HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

COMPARATIVE CLINICAL COURSE AND PREVALENCE FEATURES OF ALLERGIC RHaINITIS IN PRESCHOOL AND SCHOOL-AGE CHILDREN

Jumayeva Farzona Jahongirovna

Bukhara State Medical Institute,

Faculty of General Medicine,

4th-year student, Bukhara, Uzbekistan

Doi: https://doi.org/10.5281/zenodo.21330534

Abstract: The article provides a comparative analysis of the prevalence and age-related clinical features of allergic rhinitis (AR) in preschool (3–6 years) and school-age (7–15 years) children. Data from the ISAAC and Global Asthma Network studies were summarised together with the clinical and laboratory findings of 118 children. Preschoolers showed a predominance of the persistent form of AR (66.1%), nasal obstruction (91.1%), house dust mite sensitisation, frequently co-occurring with adenoid hypertrophy. In school-age children, the intermittent (episodic) form (61.3%), pollen sensitisation (71.0%), sneezing attacks (87.1%) and conjunctival symptoms (54.8%) predominated. The findings substantiate the need for an age-adapted diagnostic algorithm.

Key words: allergic rhinitis, children, preschool age, school age, ARIA, sensitisation, adenoid hypertrophy, bronchial asthma, IgE.

Introduction

Allergic rhinitis (AR) is a chronic IgE-mediated inflammation of the nasal mucosa that manifests, upon allergen exposure, as rhinorrhoea, nasal obstruction, sneezing and itching. According to the WHO, 10–40% of the population is affected, with the highest frequency occurring in childhood and adolescence [1, 2, 10].

The relevance of the problem is determined by two aspects: impaired nasal breathing lowers sleep quality and leads to deterioration of concentration and academic achievement [8, 10]; in addition, AR is an independent risk factor for the development of bronchial asthma and, in line with the “one airway – one disease” concept, accelerates asthma onset [1, 7].

The clinical presentation of AR in children changes with age: in the preschool years the disease often runs under the “mask” of an acute respiratory infection or adenoiditis, whereas by school age pollen sensitisation increases and it acquires the “classic” seasonal presentation [9]. For this reason, a comparative study of AR across age groups is of practical importance.

Aim of the study — to comparatively assess the age-related differences in the prevalence, clinical course, sensitisation spectrum and comorbidities of allergic rhinitis in preschool and school-age children and, on this basis, to substantiate an age-adapted diagnostic algorithm.

Materials and Methods

The study was carried out in two stages: the epidemiological indicators of ISAAC Phase III and Global Asthma Network Phase I were systematically analysed [3–6]; subsequently, the clinical and laboratory data of 118 children under follow-up with a diagnosis of AR in 2024–2025 were studied retrospectively.

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

Group 1 — 56 preschool children (3–6 years; boys 60.7%); Group 2 — 62 school-age children (7–15 years; 56.5%). Inclusion criterion — a diagnosis of AR confirmed in accordance with the ARIA document; exclusion criteria — severe deformity of the nasal septum, immunodeficiency, and an acute infectious process.

Scope of examination: allergological history, the ARIA questionnaire, the TNSS (Total Nasal Symptom Score) scale, anterior rhinoscopy and endoscopy, eosinophil count in the nasal smear, determination of total and specific IgE (sIgE), and skin prick tests in children older than 7 years. Statistical processing was performed in Statistica 10: M±m, Student's t-test and Pearson's χ^2 test; $p<0.05$ was regarded as significant.

Results and Discussion

The results of ISAAC Phase III (98 countries, ≈ 1,200,000 children) showed that the frequency of rhinoconjunctivitis increases with age (Table 1).

Table 1

Prevalence of allergic disease symptoms across age groups by ISAAC Phase III [3, 4, 5]

Indicator	**6–7 years**	**13–14 years**
Current rhinoconjunctivitis symptoms, %	**8.5**	**14.6 (1.0–45.0)**
Bronchial asthma symptoms, %	11.7	14.1
Eczema symptoms, %	7.9	7.3
Severe rhinoconjunctivitis (regional variation), %	—	0.4 (W. Europe) – 2.3 (Africa)
Comorbidity with asthma and eczema, %	—	1.6–4.7

The symptoms of rhinoconjunctivitis increase 1.7-fold in the transition from 6–7 to 13–14 years (8.5% → 14.6%), whereas the frequency of eczema decreases (7.9% → 7.3%). This confirms the "allergic march" concept [2, 6].

