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PREVALENCE OF ADENOID HYPERTROPHY IN CHILDREN WITH ALLERGIC RHINITIS. CLINICAL FEATURES AND DISEASE INTERRELATIONSHIP

Nurmukhamedova F.B.¹, Erkinova D.X.¹

¹ Tashkent Pediatrical Medical Institute

Abstract. Objective: To determine the prevalence of adenoid hypertrophy (AH) in children with allergic rhinitis (AR) and to study the clinical course of the disease in this group of children. Results: The study found that allergic rhinitis combined with adenoid hypertrophy leads to more severe symptoms in children, including nasal congestion, fatigue, and nocturnal awakenings. In the AH group, these symptoms were more pronounced than in the AR-only group. Both groups exhibited rhinorrhea and cough, but these were more frequent and severe in the AH group. Conclusion: The combination of allergic rhinitis and adenoid hypertrophy exacerbates the course of the disease, deteriorating the quality of life in children. This emphasizes the importance of a comprehensive approach to treatment and early diagnosis to prevent complications and improve patient outcomes.

Keywords: Allergic rhinitis, adenoid hypertrophy, clinical features, children.

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РАСПРОСТРАНЕННОСТЬ ГИПЕРТРОФИИ АДЕНОИДОВ У ДЕТЕЙ С АЛЛЕРГИЧЕСКИМ РИНИТОМ. КЛИНИЧЕСКИЕ ОСОБЕННОСТИ И ВЗАИМОСВЯЗЬ ЗАБОЛЕВАНИЙ

Нурмухамедова Ф.Б.¹, Эркинова Д.Х.¹

¹ Ташкентский педиатрический медицинский институт

Аннотация. Цель: Определить частоту встречаемости аденоидной гипертрофии (АГ) у детей с аллергическим ринитом (АР) и изучить клиническое течение у данной группы детей. Результаты: Исследование показало, что аллергический ринит в сочетании с аденоидной гипертрофией приводит к более тяжелым симптомам у детей, включая заложенность носа, утомляемость и ночные пробуждения. В группе с АГ эти симптомы выражены сильнее, чем в группе с аллергическим ринитом без АГ. В обеих группах наблюдаются ринорея и кашель, но в группе с АГ они встречаются чаще и более выражены. Заключение: Сочетание аллергического ринита и аденоидной гипертрофии усугубляет течение заболевания, ухудшая качество жизни детей. Это подчеркивает важность комплексного подхода к лечению и ранней диагностике для предотвращения осложнений и улучшения состояния пациентов.

Ключевые слова: Аллергический ринит, гипертрофия аденоидов, клинические особенности, дети.

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INTRODUCTION

Allergic Rhinitis (AR) is a chronic inflammatory condition of the nasal mucosa triggered by a Type I hypersensitivity reaction to respiratory allergens in sensitized individuals [1]. AR has become an increasingly prevalent condition over the past two decades, affecting approximately 30-40% of the global population [2-8]. It is associated with sleep disturbances, learning difficulties, decreased

productivity, and social dysfunction, leading to a significant reduction in quality of life and a major economic burden on global healthcare systems [9-11].

Typical symptoms of AR, such as sneezing, rhinorrhea, nasal itching, and nasal congestion, can occur seasonally (SAR) or year-round (PAR). SAR is often triggered by pollen and other outdoor allergens, while perennial AR is caused by indoor

allergens such as house dust mites (HDM), animal dander, insects, and mold [12,13].

Adenoid Hypertrophy (AH) is a condition causing obstruction of the upper airways in children and has been increasing in prevalence in recent years [14]. The etiology of AH remains not fully understood, but its development is often linked to severe and recurrent inflammatory processes, particularly chronic ones that occur in close proximity to adenoid tissue, such as allergic inflammation [15].

Adenoids are considered the primary line of defense in immunity, located in the upper airways where they are exposed to microbial agents, such as viruses, bacteria, and allergens. AR and AH are often related, but since their clinical manifestations are similar, only one of them is frequently diagnosed. This study aims to determine the prevalence of AR and its impact on AH.

OBJECTIVE OF THE STUDY

To determine the prevalence of adenoid hypertrophy in children with allergic rhinitis and investigate the clinical course in this group of children.

MATERIALS AND METHODS

We examined 50 children aged 3 to 18 years treated in the otolaryngology department of TashPMI with a diagnosis of allergic rhinitis combined with adenoid hypertrophy (main group) and allergic rhinitis without AH (control group). We conducted endoscopic examination of the ENT organs, a complete blood count, serum IgE levels, allergy skin testing, and 3D imaging of the paranasal sinuses. The children were divided into three age groups: 3–6 years, 7–14 years, and 15–18 years (Table 1).

