World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-31, February 2024
ISSN: 2749-3644

PATHOLOGY OF RESPIRATORY TRACT DISEASES IN NEWBORN BABIES

Nuritdinova Gavkhar Toipovna
Department of Faculty Pediatrics and Neonatology
ASMI

Article history:

Received: December 20th 2023
Accepted: January 14th 2024
Published: February 21st 2024

Abstract:

Bronchial asthma (BA) is a systemic allergic disease and is associated with pathology of the upper respiratory tract (URT). In recent years, attention has been focused on the multimorbidity of allergic diseases, while the spectrum of URT pathology in children with asthma has not been sufficiently characterized. The purpose of the study was to study the structure of the pathology of the upper respiratory tract in children with atopic asthma. Materials and methods of research: 358 children with atopic asthma were examined, the average age of the children was 9.91 (9.47; 10.35) years, of which 67.9% (192/358) were boys, as well as 108 children with complaints of nasal breathing disorders, comparable by age and gender, but without asthma.

Keywords: bronchial asthma, upper respiratory tract, hypertrophy of the pharyngeal tonsil, hypertrophic rhinitis, allergic rhinitis/rhinosinusitis, multimorbidity, children

INTRODUCTION

Bronchial asthma (BA) is the most common chronic disease of the respiratory system in children. According to the Global Initiative for Asthma (GINA), the goal of treatment of this disease at the present stage is to achieve control over symptoms and risk factors for exacerbation of the disease [1]. The basis of asthma therapy aimed at achieving control is anti-inflammatory basic therapy, since the most significant component of the pathogenesis of the disease is chronic inflammation, localized in the respiratory tract and occurring in childhood mainly through a Th2-dependent mechanism [2]. Treatment of asthma based on this approach has demonstrated significant success [3]. However, modern studies indicate that, despite a wide arsenal of pharmacological agents, the proportion of patients who do not have proper control characteristics can reach 56% [3, 4].

MATERIALS AND METHODS

Our studies have previously demonstrated that AR can occur in all children with atopic asthma who have nasal symptoms, which is consistent with the results presented by M.S. Blaiss. There is an opinion that with the development of an inflammatory process in the mucous membrane of the nasal cavity, incl. allergic origin, it invariably affects the mucous membrane of the paranasal sinuses. Recent work has demonstrated that the inflammatory response to nasal provocation with an allergen causes changes not only in the mucous membrane of the nasal cavity, but also in the paranasal sinuses. It is quite difficult to differentiate between AR and ARS in patients with asthma with nasal symptoms based only on clinical data [2]. For example, we previously found that with ultrasonic sinusoscopy, 74% of children with asthma and nasal symptoms show thickening of the mucous membrane of the maxillary paranasal sinuses compared to the norm [2]. At the same time, clinical differentiation between children with thickening of the mucous membrane of the paranasal sinuses and those with normal thickness was difficult. As a result, in the further presentation we will not focus on the differentiation of AR and APC.

We analyzed the results of a survey of 358 patients with atopic asthma of varying severity and who had nasal or sinonasal complaints and symptoms aged from 3 to 17 years, the average age was 9.91 [9.47; 10.35] years old, of which boys - 67.9% (192/358), girls - 32.1% (115/358), who were treated at Children's City Hospital No. 1 in Nizhny Novgorod. All children had a symptom complex characteristic of BA and AR.

RESULTS AND DISCUSSION

The control group consisted of 108 children without asthma, matched by age and gender: preschool age - 34 children, primary school age - 39 children, senior school age - 20 and adolescence - 15. Inclusion criteria: diagnosis of asthma, determined in accordance with available international and national consensus documents, the presence of nasal or sinonasal complaints and symptoms in patients.

Exclusion criteria: the presence of acute infectious diseases and increased body temperature,

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-31, February 2024
ISSN: 2749-3644

diabetes, autoimmune disorders, primary immunodeficiencies, oncological diseases.

Treatment of asthma and concomitant diseases of the upper respiratory tract was carried out in accordance with the available consent documents, taking into account modern therapeutic strategies [1, 3].

A detailed examination of the pathology of the upper respiratory tract in children with atopic asthma of varying severity, who had complaints of difficulty in nasal breathing, made it possible to identify various types of disorders in them, with a clear predominance of changes in the nasal cavity noted. All examined children with atopic BA were diagnosed with AR of varying severity, both in remission and in exacerbation.

