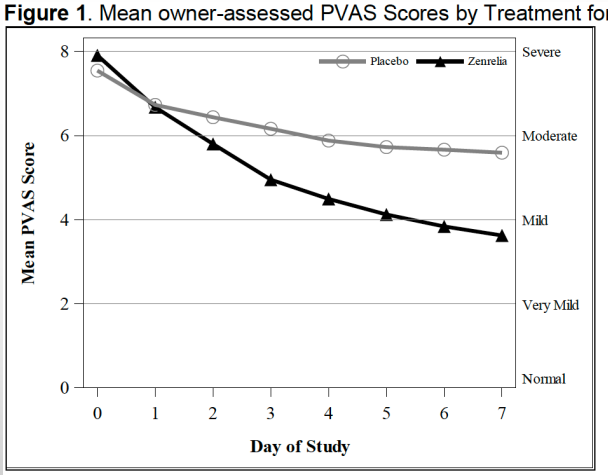
ZENRELIA™ (ILUNOCITINIB)

- FAST ACTING

Figure 1. Mean owner-assessed PVAS Scores by Treatment for Days 0-7



48

Efficacy and field safety of ilunocitinib for the control of atopic dermatitis in client-owned dogs: A multicentre, double-masked, randomised, placebo-controlled clinical trial

Sophie Forster[1] | Annette Boegel[3] |
Darren Berger[2] |

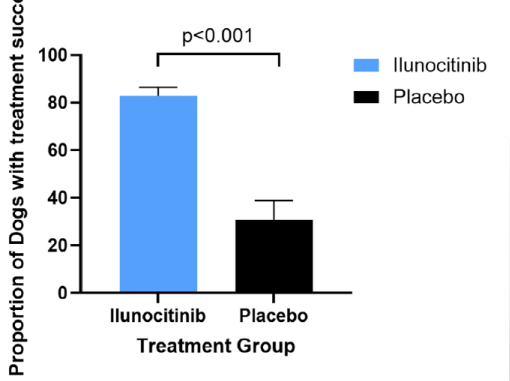


FIGURE 1 Proportions (%) of dogs with treatment success (defined as ≥50% reduction from baseline pruritus Visual Analog Scale [PVAS] or from baseline Canine Atopic Dermatitis Extent and Severity Index, 4th iteration [CADESI-04] score on Day 28) in the ilunocitinib-treated (n=172) and placebo (n=77) groups. Error bars represent standard errors (SE).

49

ADVERSE EVENTS

Adverse Reaction	Zenrelia N = 181 Number of Dogs (%)	Placebo N = 87 Number of Dogs (%)
Vomiting or nausea	40 (22.1 %)	14 (16.1 %)
Diarrhea	36 (19.9 %)	9 (10.3 %)
Lethargy	22 (12.2 %)	9 (10.3 %)
Otitis externa	19 (10.5 %)	20 (23.0 %)
Anorexia	17 (9.4 %)	7 (8.0 %)
Dermal growth (e.g., cyst, papilloma)	16 (8.8 %)	4 (4.6 %)
Epiphora or ocular discharge	14 (7.7 %)	1 (1.1 %)
Coughing or wheezing, including respiratory infections	12 (6.6 %)	2 (2.3 %)
Bacterial skin infection	10 (5.5 %)	9 (10.3 %)
Elevated liver enzyme(s)	10 (5.5 %)	2 (2.3 %)
Urinary tract infection	10 (5.5 %)	2 (2.3 %)
Upset stomach, including flatulence and abdominal pain	10 (5.5 %)	0
Leukopenia	9 (4.9 %)	1 (1.1 %)
Sneezing	8 (4.4 %)	1 (1.1 %)
Lipoma	7 (3.9 %)	1 (1.1 %)
Weight gain	7 (3.9 %)	0
Increased water intake	4 (2.2 %)	2 (2.3 %)
Gingivitis (occurrence or worsening)	4 (2.2 %)	0
Blood in stool	4 (2.2 %)	0
Elevated total bilirubin	4 (2.2 %)	0
Elevated triglyceride	4 (2.2 %)	0

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ZENRELIA™ (ILUNOCITINIB TABLETS) **UPDATED**

WARNING: INADEQUATE IMMUNE RESPONSE TO VACCINES

Based on results of the vaccine response study, dogs receiving Zenrelia are at risk of an inadequate immune response to vaccines. Discontinue Zenrelia for at least 28 days to 3 months prior to vaccination and withhold Zenrelia for at least 28 days after vaccination (see Warnings and Target Animal Safety).