The table 1 presents the distribution of children with allergic rhinitis and AR with AH by age groups and gender. Based on the study objective and the 50 children examined, 22 children were in the main group, and 28 in the control group. The results show how children are distributed by age categories and the role of gender in the overall statistics.

The age distribution shows that the highest number of children is in the 7–14 years age group, followed by the 3–6 years group, with the lowest number in the 15–18 years group. This distribution reflects the characteristic features of allergic rhinitis and its manifestations in different age groups.

According to clinical recommendations, the average prevalence of AR symptoms in children is 8.5% in 6–7-year-olds and 14.6% in 13–14-year-olds [16,17].

Children aged 3–6 years made up approximately 30% of the total, with 15 children, almost equally distributed between boys and girls. The 7–14 years age group, which accounted for 50% of the total, was the largest, with 25 children. The 15–18 years age group showed the smallest number, representing only 20% (10 children), which is also characteristic of allergic rhinitis in this age category.

Gender distribution showed approximately equal numbers of boys and girls in each age group, consistent with the general trend in the distribution of allergic diseases among children. Gender differences were not statistically significant, and both genders were evenly represented in both the main and control groups.

The children were divided into two groups: the main group (AR + AH) and the control group (AR). The main group consisted of 22 children, representing 44% of the total study participants. The control group, with 28 children (56%), was included for comparison. Data indicate that the distribution by age categories and gender in both groups is similar, allowing for adequate comparisons between the groups.

In the main group (AR + AH), the highest number of children is in the 7–14 years age group (55% of the main group), which is also observed in the control group. The 15–18 years age group in the main group includes only 17% of children, suggesting that the manifestations of the disease decrease with age.

We used the ARIA 2017 classification to categorize AR into persistent and intermittent forms. Adenoid hypertrophy was diagnosed based on patient history, endoscopic examination, and radiologic imaging (3D PPN). Allergy skin testing was performed on all patients.

The patient history showed that most children had a family history of atopy, which occurred in 60% of cases. Comparing the groups based on the duration of AR revealed a significantly higher frequency of persistent rhinitis in patients with AH.

Clinical Signs Assessment: A survey of clinical signs was conducted in both groups (Table 2).

This table shows the frequency of various symptoms in children with allergic rhinitis and adenoid hypertrophy (AR + AH) and those with

allergic rhinitis only. The comparison between the two groups reveals differences in the clinical presentation based on the presence of AH.

Signs more pronounced in the main group (AR + AH): Nasal Congestion: 100% of patients in the main group report this symptom, indicating its high prevalence among children with AR and AH. In the comparative group, this symptom is noted by 75% of patients. Nasal congestion is a characteristic feature of allergic rhinitis and may be more pronounced when adenoid hypertrophy is present. Fatigue: 100% of patients in the main group report increased fatigue, whereas in the comparative group, this symptom is present in 53% of patients. Fatigue may be associated with chronic inflammation and sleep disturbances typical of allergic rhinitis and adenoid hypertrophy.

Signs with no significant differences between the comparative groups: Rhinorrhea (nasal discharge): 90% of patients in the main group and 78% in the comparative group report this symptom. Rhinorrhea is one of the primary signs of allergic rhinitis and occurs frequently in both groups. Cough: 90% of patients in the main group and 71% in the comparative group report coughing. Cough may result from postnasal drip and irritation of the upper airways, which are characteristic of allergic rhinitis and adenoid hypertrophy.

Signs more pronounced in the comparative group (AR): Nasal Itching: 86% of patients in the main group and 89% in the comparative group report this symptom. Nasal itching is a characteristic feature of allergic rhinitis and may be more pronounced in the comparative group.

Nocturnal Awakenings: 95% of patients in the main group and 57% in the comparative group report waking up at night. Nocturnal awakenings may be associated with nighttime symptoms of allergic rhinitis, such as nasal congestion and coughing. Reduced Attention: 81% of patients in the main group and 71% in the comparative group report reduced attention. Decreased attention may be related to chronic inflammation and sleep disturbances, which are characteristic of allergic rhinitis and adenoid hypertrophy.

Among patients with AR combined with AH, 20 (90%) had moderate to severe allergic rhinitis, whereas in patients with AR without AH, 22 (78%) were more frequently diagnosed with mild rhinitis,

indicating a more severe clinical course in the main group. Nasal itching occurred more frequently in patients with AR without AH, and nasal congestion occurred more frequently in patients with AR and AH (89% and 100%, respectively). Intergroup comparisons for the presence of eosinophilia, serum Ig E levels, number of positive sensitivities, polysensitization, sensitivity to house dust mites, cockroaches, pollen, and dander did not reveal significant differences ($p > 0.05$).

