

## Bronchial asthma in preschool children

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Asthma is a heterogeneous disease characterized by chronic airway inflammation, bronchial hyperresponsiveness, and obstruction. It is manifested by respiratory symptoms (wheezing, shortness of breath, chest tightness, cough) and variable expiratory airflow limitation.

Experts agree that asthma is an “umbrella,” a broad term that includes several expressions of different forms of the disease with similar clinical manifestations (asthma phenotypes) and where other forms of pathophysiological expression would also appear (asthma endotypes).

Diagnosing asthma at an early age is not easy for several reasons. First, there is no single definition. Second, the main components of the pathophysiology –airflow limitation and inflammation (which can easily be assessed in older children and adults by functional studies) and nitric oxide measurement– are not easily accessible due to age and technical limitations. Another significant limitation is that the main symptoms (wheezing, coughing, and shortness of breath) are usually taken from the caregivers, who cannot objectively identify their characteristics.

About 300 million people have asthma worldwide, and it is assumed that probably 100 million more will suffer from it by 2025. It is one of the diseases that most affect the population

globally. In Argentina, it is considered a prevalent pathology suffered by 4 million inhabitants and causes more than 15 000 hospitalizations per year and more than 400 deaths per year. The prevalence of asthma in our country varies according to age: in children aged 6-7, it is 16.4%; in adolescents, 10.9%; and in those over 20 years, 6.4%. It is the most frequent chronic disease in children.

Many children start respiratory symptoms early, behaving as “recurrent wheezing”, and these episodes are usually associated with respiratory tract infections, mainly viral. The association with atopic sensitization is another distinctive feature of this age group. Some of these children will continue in the chronological evolution, presenting episodes that will clinically and functionally constitute asthma.

Up to 50% of children experience at least one wheezing episode before the age of 6 years. Sensitization to allergens constitutes the most critical risk factor in the development of asthma. Other factors, such as pre-and postnatal injuries and genetic predisposition, are recognized as relevant etiological factors. Most adults diagnosed with asthma report having the onset of respiratory symptoms in childhood. The origins of asthma have been widely described and reviewed, as

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well as aspects related to primary and secondary prevention.

Several cohort studies have identified different risk factors for the development of asthma, including genetics, viral respiratory infections, atopy, exposure to tobacco smoke, and obesity.

Other studies have focused on identifying objective characteristics (clinical, physiological, biochemical, and response to treatment) for an adequate approach and management. Currently, there is consensus on the use of parameters based on the evolution of symptoms over time, their relationship with viral infections, and the presence of a personal and family history of asthma. Despite its limitations, the Asthma Predictive Index (API) is one of the most valuable clinical tools in predicting the risk of developing the disease and diagnosing asthma during the preschool stage. Finally, the usefulness of T2 inflammatory biomarkers is gaining ground; they would help to identify patients who respond to controller therapy.

Recently, the Pneumology Committee of the Sociedad Argentina de Pediatría, coordinated by Dr. Ana Balanzat, has launched the *Guía de diagnóstico y tratamiento del asma bronquial en niños preescolares*.<sup>1</sup> It is the first publication in our country on the subject, based on the best available evidence.

In the chapter “Diagnosis”, the Committee analyzes the resources currently available for this

age group, which are scarcer than those from 6-7 years of age. It is remarked that those children who do not have the typical clinical history or who present a severe compromise or poor response to conventional treatments should be reevaluated by specialists in children’s respiratory medicine and thus rule out the primary clinical syndromes that may appear as “recurrent wheezing” in the first years of life. About these, there are interesting charts and tables easily accessible to the pediatrician.

The chapter “Treatment” emphasizes that the primary therapeutic resources are beta-2-agonist bronchodilators and inhaled corticosteroids. It updates doses, mechanisms of action, and side effects, clearly outlining the different treatment steps. It also offers data on new strategies under evaluation (macrolides, bacterial lysates).

Finally, an exclusive chapter is dedicated to the approach and treatment of children in emergency/crisis situations. It provides a detailed description of the most recommended treatment scheme and the different modalities of use according to the initial characteristics of the episode. ■

## REFERENCE

1. Pneumology Committee, Diagnosis and Treatment Guide of Bronchial Asthma in preschool children. [Accessed on: January 2nd, 2025]. Available at: <https://www.sap.org.ar/storage/app/uploads/public/67f022/5ae/67f0225aecdca629433128.pdf>