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WCVD8/SOS-1060

Serological identification of low molecular weight allergens from domestic mites associated with canine atopic dermatitis

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Please insert your abstract: In tropical and subtropical climates, allergens from house dust mites, such as: *Dermatophagoides pteronyssinus*, *Dermatophagoides farinae* and *Blomia tropicalis* are a common cause of sensitization and eczema precipitation in dogs with atopic dermatitis (AD). Identification of such allergens is essential for standardization of intradermal testing (IDT) and response to immunotherapy protocols. This study aimed to identify specific IgE to major allergens of house dust mites in the serum of dogs with AD sensu stricto. Twenty-one dogs that had other pruritic dermatoses ruled out, that fulfilled six of eight clinical features of canine AD, as described by Favrot et al, and that showed no improvement in clinical signs after exclusively feeding a novel protein diet for at least eight weeks, were enrolled in the study. All dogs were positive in IDT to at least one of the mites tested, and had their serum samples refrigerated until it was performed SDS-PAGE using a 155 polyacrylamide gel, followed by monoclonal anti-IgE Western blotting. All data were analyzed descriptively. Among the 21 dogs with AD, 13 (59%) reacted to *B. tropicalis* and *D. pteronyssinus*, and 10 dogs (45.5%) reacted to *D. farinae*. All 13 dogs (100%) sensitive to *D. pteronyssinus* allergens showed response against allergens in the molecular weight range of 21.5 to 31 kDa, what may indicate response against Der p 1 (25 kDa), Der p 3 (31 kDa), Der p 6 (25 kDa) and Der p 9 (29 kDa). Seven dogs (53.8%) showed response against proteins in the range of 14.5 to 21.4 kDa, what may indicate response to Der p 2 (15 kDa). Among the 10 dogs sensitive to *D. farinae*, all of them showed response to allergens between 21.6 and 31 kDa, probably Der f 1 (25 kDa); while 6/10 (60%) responded to allergens with more than 97.4 kDa, what may indicate response to Der f 15 (98 kDa); and 5/10 (50%) showed response between 66.2 and 97.4 kDa. Among the 13 dogs sensitive to *B. tropicalis*, six (46.1%) reacted to allergens in the range of 21.5 to 31 kDa, indicating reaction against Blo t 6 (25 kDa); and 5/13 dogs (38.5%) reacted to allergens in the range of 66.2 to 97.4 kDa. The results showed herein suggest that dogs with AD may have serum IgE against low molecular weight allergens, which have enzymatic nature, are commonly found in house dust, and have been responsible for the development of allergic diseases in humans.

Please insert the short abstract: In tropical and subtropical climates, allergens from house dust mites, such as: *Dermatophagoides pteronyssinus* (DP),*Dermatophagoides farinae* (DF) and *Blomia tropicalis* (BT) are a common cause of sensitization in dogs with atopic dermatitis (AD). The aim of this study was to identify specific IgE to allergens of house dust mites in the serum of dogs with AD sensu stricto. Twenty-one atopic dogs, diagnosed as described by Favrot et al, after exclusively feeding a novel protein diet for eight weeks, were enrolled in the study. All dogs were positive in IDT to at least one of the
mites tested. It was performed a 15% polyacrylamide gel SDS-PAGE and monoclonal anti-IgE Western blotting. Among all dogs, 13 (59%) reacted to BT and DP, and 10 (45.5%) to DF. The dogs sensitive to DP showed response against allergens in the range of 21.5-31kDa, suggesting response to Der p1 (25kDa), Der p3 (31kDa), Der p6 (25kDa) and Der p9 (29kDa). Seven dogs (53.8%) showed response in the range of 14.5-21.4kDa, probably Der p2 (15kDa). Among the 10 dogs sensitive to DF, 100% showed response between 21.6-31kDa, probably Der f1 (25kDa); while 6/10 (60%) responded to allergens with more than 97.4kDa, suggesting response to Der f15 (98kDa); and 5/10 (50%) showed response in the range of 66.2-97.4kDa. Among the 13 dogs sensitive to BT, six (46.1%) reacted in the range of 21.5-31kDa, indicating response to Blo t6 (25kDa); and 5/13 dogs (38.5%) reacted in the range of 66.2-97.4kDa. In conclusion, dogs with AD may have serum IgE against low molecular weight allergens, which have enzymatic nature, are commonly found in house dust, and have been responsible for the development of allergic diseases in humans.

Source of funding: Self-funded

I declare that the conflict of interests of each author are declared: Yes

Disclosure of Interest: None Declared