

Correspondence

Can the levels of Can f 1 in indoor environments be evaluated without considering passive transport of allergen indoors?

To the Editor:

We read with interest the article from Vredegoor et al¹ showing that certain dog breeds usually marketed as “hypoallergenic” produced significantly higher amounts of Can f 1 in hair and coat in comparison to “nonhypoallergenic” dog breeds. Moreover, Can f 1 levels in settled floor-dust samples as well as in the air were not significantly different in the 2 groups of dog breeds. The authors concluded that there is no evidence for the classification of certain dog breeds as being hypoallergenic.

The topic is highly relevant if we consider sensitization-facilitating or symptom-triggering effects of acquiring a so-called hypoallergenic dog in individuals sensitized to dog allergens and symptomatic after dog exposure.

However, we think the conclusions of authors based on the results of the levels of Can f 1 found on the floor or in the air, especially in the group of hypoallergenic dogs, might be seriously inconclusive for the lack of information on the passive transport of Can f 1 allergen indoors.

The dynamics (production, circulation, sedimentation, transport, etc) of dog and cat (Fel d 1) allergens in indoor environments are complex and show similar aspects² (Fig 1). In this context, passive transfer of Can f 1 through clothes or other items may carry considerable amounts of this allergen indoors.³ These amounts are likely depending on the degree of dog contact outdoors. In some indoor environments such as public places (schools, day care centers, means of transport, etc), passive transfer constitutes the exclusive modality of dog or other animal allergens contamination.⁴ Finally, several studies have shown that amounts of pet allergens passively transferred in

pet-free environments are of sufficient magnitude to induce allergic sensitization in susceptible, atopic individuals and triggering allergic symptoms in already and highly pet-sensitized subjects.⁵

In the article of Vredegoor et al, the authors have not considered this particular aspect. In other words, dog owners of both groups frequently or intensively exposed to other dogs elsewhere should not be included in the study or, alternatively, their clothes should be removed or washed before entering indoors.^{6,7} It is likely that considerably amounts of Can f 1 found in indoor environments (on the floor and in the air) do not belong to dogs who live in that environment. This possibility is a crucial point in the hypoallergenic dog group because *in vitro* assays are not able to distinguish Can f 1 produced by the hypoallergenic dogs from Can f 1 produced by unknown dogs in other settings (and not necessarily from hypoallergenic breeds) passively transferred indoors. Exactly inverse considerations can be done for indoor environments of nonhypoallergenic dog breeds potentially contaminated by Can f 1 produced by unknown hypoallergenic dogs passively transferred indoors.

In conclusion, the evaluation of Can f 1 amounts indoors without considering the percentages of allergen carried at home through clothing or other items constitutes a serious bias in defining some dog breeds as hypoallergenic.

Gennaro Liccardi, MD^a

Antonello Salzillo, MD^a

Amedeo Piccolo, MD^a

Maria D'Amato, MD^b

Gennaro D'Amato, MD^a

From ^athe Department of Chest Diseases, Division of Pneumology and Allergology, High Speciality “A. Cardarelli” Hospital, and ^bthe Division of Respiratory Medicine,

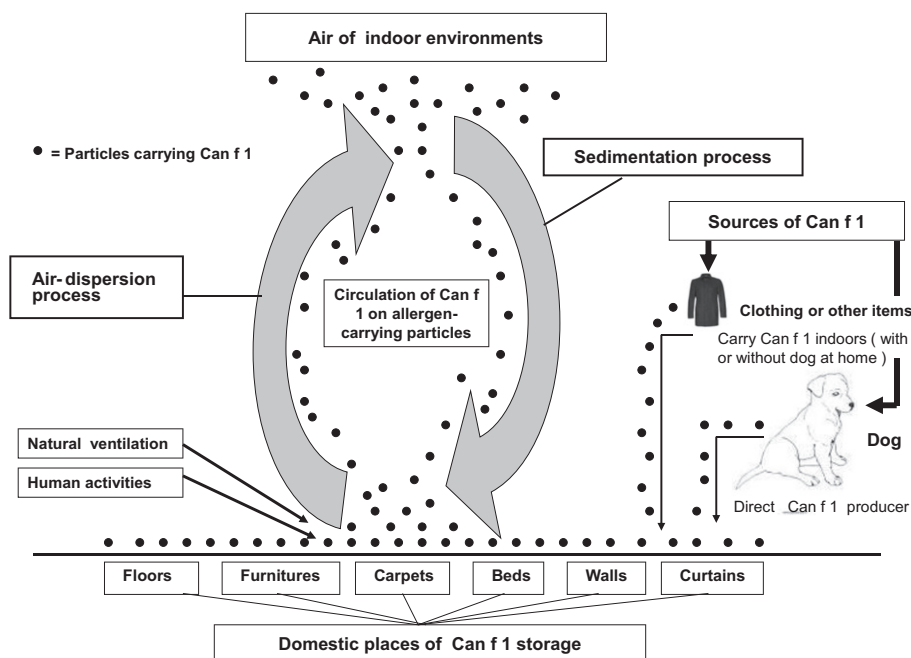


FIG 1. Dynamics of dog allergen (Can f 1) in indoor environments.

High Speciality “V. Monaldi” Hospital and University, “Federico II,” Naples, Italy.
E-mail: gennaro.liccardi@tin.it.

Disclosure of potential conflict of interest: The authors declare that they have no relevant conflicts of interest.

REFERENCES

1. Vredegoor DW, Willemse T, Chapman MD, Heederik DJJ, Krop EJM. Can f 1 levels in hair and homes of different dog breeds: lack of evidence to describe any dog breed as hypoallergenic. *J Allergy Clin Immunol* 2012;130:904-9.
2. Custovic A, Green R, Fletcher A, Smith A, Pickering CA, Chapman MD, et al. Aerodynamic properties of the major dog allergen Can f 1: distribution in homes, concentration, and particle size of allergen in the air. *Am J Respir Crit Care Med* 1997;155:94-8.
3. Arbes SJ Jr, Cohn RD, Yin M, Muilenberg ML, Friedman W, Zeldin DC. Dog allergen (Can f 1) and cat allergen (Fel d 1) in US homes: results from the National Survey of Lead and Allergen in Housing. *J Allergy Clin Immunol* 2004;114:111-7.
4. Berge M, Munir AK, Dreborg S. Concentrations of cat (Fel d 1), dog (Can f 1) and mite (Der f 1 and Der p 1) allergens in the clothing and school environment of Swedish schoolchildren with and without pets at home. *Pediatr Allergy Immunol* 1998;9: 25-30.
5. Munir AK, Einarsson R, Schou C, Dreborg SK. Allergens in school dust, I: the amount of the major cat (Fel d 1) and dog (Can f 1) allergens in dust from Swedish schools is high enough to probably cause perennial symptoms in most children with asthma who are sensitized to cat and dog. *J Allergy Clin Immunol* 1993;91: 1067-74.
6. Karlsson AS, Andersson B, Renstrom A, Svedmyr J, Larsson K, Borres MP. Airborne cat allergen reduction in classrooms that use special school clothing or ban pet ownership. *J Allergy Clin Immunol* 2004;113:1172-7.
7. Liccardi G, Russo M, Barber D, Carreira J, D'Amato M, D'Amato G. Washing the clothes of cat owners is a simple method to prevent cat allergen dispersal. *J Allergy Clin Immunol* 1998;102:143-4.

<http://dx.doi.org/10.1016/j.jaci.2012.12.1579>