The comparative analysis of the clinical course showed that the symptom structure differed significantly between the two groups (Table 2, Figure 1).

Table 2

Frequency of the main clinical symptoms of allergic rhinitis (n=118)

Symptom	**Group 1, 3–6 yrs (n=56), abs. (%)**	**Group 2, 7–15 yrs (n=62), abs. (%)**	**p**
Nasal obstruction	51 (91.1)	45 (72.6)	<0.05

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

Symptom	Group 1, 3–6 yrs (n=56), abs. (%)	Group 2, 7–15 yrs (n=62), abs. (%)	p
Rhinorrhoea	44 (78.6)	55 (88.7)	>0.05
Sneezing attacks	27 (48.2)	54 (87.1)	<0.001
Nasal itching	21 (37.5)	49 (79.0)	<0.001
Conjunctival symptoms	12 (21.4)	34 (54.8)	<0.001
Mouth breathing, snoring	38 (67.9)	19 (30.6)	<0.001
Reduced sense of smell	9 (16.1)	21 (33.9)	<0.05

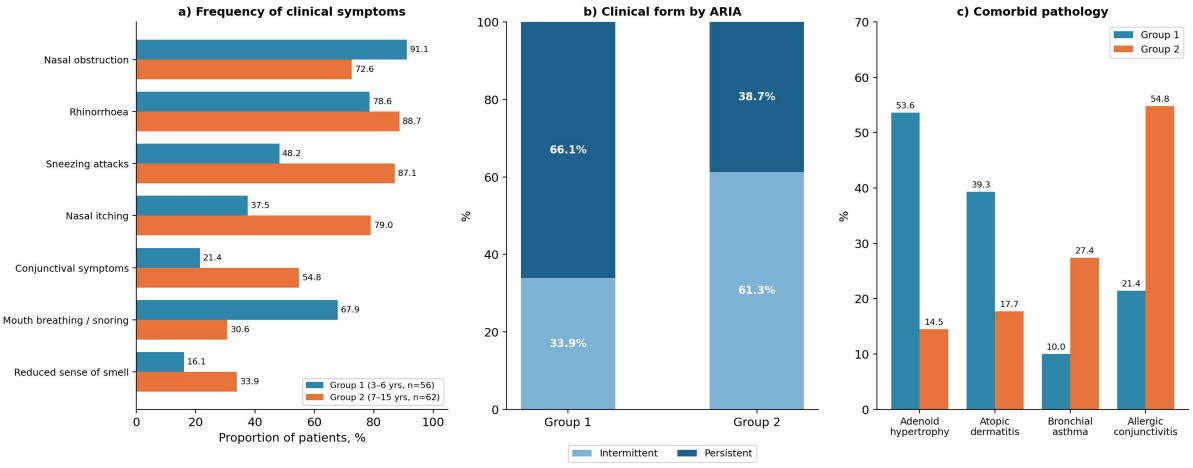


Figure 1. Comparative analysis by age groups: a) frequency of clinical symptoms; b) clinical form by ARIA; c) comorbid pathology.

In the preschool years, nasal obstruction and mouth breathing were the leading symptoms; sneezing and itching were recorded less frequently. This is due to the children's inability to express subjective sensations, the narrowness of the nasal cavity and the tendency of the lymphoid tissue towards hypertrophy. For this reason, the disease is often misinterpreted as a "frequently ill child" or "chronic adenoiditis" [8, 9].

According to the ARIA classification, the persistent form predominated in Group 1 (37 patients — 66.1%) and the intermittent form in Group 2 (38 patients — 61.3%) ($p<0.01$). A moderate-to-severe course was observed in more than half of the patients in both groups (58.9% and 53.2%).

Analysis of the sensitisation spectrum demonstrated that the aetiological factors differ fundamentally between the two groups (Table 3).

