

Injection Immunotherapy in the Treatment of Canine Atopic Dermatitis: Comparison of 3 Hyposensitization Protocols

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Introduction: Beginning with Wittich in 1941, canine atopic dermatitis, an IgE mediated hypersensitivity to inhaled allergens, has been evaluated by intradermal skin testing and treated by hyposensitization. Injection immunotherapy, hyposensitization employing increasing doses of parenterally administered antigens based on skin test reactivity, has been effective in 50-100% of patients in independent studies. Due to differences in antigen extracts (aqueous or alum-precipitated), injection schedules, and total maintenance dose, comparison between studies, of the effectiveness of hyposensitization has been difficult. In a double blind placebo controlled study, a statistically significant number of dogs responded with a 51% or greater resolution of symptoms, when compared to placebo controls. Immediate skin test reactivity disappeared only in dogs with a good clinical response.

Purpose: The purpose of this study was to compare the clinical response to injection immunotherapy in canine atopic patients placed on one of three different treatment protocols, and to determine if the disappearance of immediate skin test reactivity correlated with clinical response.

Material and Methods: Beginning in May of 1990, 133 consecutive dogs referred to the Animal Dermatology Referral Clinic, Dallas, Texas, exhibiting symptoms consistent with atopic dermatitis, were allergy tested using the intradermal method under xylazine sedation. The patients were placed randomly on one of three treatment protocols (A, B, or C) blinded to the investigator and owner. Group A (high dose) was treated with equal parts antigen based on skin test positive reactions, with a total maintenance dose of 40,000 PNU/ml. Group B (low dose) was treated with equal parts antigen based on skin test positive reactions, with a total maintenance dose of 10,000 PNU/ml. **Group C (nonspecific) was treated with equal parts of all 32 antigens tested, regardless of skin test results,** with a total maintenance dose of 40,000 PNU/ml or 1,250 PNU/ml of each of the 32 antigens. All of 3 groups were treated with aqueous antigens, acquired from the same source (Center Labs), and were treated with the same injection interval. Following 6 months of immunotherapy, clinical response was assessed, skin testing repeated, and antigen mixtures adjusted based on skin test positivity (groups A & B). These steps were repeated following another 6 months of immunotherapy (12 months total). Improvement was graded subjectively by the owner as poor (< 50% resolution of pruritus), good (51-75% resolution of pruritus), or excellent (> 75% resolution of pruritus).

Results: Of the 133 dogs initially placed on the study, 79 returned for both the 6 and 12 month retests. In group A (n=27) 85% of the patients had a good or excellent response (> 51% resolution of pruritus). In group B (n=22) 68% had a good or excellent response. **In group C (n=29) 76% had a good or excellent response.** Immediate skin test reactivity changed in all 3 groups, at each retest, with the loss of previous positive reactions and the addition of new positive reactions.

Conclusion: Hyposensitization by injection immunotherapy is most effective using high dose specific immunotherapy, compared to low dose or nonspecific immunotherapy.

Comment by Jon Plant, DVM, DACVD: **The conclusion is not supported by the above results. As Dr. Garfield stated during his presentation, there was not a statistically significant difference in response rates between the groups. Data analysis reveals that Chi-square = 2.0 giving a p-value of 0.37.**

References:

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