An intermittent course of AR occurred in 15.9% (57/358), a persistent course - in 84.1% (301/358) of patients with atopic BA. At the same time, 10% (36/358) of patients had mild AR, 71.8% (257/358) had moderate AR, and 18% (65/358) children had severe AR.

It should be noted that "isolated course" of AR occurred only in 11.7% (42/358) of patients. In the remaining children with asthma, a detailed study of the state of the upper respiratory tract using nasal videoendoscopy made it possible to establish the polymorphic nature of the pathology of the upper respiratory tract (Table 1).

Table 1
The structure of the pathology of the upper respiratory tract in children with atopic asthma

Diagnosis	**Number of observations**
Allergic rhinitis	358 (100%)
Hypertrophy of the nasopharyngeal tonsil	219 (61,2%)
Hypertrophy of the nasopharyngeal tonsil II degree	128 (35,8%)
Hypertrophy of the nasopharyngeal tonsil III–IV degree	91 (25,4%)
Anomalies in the development of intranasal structures	179 (50 %)
Chronic nonspecific infectious rhinitis	52 (14,5%)
Hypertrophic rhinitis (hypertrophy of the nasal turbinates)	33 (9,2%)
Hypertrophy of the palatine tonsils	58 (16,2%)
Chronic compensated tonsillitis	40 (11,2%)
Chronic pharyngitis	3 (0,8%)
Chronic laryngitis	9 (2,5%)

Hypertrophy of the pharyngeal tonsil (PHT) during nasal videoendoscopy was detected in 219 (61.2%) patients with asthma, which, obviously, could serve as an additional cause of nasal breathing impairment.

According to rhinovideoendoscopic examination, grade II HMG (the pharyngeal tonsil covered the lumen of the choanae by at least 1/2) was detected in 35.8% (128/358) of children with asthma. Grade III adenoid vegetations were observed in 25.4% (91/358) of patients. In this group, the GSM tissue covered the lumen of the choanae by 2/3 or more.

Since the prevalence of adenotonsillar hypertrophy has age-related patterns, an analysis of the frequency of occurrence of HGM in children with asthma of different age groups was carried out.

Thus, according to nasal videoendoscopy, HGM occurred as expected more often in children with BA of preschool and primary school age than among patients in the older age group ($p < 0.0001$), however, the lack of reduction of the pharyngeal tonsil is noteworthy in a significant proportion of children with AD of high school age and even in some adolescents.

Differences in the incidence of HGM in children with BA and in children without BA were established in all age groups: in preschool age - $\chi2=29.9$; $p<0.0001$; at primary school age - $\chi2=30.7$; $p<0.0001$; at senior school age - $\chi2=11.8$; $p=0.0006$. HGM was not identified among adolescents in the control group. Rhinovideoendoscopic studies confirmed the relationship between the degree of HMG and age both in children of the control group (without BA) and in patients with BA. However, children with asthma in all age groups were characterized by a greater degree of HGM than patients in the control group.

CONCLUSION

Children with atopic asthma and nasal symptoms are characterized by the presence of combined and multimorbid forms of URT pathology.

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-31, February 2024
ISSN: 2749-3644

Moreover, nasal obstruction is caused not only by allergic inflammation of the nasal mucosa, but also by other pathologies of the nasal cavity and nasopharynx, which must be taken into account when managing children with atopic asthma.

REFERENCES

1. Global Initiative for Asthma. Archived Reports. Available from: http://ginasthma.org/archived-reports/.
2. Fahy JV. Type 2 inflammation in asthma present in most, absent in many. Nat. Rev. Immunol. 2015; 15 (1): 57–65. https://doi.org/10.1038/nri3786.
3. Eliseeva TI, Balabolkin II. Modern Technologies of Bronchial Asthma Control in Children (Review). Sovremennye tehnologii v medicine. 2015; 7 (2): 168–184. https://doi.org/ http://dx.doi.org/10.17691/stm2015.7.2.21
4. Braido F, Brusselle G, Guastalla D, Ingrassia E, Nicolini G, Price D, Roche N, Soriano JB, Worth H. Determinants and impact of suboptimal asthma control in Europe: The international cross-sectional and longitudinal assessment on asthma control (liaison) study. Respir. Res. 2016; 17 (1): 51. https://doi.org/10.1186/s12931-016-0374-z.
5. Krouse JH. Asthma Management for the Otolaryngologist. Otolaryngol. Clin. North. Am. 2017; 50 (6): 1065–1076. https://doi.org/10.1016/j.otc.2017.08.006.