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ZENRELIA™ ILUNOCITINIB

- EIGHT 10-MONTH-OLD NAÏVE DOGS IN EACH GROUP (PLACEBO AND ZENRELIA 3X DOSE)
- VACCINATED WITH MLV DAP ON DAYS 28 AND 60 ALONG WITH KILLED RABIES AT DAY 60
  - HEMATEMESIS (DAY 21)
  - COCCIDIA (DAY 26)
- TWO DOGS EUTHANIZED DURING STUDY

Number of dogs with adequate titers on Day 88

	CPV	CAV-2	CDV	Rabies
Zenrelia at 3x label dose	6/6	6/6	5/6	2/6
Placebo	8/8	8/8	8/8	8/8

CAV-2: Canine adenovirus type 2; CDV: Canine distemper virus; CPV: Canine Parvovirus

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ZENRELIA™ ILUNOCITINIB

- COCCIDIOSIS – 7/8 ZENRELIA™ DOGS
  - ONE EUTHANIZED DUE TO INTUSSUSCEPTION – DUE TO COCCIDIA
- INFECTIOUS HEPATITIS – DOG WITH HEMATEMESIS (PRIOR TO VACCINE)
- 2/6 ACHIEVED RABIES TITER LEVELS AT DAY 88, 3/4 ACHIEVED TITER LEVELS AT DAY 116
  - 1 DOG DIDN'T ACHIEVE TITERS FOR EITHER DAP OR RABIES
    - SIGNIFICANTLY LOW T HELPER CELLS

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APOQUEL® LABEL

Vaccine Response Study

An adequate immune response (serology) to killed rabies (RV), modified live canine distemper virus (CDV), and modified live canine parvovirus (CPV) vaccination was achieved in eight 16-week old vaccine naïve puppies that were administered oclacitinib maleate at 1.8 mg/kg oclacitinib (3X maximum exposure dose) twice daily for 84 days. For modified live canine parainfluenza virus (CPI), < 80% (6 of 8) of the dogs achieved adequate serologic response. Clinical observations that were considered likely to be related to oclacitinib maleate treatment included enlarged lymph nodes, interdigital furunculosis, cysts, and pododermatitis. One oclacitinib maleate-treated dog (26-weeks-old) was euthanized on Day 74 after physical examination revealed the dog to be febrile, lethargic, with pale mucous membranes and frank blood in stool. Necropsy revealed pneumonia of short duration and evidence of chronic lymphadenitis of mesenteric lymph nodes. During the three month recovery phase to this study, one oclacitinib maleate-treated dog (32-weeks old) was euthanized on Day 28 due to clinical signs which included enlarged prescapular lymph nodes, bilateral epiphora, lethargy, mild dyspnea, and fever. The dog showed an elevated white blood cell (WBC) count. Necropsy revealed lesions consistent with sepsis secondary to immunosuppression. Bone marrow hyperplasia was consistent with response to sepsis.

54

Fent *et al. BMC Veterinary Research* (2025) 21:481
https://doi.org/10.1186/s12917-025-04929-z

BMC Veterinary Research

RESEARCH Open Access

Immunologic response to first booster vaccination in dogs treated with zenrelia™ (ilunocitinib tablets) at up to three times the recommended therapeutic dose compared to untreated controls

Genevieve M. Fent[1*], Jay Jacela[1], Rodrigo Plazola-Ortiz[1], Jeremiah Olps[1], Erin E. McCandless[2], Céline E. Toutain[3], Sandra O'Kelley[1] and Stephen King[1]

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Table 2 Mean serum titers on SD 56 and results of Non-Inferiority analysis using RMANCOVA

Viral Antigen	Sex	Treatment	Geometric Mean Titer (LSM)	Difference In LS means Estimate (Control -IVP)	Standard Error of the Difference	95% CI	*p*-value vs. Control	Non-Inferiority vs. Control
Rabies[1]	F	0X	20.448	-	-	-	-	-
	M	0X	15.864	-	-	-	-	-
	F	1X	16.263	0.142	0.257	(-0.374, 0.659)	0.582	YES[4]
	M	1X	17.603	-0.065	0.285	(-0.638, 0.509)	0.822	YES[4]
	F	3X	9.030	0.508	0.276	(-0.047, 1.063)	0.072	YES[4]
	M	3X	9.353	0.328	0.283	(-0.241, 0.898)	0.252	YES[4]
CAV-2[2]	P	0X	1116.339	-	-	-	-	-
	P	1X	1561.363	-0.484	0.391	(-1.271, 0.303)	0.222	YES[3]
	P	3X	1458.170	-0.385	0.410	(-1.209, 0.438)	0.351	YES[3]
CDV[2]	F	0X	100.380	-	-	-	-	-
	M	0X	80.963	-	-	-	-	-
	F	1X	99.282	0.016	0.420	(-0.828, 0.860)	0.970	YES[4]
	M	1X	78.183	0.050	0.485	(-0.923, 1.024)	0.918	YES[4]
	F	3X	75.921	0.403	0.473	(-0.548, 1.354)	0.399	YES[4]
	M	3X	60.988	0.409	0.484	(-0.563, 1.380)	0.402	YES[4]
CPV[2]	P	0X	595.567	-	-	-	-	-
	P	1X	662.004	-0.153	0.327	(-0.809, 0.504)	0.642	YES[3]
	P	3X	613.776	-0.043	0.340	(-0.726, 0.639)	0.899	YES[3]

