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Sensitization to furry animals in an urban atopic population living in Naples, Italy

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Most studies on the sensitization to domestic animals have been carried out in Northern Europe and in rural areas, where the rate of ownership is high. Very few studies have been carried out in populations living in large urban areas (1). In these areas, the prevalence of sensitization to furred animals, its clinical characteristics, and modality of exposure are poorly known. Moreover, it has been shown that exotic or nontraditional pets have become more prevalent in allergy literature because of commercial or personal use (2).

The objective of our study was to assess the prevalence of allergic sensitization to common/less common furry animals and modality of exposure in a sample of atopic population living in Naples, Italy.

A total of 1665 subjects aged between 7 and 76 years (mean age 33.2) living in Naples area and consecutively evaluated in our Allergy Service from 1 January 2008 to 31 December 2009 for respiratory symptoms of a

suspected IgE-mediated aetiology were examined.

A case report form containing all information and specifically designed for this study was completed by the allergists during the screening consultation of each patient.

Because the absence of a pet at home does not exclude a direct exposure to pet outside and considering the peculiarity of possible contacts with other animals, we classified animal exposure into two categories:

Positive contact: As regards pets, the presence of these animals at home. **Direct contacts** for different reasons

(e.g. hobby and sport) with the exception of occupational exposure as regards all other animals.

Negative contact: (i) any direct animal contact but an indirect exposure through the contact with animal owners; and (ii) any apparent direct or indirect exposure.

The commercial allergen extracts (routine panel + dog, cat, horse, rabbit, rat, mouse, guinea pig, hamster and cow hair) used for skin prick test (SPTs) were provided by Lofarma Laboratories (Milan, Italy). Skin prick test were carried out and interpreted according to international guidelines (3).

Table 1 Skin prick test positivity and modality of exposure to nine furry animals in patients suffering from respiratory symptoms of a suspected IgE-mediated aetiology and living in Naples area. (a) Data of the total examined population (1665 patients). (b) Data of the atopic examined population (1085 patients)

Animal	SPTs positivity		Modalities of exposure			
			Direct		Indirect/no contact	
	No.	%	No.	%	No.	%
(a)						
Cat	225	13.5	148	8.9	1517	91.1
Dog	227	13.6	156	9.4	1509	90.6
Guinea pig	16	1.0	4	0.2	1661	99.8
Rabbit	82	4.9	27	1.6	1638	98.4
Hamster	24	1.4	8	0.5	1657	99.5
Rat	6	0.4	–	–	1665	100
Horse	48	2.9	25	1.5	1640	98.5
Cow	51	3.1	10	0.6	1655	99.4
Mouse	17	1.0	3	0.2	1662	99.8
(b)						
Cat	225	20.7	118	52.4	107	47.6
Dog	227	20.9	121	53.3	106	46.7
Guinea pig	16	1.5	2	12.5	14	87.5
Rabbit	82	7.6	22	26.9	60	73.1
Hamster	24	2.2	8	33.3	16	66.7
Rat	6	0.5	–	–	6	100
Horse	48	4.4	15	31.3	33	68.7
Cow	51	4.7	8	15.7	43	84.3
Mouse	17	1.6	2	11.8	15	88.2

SPTs, skin prick test.

Among 1665 examined patients, 1085 (65.16%) had a SPTs positivity for at least one allergen. In Table 1, we reported SPTs positivity and modality of exposure to furry animals in the total and in atopic population. In atopic population, sensitization to all animals occurs either in individuals with direct animal contact or in that with indirect or without contact.

Our data confirm, as expected, the primary role of cat/dog allergens as sensitizing animal agents and the underestimated risk of allergic sensitization to rabbit and horse in Italy because of the increasing rate of rabbit ownership and horse contact (4, 5).

A possible explanation for high prevalence of mammals sensitization in subjects without known contact with animals could be an indirect exposure or a cross-allergic reaction induced by lipocalins and serum albumin. A possible predisposition to develop multiple sensitization to animal allergens has been also suggested (6).

Cross-reactions and indirect exposure may induce allergic sensitization to furry animals without previous contact. It is a relevant risk for patients because they are not aware about the possibility of

inducing respiratory symptoms also after an occasional animal exposure.

In conclusion, our study has shown the relevant role of mammal allergens as sensitizing agents in our geographical area in exposed as well as nonexposed individuals.

As a consequence, it could be recommended to perform SPTs also to less common mammalian allergens to identify the occurrence of allergic sensitization and consequently to avoid future exposures to these animal allergens.

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