

was to evaluate the influence of supplementation with flax oil and a commercial product containing EPA and DHA on the clinical signs of atopic dogs.

MATERIALS AND METHODS

Approval for the study was obtained from the Animal Care and Use Committee of Colorado State University. Dogs with non-seasonal atopic dermatitis were included in the study. Atopic dermatitis was diagnosed by history, clinical examination and exclusion of differential diagnoses such as food adverse reactions or scabies with appropriate tests or treatments as described elsewhere (Mueller 1993, Scott and others 1993, 2001). Offending allergens were identified with an intradermal test.

Dogs were fed the same recorded type and amount of diet for eight weeks prior to and during fatty acid supplementation. The total amounts of omega-3 and omega-6 fatty acids received before and during the trial were calculated for each dog using the manufacturer's information outlining the fatty acid content of the used commercial diet and adding the fatty acid content of the administered supplement.

Each dog was assigned to one of three groups of 10 dogs using a table of random numbers and simple randomisation. The groups were treated, at a dose of at least one capsule per 5 kg of bodyweight, with a commercial fatty acid supplement (3V Caps; DVM Pharmaceuticals), flax oil capsules containing 570 mg of α -linolenic acid and 170 mg of linoleic acid per capsule, or a placebo containing mineral oil. Thus the dose range for each animal varied from 50 to 85 mg of EPA/kg and 35 to 55 mg of DHA/kg every 24 hours for the dogs receiving the commercial fatty acid supplement, and from 200 to 335 mg/kg of flax oil every 24 hours for the second group. Neither owner nor clinician was aware of the nature of the supplementation. Supplements were given for 10 weeks. Owners and clinicians completed evaluation forms immediately

before and after the fatty acid therapy.

Owner clinical scores were obtained by adding the scores for pruritus, skin lesions and medication. Pruritus was scored on a continuous visual analogue scale of 0 to 30, 0 being no pruritus, 30 being intense pruritus noted at all times. Each observed skin lesion (erythema, papule or crust) was counted separately and graded as: mild, 1-5 points; moderate, 3 points; and severe, 4-5 points. No concurrent medication was scored as 0 points, topical therapy as 5 points and antihistamines as 10 points. Frequent antibiotic therapy (more than 21 days during the 10-week study) scored 20 points, while less frequent antibiotic administration during this period scored 10 points. The score for glucocorticoids was determined by the dose. A calculated daily average dose of 1 mg/kg or more scored 40 points, between 0.5 mg/kg and 1 mg/kg daily scored 30 points, between 0.2 mg/kg and 0.5 mg/kg daily scored 20 points and less than 0.2 mg/kg daily scored 10 points. The overall maximum score for an animal was 117.5 points.

Clinician clinical scores were obtained similarly, but pruritus scored 0 when absent, 10 points when mild (scratching was not seen in the waiting or examination room, but could be induced), 20 points when moderate (scratching, licking or rubbing could be observed in the examination or waiting room, but ceased during the examination) and 30 points when severe (scratching, rubbing or licking occurred during the examination).

The mean total number of positive intradermal reactions was determined for each group and compared with a Kruskal-Wallis test. Total dietary omega-3 and omega-6 fatty acid intakes before and after supplementation were calculated by adding dietary intake and supplementary fatty acid content together. The total fatty acid intake of the three groups was compared with a Kruskal-Wallis test. Subjective evaluations of pruritus, performed by continuous scale plotting, were quantitated and the scale distances were evaluated as continuous data for normality of distri-

bution by the Kolmogorov-Smirnov test. Normally distributed data were compared over time by one-way analysis of variance (ANOVA). Group means were compared by a Kruskal-Wallis test, and clinician and owner scores within groups by a Wilcoxon matched pair test. A Pearson's test was used to evaluate correlations between intake of omega-3 and omega-6 fatty acids or omega-6:3 ratio and clinician scores. The correlation between clinician and owner scores was also examined with a Pearson's test. A P value of less than 0.05 was considered significant.

In addition to statistical evaluation, the dietary intake of fatty acids and the omega-6:3 ratio of the dogs responding fully to therapy were compared with a corresponding number of dogs in the same groups not responding at all to detect possible differences that could not be identified with the statistical evaluation, due to the large standard deviation of most values within groups.

RESULTS

Thirty dogs were included in the study. All dogs had positive intradermal tests; the mean number of positive reactions was nine in the placebo group (range three to 18) and 10 in both the group treated with a commercial product and the flax oil group (ranges four to 19 and four to 22, respectively). There was no significant difference in positive reactions between groups using a Kruskal-Wallis test ($P=0.87$).

Supplementation was discontinued for one dog in the placebo group when it developed diarrhoea. Twenty-nine dogs completed the study. Of these 29 dogs, 13 dogs had been on antihistamines with incomplete response prior to the study. In all dogs these antihistamines were continued at the same dose until the end of the study. Similarly, 13 dogs received weekly shampoo therapy at the beginning of the study and this continued unchanged throughout the study. In one dog,