[1]Values presented on log base 5 scale, [2]Values presented on a log base 2 scale, [3]non-inferiority vs. Control assessed for pooled sex

[4]Non-inferiority vs. Control assessed for each sex, Estimates derived using RMANCOVA: Baseline (Day 28) titers are included as a covariate, F=female, M=male, P=pooled

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Conclusion This study demonstrated treatment with ilunocitinib at 1X or 3X the therapeutic dose for 56 days did not significantly attenuate the serologic response to CAV-2, CPV, CDV or rabies booster vaccinations compared to untreated control animals. All animals remained clinically healthy during the study, with only mild gastrointestinal or skin abnormalities typical of laboratory dogs or JAK inhibitor therapy.

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Received: 31 July 2024 | Accepted: 19 December 2024

DOI: 10.1111/vde.13319

Veterinary Dermatology

ORIGINAL ARTICLE

Compara … d

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lesions in …

Sophie Forste … [3]

Stephen King …

Abstract

Background: Janus kinase inhibitors (JAKi) have been shown to reduce pruritus and improve associated inflammatory skin lesions in canine atopic dermatitis (cAD).

Objective: To evaluate the efficacy and safety of ilunocitinib, in comparison to oclacitinib, for the control of cAD in a randomised, blinded trial.

Animals: Three-hundred-and-thirty-eight dogs with cAD.

Materials and Methods: Dogs were randomised to receive oclacitinib (0.4–0.6 mg/kg twice daily for 14 days; then once daily) or ilunocitinib (0.6–0.8 mg/kg once daily), for up to 112 days. Owners assessed pruritus using an enhanced Visual Analog Scale (PVAS). Investigators assessed skin lesions using the Canine Atopic Dermatitis Extent and Severity Index, 4th interaction (CADESI-04).

Results: Reduction in pruritus and CADESI-04 scores was similar for both treatment groups from Day (D)0–D14. PVAS scores increased between D14 and D28 for oclacitinib and decreased for ilunocitinib. On D28 to D112, mean PVAS and CADESI-04 scores were significantly lower for ilunocitinib compared to oclacitinib ($p \leq 0.003$ and $p \leq 0.023$, respectively). On D28 to D112, a greater number of ilunocitinib-treated dogs achieved clinical remission of pruritus (i.e. PVAS score <2). Subjective assessment of overall response was significantly better for ilunocitinib on D28 to D112 ($p \leq 0.002$). Both drugs demonstrated similar safety throughout the study.

Conclusions and Clinical Relevance: Ilunocitinib rapidly and safely controlled signs of cAD. Ilunocitinib demonstrated significantly better control of pruritus and skin lesions compared to oclacitinib, with more dogs achieving clinical remission of pruritus.

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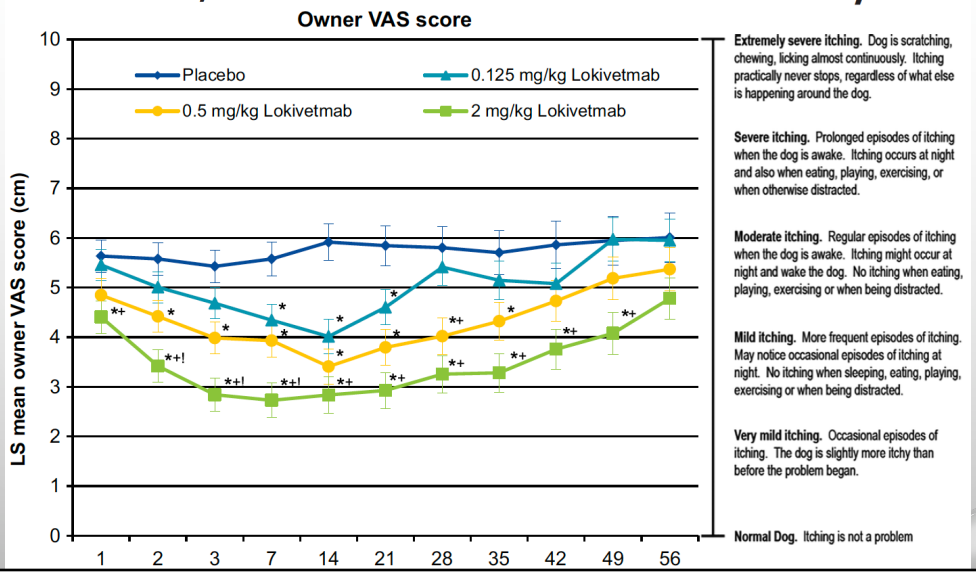
CYTOPOINT® (LOKIVETMAB)

