

Allergic March – The Ways of Evolution from Simple to Complex

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Abstract

The prevalence of allergic diseases is increasing worldwide in last decades. The ISAAC (International Study of Asthma and Allergies in Childhood) study suggested that the prevalence of allergy is between 6 and 12% in children. The natural history of allergic manifestations characterized by an age-related sequence of clinical symptoms and conditions is known as allergic march. Thus allergic march represents the evolution from cow's milk protein allergy and atopic dermatitis to allergic rhinitis and asthma. Peak incidence of atopic dermatitis and cow's milk protein allergy is found in the first two years of life. These children are at increased risk of developing other allergic diseases such as asthma and allergic rhinitis. Gastrointestinal and skin manifestations in association with respiratory and sometimes systemic events have an important impact on child development in terms of weight, stature and psychomotor, and later on the social integration of the patient. It is important to highlight natural evolution of allergic diseases both to predict a child's risk with atopic dermatitis to develop allergic rhinitis or asthma, and also to establish timely therapeutic measures to influence or stop the development of allergic manifestations.

Keywords: Atopic; Dermatitis; Asthma; Rhinitis

Introduction

The term "allergic march" refers to the natural history of atopic manifestations, which is characterized by the production of IgE antibodies as response to a low dose of the allergen and the development of typical clinical manifestations of food allergy, eczema, asthma and allergic rhinitis. These clinical symptoms may appear early in life, persist over years, and often remit spontaneously with age [1]. The common progression of these diseases is from food allergy and atopic dermatitis to allergic rhinitis and asthma, but this is not the only way that allergic manifestations progresses. The risk of developing atopic diseases is influenced by both genetic and environmental factors. Many atopic children have a genetic predisposition for various allergic diseases. Clinical data support that the risk of developing an allergic disease is 10-15% when parents do not suffer from allergic diseases. When one of the parents has allergic disease, this risk doubles and reaches 40-80% when both parents suffer from allergic diseases [2,3].

Atopic dermatitis and food allergy commonly co-exist, especially in those with early onset and those who present more severe forms of eczema. Results of studies have shown that children with a history of IgE positive cow's milk allergy, diagnosed at a mean age of 7 months, presented increased lung inflammation and airway hyperresponsiveness. Atopic dermatitis is considered to be a key point for subsequent allergic diseases, suggesting that effective management of eczema could prevent the development of respiratory allergy and reduce the severity of asthma and allergic rhinitis [4,5].

Allergic sensitization

The IgE responses directed to food proteins such as hen's egg and cow milk may be observed during the first week of newborns life. These infantile IgE antibodies responses to mentioned food proteins can be considered predictor markers for atopic reactivity in general. IgE antibodies to food proteins may represent a marker for the later sensitization to other foods and aeroallergens. Sensitization to environmental allergen need more time, that's why aeroallergens sensitization onset may be at preschool and school age [6,7].

First step of the allergic march

The allergic march describe the progression of atopic disorders from atopic dermatitis in infants to allergic rhinitis and asthma in children. The risk of developing all atopic diseases may not be a simple progression and the development of these diseases is strongly influenced by genetic and environmental factors. Atopic dermatitis is the primary step in the allergic march [1,5].

In the International Study of Asthma and Allergies in Childhood (ISAAC) the prevalence of atopic dermatitis in children varies significantly from 0.3 to 20.5% but shows consistent trends in increasing disease prevalence. Atopic dermatitis is a major factor risk for asthma. Children with atopic dermatitis with specific IgE antibodies to common environmental allergies (extrinsic atopic dermatitis) are at a higher risk for progression to allergic rhinitis and asthma than those without IgE sensitisation. The patients with severe atopic dermatitis develop asthma in 70% compared with 20-30% of patient with mild atopic dermatitis [8].

Allergic rhinitis and asthma

Many studies demonstrated a strongly association between rhinitis and asthma. Science evidence indicated that the two diseases share anatomical, physiological, immunopathological and therapeutical factors. Allergic rhinitis is an inflammatory condition affecting most mucosal membranes. Allergic rhinitis has a significant impact on quality of life. Studies on the prevalence of asthma in patients with rhinitis has been reported to be 80%. Many studies suggested that

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allergic rhinitis is considered as a risk factor for asthma and can precede asthma in allergic march [8-10].

It is important to identify infants at risk of developing chronic atopic diseases, to provide a critical window of opportunity early in life for therapeutic intervention. Therapy for repair of the epidermal barriers in infants with atopic dermatitis may prevent the subsequent development of asthma [2].

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