

# RISK FACTORS IN THE OCCURRENCE OF ASTHMA IN CHILDREN

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## Abstract

Asthma is still one of the most common chronic inflammatory disease of the airways who determines a high rate of morbidity and mortality in children population. This paper aims to highlight the main risk factors for asthma in children. It is a prospective study and was conducted on a sample of 199 cases with obstructive respiratory disease admitted in the Pediatric Clinic Emergency Hospital Constanta. After a four years period, we identified 126 cases of children that developed asthma. Assessment of risk factors for asthma showed high frequency for the following risk factors: male gender (57.1%), urban (60%), prematurity (29.51%), family atopy (53.2), artificial nutrition, exposure to cigarette smoke.

**Keywords:** asthma, wheezing, risk factors

## Introduction

Asthma is the most common chronic disease of children. In Romania, 7-10% of children suffer from asthma, [1] but the disease is underdiagnosed. "In 2007, prevalences ranged from 2%-4% in Indonesia, Albania and Romania to 30%-32% in New Zealand, the United Kingdom and Costa Rica" [2].

A significant proportion of infants with wheezing have predisposition to asthma, attested by elevated IgE and positive skin test response to aeroallergens.[3,4,5,6].

By the age of 6-9 years, the risk increases, especially if there is a history of asthma in the mother and / or eczema during the first year of life of the child.[7].

## Material and methods

The study is a prospective study and was conducted on a sample of 199 cases with obstructive respiratory disease admitted to the Pediatric Clinic Emergency Hospital Constanta. Data were obtained from the records and history of children and parents. History: demographic data (sex, age, provenance), socioeconomic status, history of perinatal (birth weight, prematurity), artificial feeding in infancy, personal history of atopy, family prior history of asthma, atopy, recurrent wheezing, exposure to passive smoking, active smoking, the presence of air pollution in homes. They were followed for a period of 4 years, (with 6 month recalls), the outcome being the diagnosis of asthma.

For the statistical analysis we used relative risk to express the size of the effect and chi-square test to assess the statistical significance of the association between a studied risk factor and the development of asthma.

## Results and discussion

The percentage of male patients who developed Asthma is 57.1% and it is consistent with data from the literature (Figure nr.1) [8] Distribution by area of origin shows the predominance of urban patients, representing over 60% of those who developed asthma, given according to the literature[9]. The disadvantaged social environments increase the risk of asthma and decreases access to adequate medical care. In the study group 24.6% of the cases had poor living conditions (Figure nr. 2)[9]

Analyzing according to gestational age group, resulting in a mean duration of 38.7 weeks pregnancy in children who developed asthma, 29.51% of cases had gestational age less than 37 weeks, statistically significant result ( $p < 0.001$  ).

According to the weight at birth 30.15% of patients with asthma had lower birth weight of 2500g, data consistent with those in the literature [10, 11]. A. Bjerg et al., In a study conducted on a sample of 3,389 children in Sweden, shows that low birth weight (small airways, resuscitation) and antenatal exposure to cigarette smoke increases the risk for asthma 4-6 or at school-age children. [12].

Current to reduce the risk of atopic dermatitis, wheezing and asthma natural diet is recommended a minimum of 4 months of birth. Breast milk contains protective factors of infectious and Growth of cytokines and factors that prevent sensitization to environmental allergens such decreasing susceptibility to develop asthma [13]. Analyzing the distribution of values is apparent that in patients who developed asthma majority were breastfed for a short period of time, or 2 months. Family Atopy is a major criterion for suspicion of asthma had a lower incidence of 53.2% (Table nr.1) Compared with literature data that is present in 80% of children with asthma, atopy by maternal being a major risk factor for asthma. [14, 15].

Smoking during pregnancy increases in child 4 times the risk for wheezing and allergic sensitization. [16] Further impaired lung function, bronchial inflammation and asthma. [17] In our study, 22.2% of asthma cases were associated with smoking during pregnancy. Passive smoking is also associated with increased risk of lower respiratory tract respiratory infections in infancy and childhood small. Regarding parents' smoking behavior related to the study 31.2% of asthma cases have smoker parents that exposed them to passive smoking.