59

Vet Dermatol 2016; **27**: 478–e129 DOI: 10.1111/vde.12376

A blinded, randomized, placebo-controlled, dose determination trial of lokivetmab (ZTS-00103289), a caninized, anti-canine IL-31 monoclonal antibody in



60

ADVERSE EVENTS

the subcutaneous route on Days 0 and 28. There was no clinically relevant difference in rates of adverse events, including signs of patient discomfort on administration, between treated and placebo groups in the study of 245 canine patients (presented to veterinary hospitals and diagnosed with atopic dermatitis).

61

Vet Dermatol 2019; **30**: 98–e26 DOI: 10.1111/vde.12715

Proactive maintenance therapy of canine atopic dermatitis with the anti-IL-31 lokivetmab. Can a monoclonal antibody blocking a single cytokine prevent allergy flares?

Chie Tamamoto-Mochizuki*, Judy S. Paps* and Thierry Olivry*†

Background – Once the signs of canine atopic dermatitis (AD) are controlled, the proactive application of topical glucocorticoids can delay disease flares.

Objectives – We wished to determine if the proactive administration of the anti-IL-31 lokivetmab would prevent or delay flares of canine AD.

Animals – We tested this strategy in four Maltese-beagle atopic dogs before enrolling 21 dogs with spontaneous AD.

Methods and materials – In our acute AD model, house dust mite (HDM)-sensitized dogs were injected once with lokivetmab. After seven days, an HDM suspension was applied epicutaneously, and both skin lesions and pruritus manifestations were quantified for 24 h. In a second study, 21 dogs with spontaneous AD controlled with anti-allergic drugs were treated with lokivetmab per manufacturer's recommendations; all anti-allergic drugs were discontinued within four weeks after the first injection. All dogs were followed prospectively for at least one year and the time-to-flare (TTF) of AD after the last day of anti-allergic treatment was determined.

Results – In the experimental study, one injection of lokivetmab prevented nearly all expected allergen-induced pruritus manifestations but not skin lesion development. In dogs with spontaneous AD, the median TTF after lokivetmab proactive therapy was 63 days. One-fourth of dogs did not exhibit a flare for at least one year while receiving lokivetmab monotherapy.

Conclusions – Although lokivetmab seems more effective to prevent pruritus than skin lesions in dogs with experimental AD' it also can delay disease flares in some dogs with the spontaneous disease. Studies are needed to identify those patients most likely to respond to such a proactive regimen.

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THERAPY FOR ATOPY

- GLUCOCORTICOIDS
  - VARIABLE TYPES WITH SIDE EFFECTS
- TEMARIL-P
- TOPICAL GLUCOCORTICOIDS

63

CYCLOSPORINE FORMULATIONS

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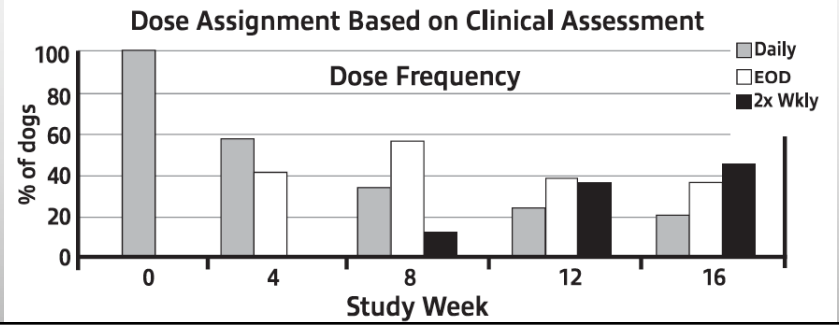
CYCLOSPORINE

- 5 MG/KG/DAY
  - LABELED DAILY FOR 4 WEEKS AND THEN DECREASE FREQUENCY



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Clinical trial evaluating the efficacy and safety of cyclosporine in dogs with atopic dermatitis