SUMMARY OF RESULTS

This study showed an important interrelationship between allergic rhinitis and adenoid hypertrophy in children, as well as their impact on the clinical course of the disease. In the group of children with allergic rhinitis combined with adenoid hypertrophy (main group), higher intensity of symptoms such as nasal congestion (100%), fatigue (100%), and nocturnal awakenings (95%) were observed compared to the group of children with allergic rhinitis only (comparative group). These symptoms may be related to additional complications caused by adenoid hypertrophy, including upper airway obstruction and impaired sleep quality.

Rhinorrhea and cough were highly frequent in both groups (90% in the main group and 78% in the comparative group for rhinorrhea, 90% and 71% for cough), confirming their role as characteristic signs of allergic rhinitis, regardless of the presence of adenoid hypertrophy. However, signs such as nasal itching (86% vs. 89% in the comparative group) and reduced attention (81% vs. 71%) were more pronounced in children with allergic rhinitis without concomitant adenoid hypertrophy.

CONCLUSIONS

The study highlights the need for more careful diagnosis and a comprehensive approach to treating children with allergic rhinitis, particularly when there are comorbid conditions like adenoid hypertrophy. This can contribute to more complete recovery of patients, improve their quality of life, and reduce the economic burden on healthcare systems caused by chronic respiratory diseases in children.

The results also confirm the importance of further research into the mechanism of interaction between allergic rhinitis and adenoid hypertrophy,

Table 1

Demographic Data of Children with Allergic Rhinitis and Adenoid Hypertrophy

Age Group	3-6 years				7-14 years				15-18 years				Total n=50
	Boys		Girls		Boys		Girls		Boys		Girls		
	abc	%	abc	%	abc	%	abc	%	abc	%	abc	%	
Gender													
AR + AH (Main Group)	3	14	3	14	7	32	5	23	1	4	3	13	n=22
AR (Control Group)	5	18	3	11	6	21	8	28	4	14	2	7	n=28

Table 2

Frequency of Clinical Symptoms in Children with Allergic Rhinitis Depending on the Presence of Adenoid Hypertrophy

Symptoms	Main Group n=22	Control Group n=28
Nasal Congestion	22 (100%)	21 (75%)
Rhinorrhea	20 (90%)	22 (78%)
Headache	21 (95%)	18 (64%)
Nasal Itching	19 (86%)	25 (89%)
Nocturnal Awakening	21 (95%)	16 (57%)
Reduced Attention	18 (81%)	20 (71%)
Fatigue	22 (100%)	15 (53%)
Cough	20 (90%)	20 (71%)

as well as their influence on the clinical course of the disease and the quality of life of patients.

CONFLICT OF INTERESTS

The authors declare the absence of obvious and potential conflicts of interest related to the publication of this article.

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AVAILABILITY OF DATA AND MATERIALS

All data generated or analysed during this study are included in this published article.

AUTHORS' CONTRIBUTIONS

All authors contributed to the design and

interpretation of the study and to further drafts. All authors read and approved the final manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

All applicable international, national, and/or institutional guidelines for the care and use of animals were followed.

CONSENT FOR PUBLICATION

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КОНФЛИКТ ИНТЕРЕСОВ

Авторы заявляют, что данная работа, её тема, предмет и содержание не затрагивают конкурирующих интересов.

ИСТОЧНИКИ ФИНАНСИРОВАНИЯ

Авторы заявляют об отсутствии финансирования при проведении исследования.

ДОСТУПНОСТЬ ДАННЫХ И МАТЕРИАЛОВ

Все данные, полученные или проанализированные в ходе этого исследования, включены в настоящую опубликованную статью.

ВКЛАД ОТДЕЛЬНЫХ АВТОРОВ

Все авторы внесли свой вклад в подготовку исследования и толкование его результатов, а также в подготовку последующих редакций. Все авторы прочитали и одобрили итоговый вариант рукописи.

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ЭТИЧЕСКОЕ ОДОБРЕНИЕ И СОГЛАСИЕ НА УЧАСТИЕ

Были соблюдены все применимые международные, национальные и/или институциональные руководящие принципы по уходу за животными и их использованию.

СОГЛАСИЕ НА ПУБЛИКАЦИЮ

Не применимо.

ПРИМЕЧАНИЕ ИЗДАТЕЛЯ

Журнал "Евразийский журнал оториноларингологии - хирургии головы и шеи" сохраняет нейтралитет в отношении юрисдикционных претензий по опубликованным картам и указаниям институциональной принадлежности.

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