

dogs that had shown changes in fatty acid patterns, after exclusion of dogs that failed to show changes in the pattern. Moreover, we did not quantify the exact amount of dry food consumed daily by each patient, and hence we were unable to report the total amount of GLA received (from both the supplement and the basal diet) within each quartile. However, there was an inverse relationship between increasing body weight and the amount of dry food received per kilogram. Hence, the amount of GLA received from the basal diet was lowest in the 1st quartile and highest in the 4th quartile. Likewise, the amount of GLA received from the supplement was highest in the 4th quartile and lowest in the 1st quartile. The results reported in the present study, however, do not suggest the optimal dose for a steroid sparing effect of fatty acid supplementation in the treatment of canine atopic dermatitis. A higher dose of the supplement could have led to a further reduction in the steroid dosage. Conversely, a lower dose could have provided the same outcome.

Although there is general agreement that the effect of dietary fatty acid supplementation does not have an immediate effect, the length of the required treatment before maximum benefit from fatty acid supplementation is attained is still debated. According to Bond and Lloyd,<sup>15</sup> Harvey<sup>35</sup> and Logas and Kunkle,<sup>36</sup> dogs treated with various fatty acid supplements required between 4 to 12 weeks before improvement was maximized. Conversely, Scott *et al.*<sup>11</sup> reported that maximal response was achieved within 1 to 3 weeks. Results from a study by Bond and Lloyd<sup>15</sup> in which combined treatment with essential fatty acids and prednisolone was used suggest that 8 or more weeks of dietary supplementation are necessary before the full therapeutic effect develops. The data found in the present study support the results of Bond and Lloyd.<sup>15</sup> Moreover, since the difference in the use of prednisolone between the active and placebo group increased towards the end of the study, there is a possibility that maximum benefit from the treatment was not reached at the close of the trial.

In this study we have confirmed that most dogs with atopic dermatitis respond very well to prednisolone treatment. Adverse events during glucocorticoid administration, however, are common, particularly with long-term treatment.<sup>20</sup> To avoid some of the undesirable effects, alternate day treatment with oral use of short-acting glucocorticoids such as prednisone/prednisolone is advocated. In the present study we hypothesized that the use of dietary supplementation with essential fatty acids would reduce or eliminate the need for prednisolone treatment. Relatively few dogs were managed without prednisolone for longer periods of time. However, the use of prednisolone in both the active group and the placebo group was low at the end of the study ( $0.12 \text{ mg kg}^{-1} \text{ day}^{-1}$  and  $0.24 \text{ mg kg}^{-1} \text{ day}^{-1}$ , respectively, at the close of the trial). Results from a study by Chastain and Graham<sup>40</sup> strongly suggested that replacement doses of short-acting glucocorticoids (doses less than  $0.3 \text{ mg of prednisone kg}^{-1} \text{ day}^{-1}$ ) might be given daily for at least several weeks without causing

extra-adrenal adverse effects. None of the owners reported unacceptable side effects of the treatment in the present study. However, some owners reported increased appetite and thirst, which faded when the dose of prednisolone was lowered. The occurrence of skin infections in two dogs in the placebo group could be due to prednisolone treatment<sup>20</sup> or because of the predisposition of most dogs with atopic dermatitis to contract secondary skin infections.<sup>22,41</sup>

In the present study, the use of concurrent therapy was limited to a shampoo and an ear-cleanser. To avoid any confounding effect on the outcome of the study, their uses were recorded daily in a diary. Recurrent pyoderma and otitis externa are common in dogs with atopic dermatitis.<sup>22,41</sup> Indeed, the majority of the dogs enrolled in the present study had suffered from pyoderma (83.3%) and/or otitis externa (46.7%) once or several times previously. The use of shampoo and ear-cleanser was a measure to prevent recurrence of skin infections and ear infections in both groups of dogs, and hence keep the withdrawal rate as low as possible. However, it should be noted that the regular use of both shampoo and ear-cleanser *per se* could contribute to a decrease in the use of steroids in both groups. Adjunctive antimicrobial shampoos and ear-cleansers are indicated in most dogs with atopic dermatitis to reduce the degree of pruritus resulting from microbial infection of the skin.

In summary, the results of the present study indicate that essential fatty acid supplementation has a steroid sparing effect in the treatment of canine atopic dermatitis and, furthermore, that it may take 12 weeks or more before the full therapeutic effect develops. As no permanent curative therapy is available for canine atopic dermatitis at present, these findings support the multifaceted approach to the canine patient with atopic dermatitis. Our results support concurrent use of fatty acid supplementation as well as regular use of shampoo and ear-cleanser in dogs with atopic dermatitis receiving long-term glucocorticoid treatment. Further studies are needed to investigate the optimal dose for a steroid sparing effect of essential fatty acid supplementation in canine atopic dermatitis.

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