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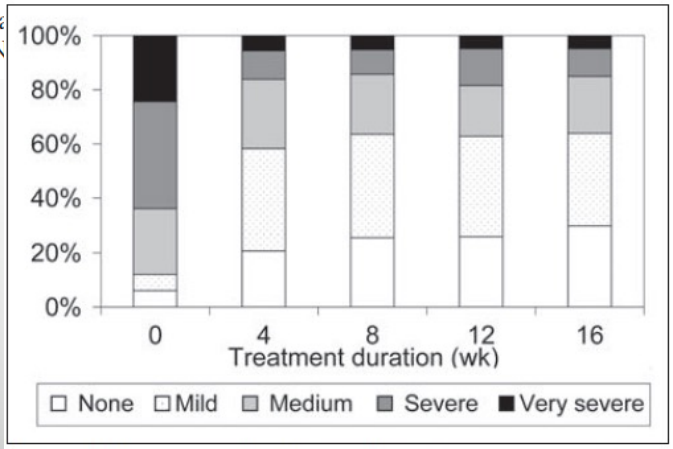

Figure 2—Frequency distribution of pruritus scores over time in dogs with atopic dermatitis treated with cyclosporine.

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Veterinary Dermatology 2006, **17**, 3–16

Review

A systematic review and meta-analysis of the efficacy and safety of cyclosporin for the treatment of atopic dermatitis in dogs

JEAN STEFFAN*, CLAUDE FAVROT† and RALF MUELLER‡

Table 3. Outcome variables during treatment maintenance

Citation (reference)	Steffan 2003[19]	Olivry 2003[21]		Bensignor 2004[10]	Steffan 2005[24]	Thelen 2005[25]	
% of reduction from baseline lesional scores (confidence interval)		DD*	II*			With food	Without food
Week 4	44% (40–49)	37% (33–56)	52% (42–63)	30% (20–40)	45% (41–48)	37% (28–46)	37% (14–60)
Week 8	53% (47–59)	69% (55–75)	54% (51–73)	59% (39–64)†	58% (57–64)	54% (42–66)	53% (40–74)
Week 12	50% (43–57)	58% (43–70)	66% (52–74)	79% (53–83)†	57% (63–70)	60% (49–71)	62% (44–80)
Week 16	52% (44–59)	NA		NA	60% (66–73)	64% (52–68)	56% (35–77)
% of dogs with ≥ 50% reduction from baseline lesional scores (investigations)	4 8 12 16 weeks 43% 66% 63% 66%	4 8 12 weeks 40% 73% 73%	4 8 12 weeks 60% 67% 80%	4 8 12 weeks 20% 67% 87%	4 8 12 16 weeks 45 68 64 68	4 8 12 16 weeks 26% 60% 73% 86%	4 8 12 16 weeks 30% 60% 80% 60%
% of dogs with mild pruritus (score ≤ 2/5 or ≤ 100/250)							
Week 0	6%	7%	13%	NA	12%	0%	0%
Week 4	47%	60%	67%	NA	58%	20%	50%
Week 8	51%	73%	53%	NA	64%	80%	60%
Week 12	47%	46%	53%	NA	63%	53%	70%
Week 16	51%	NA		NA	64%	80%	60%
% of dogs receiving reduced Doses during weeks	4–8 8–12 12–16	4–8 8–12	4–8 8–12	NA	4–8 8–12 12–16	4–8 8–12 12–16	4–8 8–12 12–16
Half dose = e.o.d. or 2.5 mg kg^{-1} q.i.d.	50% 58% 42%	40% 33%	60% 47%	NA	38% 50% 35%	7% 47% 13%	30% 30% 40%
Quarter dose = TW or 1.25 mg kg^{-1} q.i.d.	14% 26%	40%	20%	NA	11% 21%	0% 13%	20% 70%
% of dogs with 'good-to-excellent' global assessment of efficacy as assessed by investigators and owners	75%–76%	NA		NA	65%–69%		68%

Abbreviations: e.o.d., every other day; NA, not available; q.i.d., once daily; TW, twice weekly; NA, not available.
*DD, decreasing dosage group; II, increasing interval group.
†Data calculated with 'last value carry forward rule data presented as means or medians (95% CI).

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Hensel *et al. BMC Veterinary Research* (2015) 11:196
DOI 10.1186/s12917-015-0515-5

BMC Veterinary Research

CORRESPONDENCE Open Access

Canine atopic dermatitis: detailed guidelines for diagnosis and allergen identification

Patrick Hensel[1*], Domenico Santoro[2†], Claude Favrot[3†], Peter Hill[4†] and Craig Griffin[5†]

Abstract

Background: Canine atopic dermatitis (AD) is a common, genetically predisposed, inflammatory and pruritic skin disease. The variation in clinical presentations, due to genetic factors, extent of the lesions, stage of the disease, secondary infections, as well as resemblance to other non-atopic related skin diseases, can complicate a diagnosis of canine AD. A sub-group of the International Committee for Allergic Diseases in Animals (ICADA) was tasked with the development of a set of practical guidelines that can be used to assist practitioners and researchers in the diagnosis of canine AD. Online citation databases and abstracts from international meetings were searched for publications related to the topic, and combined with expert opinion where necessary. The final set of guidelines was approved by the entire ICADA committee.

