

# Letter to the Editor

## Are oral corticosteroids being used excessively in the treatment of wheezing in infants?

O uso de corticosteroide oral para sibilância em lactentes é abusivo?

### To the Editor:

We appreciated the article by Dela Bianca et al.,<sup>(1)</sup> published in a recent issue of the Brazilian Journal of Pulmonology. The article merits discussion.

The *Estudio Internacional de Sibilancias en Lactantes* (EISL, International Study of Wheezing in Infants) initiative was developed as a standardized method for determining the epidemiology of and risk factors for wheezing in infants, as well as how infants with wheezing in their first year of life are being treated in Latin American countries, Spain, and the Netherlands, and has involved over 28,000 individuals. The international results demonstrated a wide variation in the prevalences of occasional wheezing (< 3 episodes) and recurrent wheezing ( $\geq$  3 episodes); in Brazil, among the seven cities in which analyses were made, the presence of at least 1 episode of wheezing ranged from 45.1% in Curitiba to 63.3% in Porto Alegre, whereas recurrent wheezing ranged from 18.2% in Recife to 27.0% in Porto Alegre.<sup>(2)</sup>

Episodes of wheezing are related to viral respiratory infections, such as infection with respiratory syncytial virus (RSV), which induces wheezing in infants. Of the infants so affected, half will develop recurrent wheezing and one fourth will present with asthma after reaching school age. Rhinovirus-induced wheezing is also considered a major risk factor for wheezing, because 65% of children infected with rhinovirus will continue to present with wheezing at age 3 years, and 60% of those will develop asthma.<sup>(3)</sup>

There is evidence that the first episodes of wheezing in infants—even in atopic infants with RSV-induced wheezing—do not respond to systemic corticosteroids. A study involving 118 infants followed for one year after the first episode of wheezing reported that 37% presented with recurrent wheezing even when treated with a short course of prednisolone. The risk of recurrent wheezing among those who were given placebo was five times higher in those with rhinovirus infection than in those with RSV infection. Among those infected with rhinovirus,

prednisolone administration resulted in a reduction in recurrent wheezing; the same was not observed among those infected with RSV. The response was better in those who presented with eczema.<sup>(4)</sup> This shows that the benefit, if any, of using systemic corticosteroids in infants with wheezing induced by viral respiratory infection is likely related to the concomitant presence of allergic disease. In that study, the preschool children with virus-induced mild or moderate wheezing who sought emergency room treatment were given a five-day course of prednisolone, the objective being to determine its clinical efficacy by means of a clinical score, the length of hospital stay, and the persistence of symptoms. There were no significant differences between those who received prednisolone and those who did not, in terms of the length of the hospital stay and the symptom score, not even for those who presented with a positive asthma-predictive index. The limitation of that study was that the respiratory viruses were not identified by laboratory tests.<sup>(5)</sup>

A significant proportion of infants with recurrent wheezing are likely to develop asthma. In another study, infants in the city of Curitiba were found to have received overtreatment with asthma medications, which might be due to the availability of such medications in the public health care system or to the fact that the guidelines for the management of asthma are unknown or are not adhered to.<sup>(6)</sup>

The comparison between the findings from the investigation of infants in Curitiba and those from the investigation of infants in the city of São Paulo, Brazil,<sup>(2)</sup> revealed that, in the latter, a high number of children with wheezing (recurrent or otherwise) received systemic corticosteroids (Table 1). The information provided by the parents showed that, among the infants with recurrent wheezing in the city of São Paulo, when compared with those in the city of Curitiba, there was greater occurrence of nocturnal symptoms, of severe symptoms, of emergency room visits (71.5% vs. 22.9%), and

**Table 1** – Medications used in the treatment of infants, according to the number of episodes of wheezing, at two centers participating in the International Study of Wheezing in Infants.

Medication	< 3 episodes of wheezing, %		≥ 3 episodes of wheezing, %	
	São Paulo	Curitiba	São Paulo	Curitiba
	(n = 197)	(n = 682)	(n = 270)	(n = 678)
Inhaled $\beta_2$ agonists	82.2	79.0	88.9	89.6
Inhaled corticosteroids	6.6	13.2*	15.2	23.6*
Oral corticosteroids	41.1*	16	47.0*	18.6
Leukotriene receptor antagonists	2.0	3.8	2.9	6.9*

\*p < 0.05 (chi-square test with Yates' correction).

of hospitalizations due to wheezing (23.0% vs. 4.1%).

The use of systemic corticosteroids in the treatment of wheezing in infants is controversial, and it is difficult to establish a diagnosis of asthma in this age bracket. In addition, asthma controller medications, such as inhaled corticosteroids and leukotriene receptor antagonists, should be used judiciously, some authors having demonstrated that these drugs are not beneficial for preschool children. Given these considerations, certain questions must be raised. Have we been treating episodes of wheezing in infants and failing to prevent the recurrence of wheezing in those same patients? Should prophylactic treatment be given, despite the fact that it might not change the course of the disease? If the children are left untreated, will this impair their pulmonary function, growth, development, and quality of life, as well as that of their parents?

When the remaining centers participating in the EISL present their results, we believe that discussing how and why infants with wheezing are being treated will be as important as knowing the epidemiology of, severity of, and risk factors for wheezing in infants.

Herberto José Chong Neto  
Associate Researcher,  
Department of Pediatric Allergy and  
Immunology,  
Federal University of  
Paraná Hospital de Clínicas,  
Curitiba, Brazil

Nelson Augusto Rosário  
Full Professor of Pediatrics,  
Federal University of Paraná,  
Curitiba, Brazil

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