Table 3

Sensitisation spectrum and laboratory indicators

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

Indicator	Group 1 (n=56)	Group 2 (n=62)	p
House dust mite (D. pteronyssinus)	39 (69.6)	34 (54.8)	>0.05
Pollen allergens	13 (23.2)	44 (71.0)	<0.001
Food allergens	16 (28.6)	7 (11.3)	<0.05
Polysensitisation	21 (37.5)	41 (66.1)	<0.01
Total IgE, IU/ml (M±m)	187.4±26.3	312.6±38.7	<0.05
Nasal smear eosinophils, % (M±m)	12.6±2.1	18.9±2.7	<0.05
TNSS, score (M±m)	7.8±0.9	8.4±1.1	>0.05
Diagnostic delay, years (M±m)	2.6±0.7	1.8±0.4	<0.05

In the preschool years, sensitisation to household (house dust mite — 69.6%) and food (28.6%) allergens predominated; the differences for epidermal (32.1%) and fungal (19.6%) allergens were not significant. By school age, pollen sensitisation increases more than threefold (23.2% → 71.0%; $p<0.001$) and polysensitisation doubles.

Comorbid pathology is also age-dependent: Group 1 showed grade II–III adenoid hypertrophy (53.6%) and atopic dermatitis (39.3%), while Group 2 was dominated by allergic conjunctivitis (54.8%) and bronchial asthma (27.4%). The 2.6-fold increase in the frequency of asthma indicates that the timely control of AR is an important element of asthma prevention [1, 7, 10].

Based on the results, an age-adapted diagnostic algorithm is proposed (Figure 2).

Figure 2. Age-adapted algorithm for diagnosing allergic rhinitis in children (scheme).

Conclusion

1. The prevalence of allergic rhinoconjunctivitis increases from 8.5% at 6–7 years to 14.6% at 13–14 years, i.e. 1.7-fold.

2. In the preschool years, AR is characterised by a persistent form (66.1%), nasal obstruction (91.1%), house dust mite sensitisation (69.6%) and adenoid hypertrophy (53.6%); diagnosis is delayed on average by 2.6±0.7 years.

3. In the school years, the intermittent form (61.3%), pollen sensitisation (71.0%), polysensitisation (66.1%) and allergic conjunctivitis (54.8%) predominate; the frequency of bronchial asthma is 2.6-fold higher.

4. The identified differences call for a differentiated approach: in the preschool years — assessment of sIgE and adenoid tissue; in the school years — skin prick tests and screening of bronchial patency.

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

References

1. Bousquet J., Khaltaev N., Cruz A.A. et al. Allergic Rhinitis and its Impact on Asthma (ARIA) 2008 update // Allergy. – 2008. – Vol. 63, Suppl. 86. – P. 8–160.
2. Bousquet J., Anto J.M., Bachert C. et al. Allergic rhinitis // Nature Reviews Disease Primers. – 2020. – Vol. 6, № 1. – Art. 95.
3. Asher M.I., Montefort S., Björkstén B. et al. Worldwide time trends in the prevalence of symptoms of asthma, allergic rhinoconjunctivitis, and eczema in childhood: ISAAC Phases One and Three // Lancet. – 2006. – Vol. 368, № 9537. – P. 733–743.
4. Aït-Khaled N., Pearce N., Anderson H.R. et al. Global map of the prevalence of symptoms of rhinoconjunctivitis in children: ISAAC Phase Three // Allergy. – 2009. – Vol. 64, № 1. – P. 123–148.
5. Mallol J., Crane J., von Mutius E. et al. The International Study of Asthma and Allergies in Childhood (ISAAC) Phase Three: a global synthesis // Allergologia et Immunopathologia. – 2013. – Vol. 41, № 2. – P. 73–85.
6. Strachan D.P., Rutter C.E., Asher M.I. et al. Worldwide time trends in prevalence of symptoms of rhinoconjunctivitis in children: Global Asthma Network Phase I // Pediatric Allergy and Immunology. – 2022. – Vol. 33, № 1. – e13656.
7. Brożek J.L., Bousquet J., Agache I. et al. Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines – 2016 revision // Journal of Allergy and Clinical Immunology. – 2017. – Vol. 140, № 4. – P. 950–958.
8. Wise S.K., Damask C., Roland L.T. et al. International consensus statement on allergy and rhinology: Allergic rhinitis – 2023 // International Forum of Allergy & Rhinology. – 2023. – Vol. 13, № 4. – P. 293–859.
9. Allergic rhinitis in children: clinical guidelines / Union of Pediatricians of Russia, RAACI. – Moscow, 2020. – 47 p. (in Russian).
10. Schuler C.F., Montejo J.M. Allergic rhinitis in children and adolescents // Pediatric Clinics of North America. – 2019. – Vol. 66, № 5. – P. 981–993.