Results: A total of 81 publications relevant for this review were identified. The guidelines generated focus on three aspects of the diagnostic approach:

1. Ruling out of other skin conditions with clinical signs resembling, or overlapping with canine AD.
2. Detailed interpretation of the historical and clinical features of patients affected by canine AD.
3. Allergy testing by intradermal versus allergen-specific IgE serum testing.

Conclusions: The diagnosis of canine AD is based on meeting clinical criteria and ruling out other possible causes with similar clinical signs. Flea combing, skin scraping and cytology should be performed, where necessary, as part of a thorough work-up. Elimination diet trials are required for patients with perennial pruritus and/or concurrent gastrointestinal signs. Once a clinical diagnosis of canine AD is made, allergy testing can be performed to identify potential causative allergens for allergen-specific immunotherapy.

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Table 5. Adverse reactions observed during the studies

	Fontaine 2001[8]	Iwasaki 2002[23]	Olivry 2002[17]	Olivry 2002[18]	Steffan 2002[19]	Olivry 2003[21]	Burton 2004[20]	Bensignor 2004[10]	Steffan 2004[24]	Thelen 2005[25]	Total
Total number of cases	14	92	15	61	117	30	41	15	262	25	672
Treatment interruption associated with adverse events	0 (0%)	5 (5%)	2 (13%)	0 (0%)	10 (9%)	5 (17%)	0 (0%)	0 (0%)	11 (4%)	3 (12%)	36 (5%)
Vomiting	2 (14%)	10 (11%)	1 (7%)	23 (38%)	43 (37%)	1 (3%)	4 (10%)	5 (33%)	82 (31%)		171 (25%)
Diarrhoea/soft stools		13 (14%)	3 (20%)	6 (10%)	21 (18%)		4 (10%)		53 (20%)		100 (15%)
Miscellaneous gastro-intestinal disorders			1 (7%)		10 (9%)					10 (40%)	21 (3%)
Decreased appetite or anorexia		1 (1%)			5 (4%)				8 (3%)		14 (2%)
Otitis	a	a	a	a	a	a	a	a	a	a	a
Bacterial skin infection	a	a	a	a	a	a	a	a	a	a	a
Malassezia infection	a	a	a	a	a	a	a	a	a	a	a
Urinary tract infection									10 (4%)		10 (2%)
Lethargy/sleepiness			1 (7%)					1 (7%)	6 (2%)		8 (1%)
Nodules and cysts					7 (6%)				3 (1%)		10 (2%)
Papillomatosis			1 (7%)						4 (1%)		5 (< 1%)
Gingival hyperplasia					3 (3%)				6 (2%)		9 (1%)
Lymphadenopathy									6 (2%)		6 (< 1%)
Various reproductive disorders					7 (6%)						7 (1%)
Neurological disorders									4 (1%)	1 (4%)	5 (< 1%)

a: Otitis, pyoderma and *Malassezia* dermatitis were reported in some trials as adverse effects. As these conditions are often associated with atopic dermatitis and as most of the affected animals have exhibited the same signs before inclusions, these figures were not included in this table.

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ALLERGY TESTING FOR IMMUNOTHERAPY

- INTRADERMAL ALLERGY TESTING
- BLOOD TESTING
- HAIR AND SALIVA TESTING

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Veterinary Dermatology

Vet Dermatol 2014; **25**: 15–e6 DOI: 10.1111/vde.12104

Agreement between allergen-specific IgE assays and ensuing immunotherapy recommendations from four commercial laboratories in the USA

Jon D. Plant*, Moni B. Neradelik†, Nayak L. Polissar†, Valerie A. Fadok‡ and Brian A. Scott§

Table 2. The number of antigens resulting in positive allergen-specific IgE findings by four laboratories evaluating replicate serum samples from dogs with atopic dermatitis

Dog no.	Lab A	Lab B	Lab C	Lab D
No. of antigens tested	61–63	40	48	48
1	25	17	0	1
2	14	14	3	15
3	21	13	4	19
4	10	14	4	10
5	11	14	0	10
6	9	15	3	13
7	9	14	0	1
8	15	6	4	4
9	12	15	0	3
10	17	15	2	4
Mean (% of tested)*	14.3 (23%)	13.7 (34%)	2.0 (4.2%)	8.1 (17%)

*The mean was calculated by the averaging the positive allergen-specific IgE findings across dogs. The percentage of tested was calculated as the ratio of the number of the positive allergen-specific IgE findings pooled across all 10 dogs divided by the number of all tests for all 10 dogs × 100%. Laboratories are as follows: Lab A, Biomedical Services; Lab B, Veterinary Allergy Reference Laboratory; Lab C, Heska; and Lab D, IDEXX/Greer.