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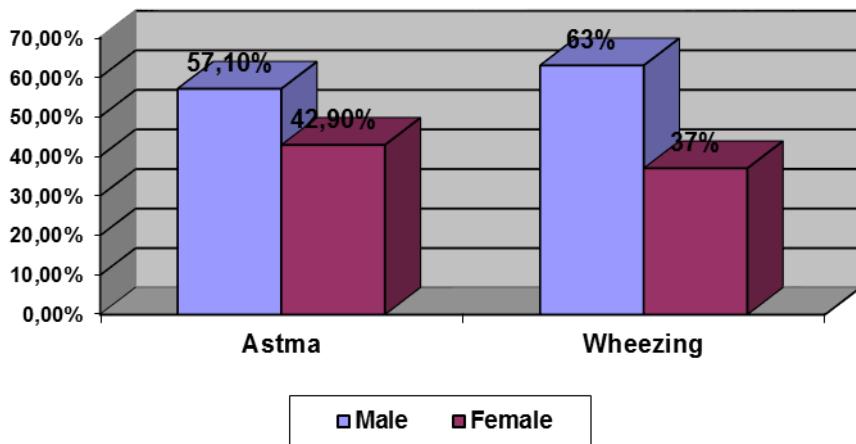
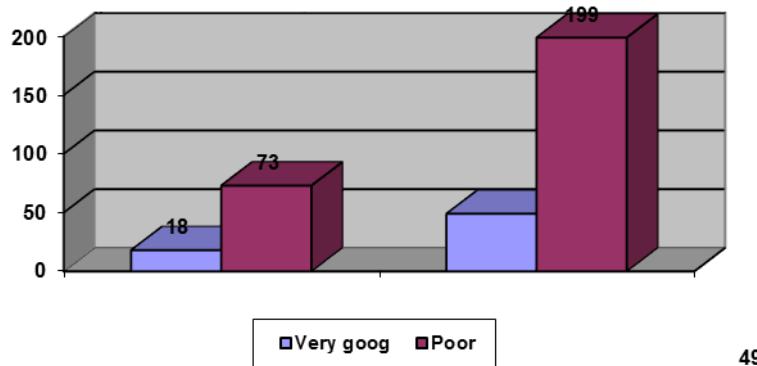


Fig.1 The gender distribution of the two groups of patients.



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Figure nr. 2 Distribution of the backgrounds of the two groups of patients

		disease		Total
		Asthma	Wheezing	
Atopic parents	No	Count	59	92
		% within Disease	46.8%	45.2%
	Yes	Count	67	107
		% within Disease	53.2%	54.8%
Total		Count	126	199
		% within Disease	100.0%	100.0%

Table nr. 1 Distribution of patients according to parental atopy

		Disease		Total
		Asthma	Wheezing	
Comorbidity	food allergy	Count	8	4
		% within Afecțiune	13.1%	8.9%
	allergic conjunctivitis	Count	5	5
		% within Afecțiune	8.2%	11.1%
	eczema/dermatitis syndrome	Count	12	30
		% within Afecțiune	19.7%	66.7%
	obesity	Count	9	0
		% within Afecțiune	14.8%	0.0%
	allergic rhinitis	Count	25	6
		% within Afecțiune	41.0%	13.3%
Total	sinusitis and nasal	Count	2	0
	polyposis	% within Afecțiune	3.3%	0.0%
Total		Count	61	45
		% within Afecțiune	100.0%	100.0%

Table Nr. 2 Distribution of patients according to associated comorbidities

Allergic manifestations associated with increased risk of developing asthma are described in Table 2 syndrome eczema / atopic dermatitis was present personal history in 21.1% of cases. It is demonstrated the role of atopic dermatitis and allergic rhinitis in asthma occurrence in children. The natural history of allergic symptoms in children is the progression of the symptoms of food allergy in atopic dermatitis, allergic rhinitis and asthma later [18]. Studies show that 43% of children with atopic dermatitis develop asthma and allergic rhinitis 45%. [19] The severity of atopic dermatitis is also a predictive risk factor: 70% of children with atopic dermatitis develops severe asthma, compared with 30% in those with mild respectively.

Allergic rhinitis studies reported 80-90% incidence of asthmatic children in our study there was a 41% of cases. Allergic rhinitis often precedes asthma occurrence in literature showing a rate of 32-64% of cases. [20] The diagnosis of allergic rhinitis can be hidden in the diagnosis of recurrent respiratory infection.

### Conclusions

Assessment of risk factors for asthma in a group of 126 children with asthma showed frequency for the following risk factors: male gender, urban, prematurity, family atopy, artificial nutrition, exposure to cigarette smoke.

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