

Old, Wise and Allergic: Allergies Are No Longer Solely Diseases of the Grandchildren

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In developed countries, the demographic distribution of the population is changing towards a higher proportion of elderly persons. Especially the group of persons 65 years or older is the fastest growing segment of the population in many countries. It is estimated that by 2040 this group will comprise about 25% of the total population and that the percentage of patients above 80 years of age will increase disproportionately fast. Per definition, the term older adult is applied to persons 65 years or older (in some studies 60 years or older). So far, it was estimated, that the prevalence of allergic diseases in the elderly population segment is around 5–10% [1, 2].

Wüthrich et al. [3] have now been able to determine the age-related prevalence of allergic diseases in the Swiss population using data of the very well-defined SAPALDIA study population. Prevalence rates of self-reported allergic rhinitis in subjects >60 years were 13.0% for men and 15.4% for women, and 6.6% (men) versus 7.6% (women) for doctor's diagnosed asthma. Thus, allergic diseases in this age group seem to be much higher than previously thought – even though the prevalence rates of both rhinitis and asthma were still higher in persons below age 60.

This indicates that further scientific evaluations of allergic diseases in this age segment are in great demand. But why may allergies in grandparents differ from the same disease in their grandchildren? Frailty, comorbid-

ties, loss of memory, dependence and polymedication are some of the factors that affect treatment in elderly patients. The influence of immunosenescence (the aging of the immune system), drug interactions or age-related side effects have to be taken into account, too [4].

Immunosenescence may be reflected by age-related declines in serum total IgE and different other immunological parameters, which have been reported in elderly patients compared to younger patients without any allergic disease [5, 6]. However, it seems that immunosenescence does neither affect increased IgE levels in diseased patients with atopic dermatitis [7] nor the results of skin provocation tests as well as specific IgE to inhalant, food or drug allergens [8–10].

In the nose, typical symptoms of allergic rhinitis, e.g. nasal obstruction, itching, sneezing and rhinorrhea, may be worsened by age-related changes in the anatomy and physiology of the nose, e.g. a slower mucociliary transport time or increased dryness for example [11, 12].

In the skin, aging is characterized by atrophy of the epidermis and dermis due to loss of hydration, function and structural integrity resulting in impaired immune responses and skin barrier function, especially due to components of the extracellular matrix, vascular impairment and the resulting metabolic disturbance and oxidative stress [13, 14].

In the lung, several biologic processes related to aging seem to be involved in the pathophysiology of asthma in the elderly. Cell aging, progressive loss of lung function during life combined with destructive processes of inflammation associated with asthma may be some of the hallmarks of asthma in this age group [2, 15].

In the gut, changes in local immune responses might contribute to the development of food allergy. The induction of mucosal tolerance has been shown to be impaired in aged animals, while the effector phase is maintained [16]. This may be reinforced by weakened secretory antigen-specific IgA responses [17] and an increase in intestinal permeability with aging [18].

In the treatment of all allergic diseases, the incidence of potential drug interactions increases with age and with the number of drugs prescribed. The inhibition or induction of drug metabolism and pharmacodynamic potentiation or antagonism are most important in this regard, often due

to a decreased renal and liver function [19]. Thus, topical treatments with glucocorticosteroids, antihistamines or combinations of both are most suited for the management of allergic rhinitis in the elderly [20–23]. With regard to immunotherapy, subcutaneous and sublingual application routes have been successfully used to treat respiratory allergies in the elderly [24, 25]. Taken together, Wüthrich et al. [3] were able to impressively demonstrate a relatively high prevalence of allergies in the elderly.

Special considerations regarding diagnosis and treatment need to be taken into account when assessing these patients. Therapy may be limited by comorbidities and concomitant medication. Therefore, more studies are needed with regard to the prevalence and particularities of allergy in the geriatric population. Clinical trials in elderly patients with allergic diseases are necessary to provide reliable evidence for safe and effective diagnostic and therapeutic methods.

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