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EDITORIAL

The best allergen immunotherapy choice for mite allergic patients

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Allergic rhinitis and asthma are very common and are characterized by an IgE-dependent reaction. Allergen exposure typically causes inflammation occurrence that in turn is the *condicio sine qua non* to induce symptoms' appearance. Thus, there is a vicious circle that starts from allergen presence in the environment, and proceeds with its inhalation, inflammatory response, and symptoms happening: all these actors are necessarily linked in the allergy scenario.

House dust mites (HDM) are common cause of allergic rhinitis and asthma.[1] HDM belong to the *Arachnidae* family and are worldwide ubiquitous; HDM highly grow in humid and warm environments up to 2000 m above sea level. HDM consist of many species, but the most relevant are *Dermatophagoides pteronyssinus* and *Dermatophagoides farinae*.

The IgE response to HDM appears very early in life, reaching a peak during adolescence–young adulthood to progressively diminishing with ageing.[2] The HDM molecular allergen components are well defined and cloned: the major allergens are Group 1 (Der p 1 and Der f 1) and Group 2 (Der p 2 and Der f 2) proteins.[3]

HDM allergens require an airstream to be dispersed and inhaled, as they are relatively heavy and so tend to lay down. Typically, HDM-allergic patients usually have symptoms while dusting, opening wardrobe, putting on sweaters, handling old books.

HDM allergy is characterized by bothersome symptoms, mainly concerning nasal obstruction. This symptom is closely depending on allergic inflammation caused by allergen exposure.[4] In addition, HDM allergy has a negative impact on quality of life.[5]

On the basis of these considerations, a recent cross-sectional study investigated the clinical characteristics of HDM-related allergy in 499 Italian patients using a questionnaire-based method.[6] The findings showed that 42% had rhinitis alone, 13% asthma alone, and 45% had asthma and rhinitis. Rhinitis was moderate–severe in 51%; asthma was intermittent in 36%, mild persistent in 37%, moderate in 27%. In addition, about 50% of patients were unsatisfied of prescribed treatments. Finally, the study reported that HDM-allergic patients had more symptoms during the fall–winter period. This issue is intriguing as this autumnal peak of allergic symptoms may be

contemporary with the so-called 'September epidemic' due to viral infections, mainly in allergic children.[7] Moreover, it has been reported that HDM-allergic children have more frequent and severe respiratory infections than healthy ones and this attitude may be reduced by allergen immunotherapy (AIT).[8] Therefore, fall–winter tends to be the worst season for HDM allergic patients. In addition, the HDM concentration at home is not constant during the whole year, but periodically varies with two peaks: fall–winter, the main, and spring.[9] Similarly, nasal inflammation is closely related to mite variations as well as patients with HDM allergy exactly present more severe symptoms in these specific year periods, and there was a significant relationship between nasal eosinophil count and nasal obstruction perception.[10]

Thus, mite allergy should be considered not as a pure 'perennial' (i.e. continuous) allergy, but as a 'seasonal' allergy, although characterized by long periods of symptoms occurrence and inflammation persistence. This concept could have practical consequence, mainly concerning the AIT schedule. In other words, new therapeutic strategy could be defined: for example, prescribing two pre-co-seasonal courses along the year instead a continuous schedule. In this regard, a previous study demonstrated that intermittent (2 months on treatment and 2 off) AIT schedule was equivalent to a continuous regimen in patients with mite allergy treated for one year.[11]

On the basis of these considerations, a group of 50 Italian allergists, particularly expert in AIT management, met to discuss these issues and to define a shared point of view about HDM allergy management, mainly concerning AIT prescription and schedule. The meeting was organized by the authors of this paper with an unconditional fund provided by Stallergenes Italia. Five issues were discussed and voted.

The first issue concerned the question: what is the best treatment for patients with mite allergy? Eighty per cent of allergists answered the AIT, whereas 16% preferred environmental prevention. Therefore, the large majority of these allergists retain that AIT is the best option for treating HDM allergy.

The second point evaluated the inclusion criteria for prescribing AIT. Intermittent asthma, mild and moderate persistent asthma, and/or persistent moderate–severe allergic

rhinitis were considered the requisite for AIT prescription by the 96% of allergists who were asked. These criteria are perfectly consistent with the most recent position paper on AIT [12] and a recent study performed on Chinese asthmatics.[13]

The third matter considered the duration of HDM allergy: ninety percent of consulted allergists retained that HDM have a seasonality, whereas 10% believe that HDM allergy is continuously present along year. The opinion of HDM seasonality is based on the concepts previously reported, such as the concentration of HDM is higher during the fall–winter period, mainly during autumn. Therefore, allergic symptoms are more evident in fall and milder in summer.

The choice of HDM allergens for AIT was the fourth topic: 60% of allergists prescribe a mixture (50% + 50%) of *Dermatophagoides pteronyssinus* and *D. farinae*, whereas 40% of allergists prefer to prescribe the major recombinant allergens (such as Der p 1 and Der p 2).

The final subject pertained to the characteristics of HDM AIT: all present allergists retained that AIT for HDM should have a good level of evidence based medicine validation, should be standardized, should express (mcg) the quantity of major HDM allergens, and should contain high-quality allergens.

Therefore, this group of Italian allergists shared the opinion that patients eligible for AIT should have moderate–severe symptoms of HDM allergy and highlighted the relevance of choosing products of high quality, well defined, standardized, and titrated for the major HDM allergens. In addition, an emerging concept concerns the fluctuation of HDM allergic symptoms and inflammation thorough the year. Actually, most of these allergists were convinced that HDM allergy should be not considered as a perennial, i.e. continuous, allergy, but it has to be deemed as a seasonal allergy, even though characterized by long periods of symptoms and recurring during the year.

Declaration of interest

F. Frati and S. Buttafava are employees of Stallergenes Italy. G. Ciprandi and C. Incorvaia are consultants for Stallergenes Italy. The authors have no other relevant affiliations or financial involvement with any organization

or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript apart from those disclosed.

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