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Veterinary Dermatology

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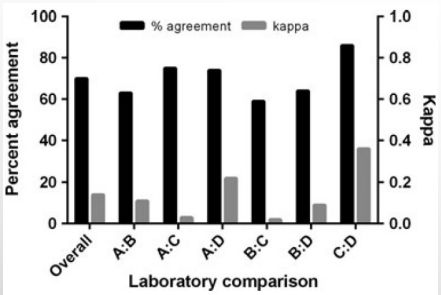

Figure 1. Overall and by laboratory pair, ungrouped allergen diagnostic percentage agreement and chance-corrected agreement (kappa statistic) of elevated allergen-specific IgE in 10 dogs with atopic dermatitis. Light's kappa is presented for overall agreement. Cohen's kappa is presented for laboratory comparisons. Laboratories are as follows: Lab A, Biomedical Services; Lab B, Veterinary Allergy Reference Laboratory; Lab C, Heska; and Lab D, IDEXX/Greer.

Value of Kappa	Level of Agreement	% of Data that are Reliable
0–.20	None	0–4%
.21–.39	Minimal	4–15%
.40–.59	Weak	15–35%
.60–.79	Moderate	35–63%
.80–.90	Strong	64–81%
Above.90	Almost Perfect	82–100%

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Intralaboratory Reliability and Variability for Allergen-Specific Immunoglobulin Type E Serology Testing

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ABSTRACT

Atopic dermatitis is a very common condition affecting dogs and often managed with allergen-specific immunotherapy, which requires accurate identification of causative allergens. Serology testing is used commonly. Serum was collected from 35 atopic dogs and separated into three samples each (1, 2, and 3). Samples 1 and 2 were sent to IDEXX Laboratories the same day; sample 3 was stored at –80°C and submitted ~30 days later. Specific immunoglobulin type E reactivity to various allergens were determined using monoclonal anti-canine enzyme-linked immunosorbent assay (ELISA) and expressed as ELISA absorbance units. Percent difference ranged from 14.30 to 127.34% for samples 1 and 2. These values increased when comparing samples a month apart (21.78 to 129.65%). Between samples 1 and 2, for each allergen there were differences in interpretation 15.18% of the time; 32 of 35 dogs (91.4%) had at least one allergen with a different interpretation. Comparing sample 3 and the average of samples 1 and 2, differences in interpretation increased to 22.32%; all dogs had at least one allergen that was interpreted differently. These differences in interpretation can alter immunotherapy. Overall, results show the need for better reliability for allergen-specific immunoglobulin type E serology testing using monoclonal anti-canine ELISA. (*J Am Anim Hosp Assoc* 2019; 55:124–129. DOI 10.5326/JAAHA-MS-6761)

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C3. Implementation of allergen-specific immunotherapy

Summary of the 2010 guidelines:

Allergen-specific immunotherapy (ASIT) is an effective and safe way to reduce the clinical signs of AD in dogs. There is no proven superiority of a particular ASIT protocol over other alternatives (traditional, rush or low-dose). Injection frequencies and amounts injected must be tailored to each patient depending upon the clinical improvement observed and the presence of adverse events. Because of the delay in the onset its beneficial effects, anti-inflammatory drugs should be given temporarily, as needed to maintain good quality of life, until such time as the ASIT is judged to be effective (see sections above). Because the onset of clinical benefit might not appear for months, ASIT must be continued for at least one year to properly evaluate its efficacy. Whether or not ASIT must be continued for the reminder of the life of atopic dogs has not been established [1].

Updated 2015 recommendations:

The value of ASIT as a canine AD-modifying treatment continues to be supported by (mostly uncontrolled) studies reporting at least a moderate efficacy (SOR B). There is some evidence that ASIT administered via the sublingual route (sublingual immunotherapy; SLIT), or in sped-up (i.e. "rush") protocol, are safe and effective for treatment of atopic dogs (SOR C). While most patients appear to require many years of ASIT, attempts should be made to decrease the frequency of administration, or even stop this intervention, in dogs exhibiting a prolonged complete remission of signs (SOR C).

There is currently no standardization in the performance of allergen-specific intradermal tests or IgE serologies that are used used to select allergens to be included in ASIT. Mounting evidence suggests that the results of serological tests can vary substantially between laboratories (SOR C). A consequence of such assay variability is that recommendations for immunotherapy prescriptions are expected to vary substantially between testing laboratories (SOR C).

