Dog sensitization and allergy to mites: do they respond the same way to poultry red mite as to house-dust and storage mites?

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Introduction

Dermanyssus gallinae (Der g), the European poultry red mite (PRM), is a common ectoparasite of laying chickens and pigeons but can also feed on other birds, humans (1,2,3) and domestic animals like cats (4), dogs (5,6,7) horses (8), goats (9) and rabbits (10), causing from mild discomfort to severe dermatitis, with possible transmission of several infectious zoonotic agents (11,12).

Affected dogs mostly show a flea-like allergy pattern (5) but very little is known about a possible type I hypersensitivity or eventual cross-sensitization with house-dust or storage mites.

Investigating on IgE-mediated allergy to PRM in dogs is important for both veterinary and human health, since potential IgE-mediated allergy in humans and their dogs, with possible cross-sensitization with dust and storage mites may allow a better clinical approach.

Aim

Testing for specific IgE (slgE) to clarify:

i) Possible evidence of type I hypersensitivity to PRM in dogs.

ii) The possible occurrence of cross-sensitization between PRM and dust and storage mites.

Materials and Methods

Sixteen non-atopic dogs with long-lasting contact with chickens from traditional bird houses and 5 control dogs from an allergy outpatient consultation, without direct contact with birds.

Intradermal testing with extracts from: Blo t, Der p, Der f, Lep d, Aca s, Tyr p (Diater, Spain) and Der g (1, 0.5, 0.1 and 0.01 mg/mL – LETI Animal Health Laboratories, Spain)

Serum specific IgE to PRM was determined by ELISA at LETI Animal Health Laboratories (Spain).

Chicken-dogs IDT (Illustrative)

Results

PRM – IDT

i) Control dogs: 3 positive and 2 negative (with every concentration).

ii) Chicken-contacting dogs: 10 positive with 0.1 mg and 6 with 0.01 mg/mL; 1 positive just for 1 mg/mL; 1 positive only for 0.1 and 0.01 mg/mL; 5 negative for all concentrations.

iii) Response showed gradual between 0.1 and 0.01 mg/mL.

PRM – slgE

i) Control dogs: detected in 1 patient (20%).

ii) Chicken-contacting dogs: 7 (44%).

No significant correlation was found between PRM and dust and storage mites IDT, and between IDT and slgE to PRM.

Conclusions

i) The more adequate PRM IDT extract concentration is probably in the 0.1-0.01 mg/mL range.

ii) Close contact with infested chickens, hence with PRM may conduce to a possible state of sensitization with slgE without allergy.

iii) Sensitization and allergy to PRM seemed independent from their equivalent to dust and storage mites.

References


Conflict of interest: In relation to this presentation I declare that there are no conflicts of interest.

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