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Inaccuracy of a hair and saliva test for allergies in dogs

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Several companies offer saliva and/or hair tests for allergies in companion animals, but offer no validation of their test accuracy. The objective of this prospective study was to determine if the Immune IQ™ test (Vet DVM, Boulder, CO, USA) could reliably differentiate between samples from a normal dog, an allergic dog and fake dog fur and tap water. Ten fur/saliva samples were submitted from a known atopic/food allergic dog and a normal, non-allergic dog, as well as five samples of realistic appearing "fake" fur from a stuffed toy animal and tap water. To ensure appropriate sample blinding for laboratory analysis, samples were submitted under different pseudonyms. Laboratory testing was performed for 128 food and environmental allergens. Specific testing procedures were described as proprietary and are not detailed by the company. Results were reported as RED (things to avoid), YELLOW (caution), and GREEN (not a problem). Statistical analyses were performed to determine if the response distribution differed significantly between dogs, using the Pearson chi-square coefficient, as well as to determine test-retest reliability by calculating Cohen's kappa for each allergen. The distribution of Immune IQ™ test results among allergic dog, non-allergic dog and fake fur samples were not distinguishable from those expected from random chance. Test-retest reliability was poor to slight. The Immune IQ™ test results could not differentiate between an allergic dog, a non-allergic dog and a stuffed animal, and should not be recommended as an alternative to hypoallergenic diet trials or intradermal or serologic allergen testing in companion animals.

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Hair and saliva analysis fails to accurately identify atopic dogs or differentiate real and fake samples

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Background – The availability of direct-to-consumer medical testing for human and veterinary health conditions has increased in recent years. For allergies, several companies market proprietary hair and saliva tests directly to pet owners. These tests have not been validated and there is limited regulatory oversight for such tests in veterinary medicine.

Hypothesis/Objectives – To examine the accuracy and reproducibility of a commercial direct-to-consumer hair and saliva allergen test.

Animals – Seven healthy animals (six dogs, one cat); six animals (five dogs, one cat) with atopic dermatitis; 11 samples of synthetic fur and sterile saline.

Methods and materials – Duplicate animal hair and saliva, and 11 synthetic fur and saline samples were collected (total samples 35) and submitted to the company for analysis, yielding 12,075 outcomes for statistical analysis.

Results – Positive test results were provided by the direct-to-consumer pet allergy for all submitted samples, including synthetic fur and saline. The test results for healthy and atopic animal samples were no different from each other or from synthetic fur and saline samples. Reproducibility for paired samples was not different from random chance. The results for real animals correlated strongly with results for synthetic fur and saline samples ($r = 0.71$, $P < 0.05$).

Conclusions and clinical importance – The direct-to-consumer hair and saliva test for pet allergies examined in this study performed no better than chance and the results were not reproducible.

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ASIT ADMINISTRATION

- SCIT (SUBCUTANEOUS IMMUNOTHERAPY)
  - VARIABLE FREQUENCY (WEEKLY TO MONTHLY)
- SLIT (SUBLINGUAL IMMUNOTHERAPY)
  - TWICE DAILY FREQUENCY
- TRANSDERMAL IMMUNOTHERAPY (ALLÌBRE)
  - ONCE DAILY

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HEMI 7 YO M(N) YORKIE

- NUMEROUS OPTIONS
- OWNER DECISION IN MY MIND
- IF OTITIS, PUSH FOR CYCLOSPORINE AND ASIT LONG TERM, POTENTIALLY ZENRELIA

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WHAT ABOUT THIS DOG?

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SEVERE ATOPIC DERMATITIS

- DEPENDENT ON RESPONSE TO MONOTHERAPY
- TRIAL AND ERROR

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MONOTHERAPY VS COMBINATION/OFF-LABEL THERAPY

- MONOTHERAPY SHOULD BE ATTEMPTED FOR ALL APPROVED PRODUCTS FIRST
  - THEN COMBINATION/OFF-LABEL THERAPY MAY BE NECESSARY
- BE CAREFUL OF ADDITIVE ADVERSE EVENTS

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MAINTENANCE COST CONSIDERATIONS (CHEWY)

10 KG DOG

- APOQUEL - $95.70
- ATOPICA - $127.84
- CYCLAVANCE - $97.56
- CYTOPOINT* - $76.50
- SPORIMUNE** - $97.08
- ZENRELIA - $75.60

OFF LABEL USE

- APOQUEL BID - $191.40
- APOQUEL + CYTOPOINT* - $172.20

* Cytopoint pricing from a regional general practice.
** Sporimune pricing from Allivet.

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CAD TREATMENT SUMMARY

- MAKE SURE TO DIAGNOSE CORRECTLY
- TREATMENT SHOULD BE INDIVIDUALIZED BASED ON SEVERITY AND CLINICAL SIGNS
- THOROUGH DISCUSSIONS

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QUESTIONS?

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