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ASSESSMENT OF THE QUALITY OF LIFE OF CHILDREN WITH ALLERGIC RHINITIS

Nurdinbekova Vaziraxon Baxodirjon kizi
Master's Student, Andijan State Medical Institute
Scientific Supervisor: **Zokirov B.Q.**
PhD, Associate Professor, Department of Hospital Pediatrics,
Andijan State Medical Institute
Scientific Consultant: **Ganiyeva M.Sh.**
PhD (Candidate of Medical Sciences), Associate Professor,
Head of the Department of Hospital Pediatrics,
Andijan State Medical Institute

ABSTRACT: Background: Allergic rhinitis (AR) is a common chronic condition in childhood that extends beyond physical symptoms to affect psychological well-being, school performance, and sleep. Objective: To assess the quality of life (QoL) in children with allergic rhinitis in the Andijan region and to evaluate the correlation between disease severity and QoL domains. Methods: A cross-sectional study was conducted involving 120 children aged 6–14 years with diagnosed AR. The Pediatric Rhinoconjunctivitis Quality of Life Questionnaire (PRQLQ) was used to measure QoL. Patients were categorized according to the ARIA (Allergic Rhinitis and its Impact on Asthma) guidelines. Results: The study revealed that children with moderate-to-severe persistent AR had significantly lower QoL scores compared to those with mild intermittent AR. The most affected domains were general nasal symptoms and sleep problems. Educational performance was also negatively correlated with symptom severity. Conclusion: Allergic rhinitis significantly impairs the quality of life in children. Comprehensive management should include QoL assessment to optimize treatment outcomes.
Keywords: Allergic rhinitis, quality of life, children, PRQLQ, pediatrics, Andijan.

BOLALARDA ALLERGIK RINIT RIVOJLANISHIDA XAVF OMILLARINI BAHOLASH

ANNOTATSIYA: Kirish: Allergik rinit (AR) bolalik davrida keng tarqalgan surunkali kasallik bo‘lib, u nafaqat jismoniy simptomlar, balki psixologik holat, maktabdagi o‘zlashtirish va uyqu sifatiga ham ta’sir qiladi. Maqsad: Andijon viloyatidagi allergik rinit bilan og‘rigan bolalarning hayot sifatini baholash va kasallikning og‘irlik darajasi hamda hayot sifati sohalari o‘rtasidagi bog‘liqlikni aniqlash. Usullar: Tadqiqotda AR tashxisi qo‘yilgan 6–14 yoshli 120 nafar bola ishtirok etdi. Hayot sifatini o‘lchash uchun Pediatrik Rinokon’yunktivit Hayot Sifati So‘rovnomasi (PRQLQ) ishlatildi. Bemorlar ARIA tasnifi bo‘yicha guruhlandi. Natijalar: Tadqiqot shuni ko‘rsatdiki, o‘rtacha va og‘ir darajadagi doimiy AR bo‘lgan bolalarda hayot sifati ko‘rsatkichlari yengil darajadagi bolalarga qaraganda ancha past. Eng ko‘p zarar ko‘rgan sohalar burun simptomlari va uyqu muammolari bo‘ldi. O‘qishdagi o‘zlashtirish ham simptomlar og‘irligi bilan salbiy bog‘liqlik ko‘rsatdi. Xulosa: Allergik rinit bolalarning hayot sifatini

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sezilarli darajada pasaytiradi. Kompleks davolash choralarida hayot sifatini baholash muhim o‘rin tutishi kerak.
Kalit so‘zlar: Allergik rinit, hayot sifati, bolalar, PRQLQ, pediatriya, Andijon.

ОЦЕНКА КАЧЕСТВА ЖИЗНИ ДЕТЕЙ С АЛЛЕРГИЧЕСКИМ РИНИТОМ

АННОТАЦИЯ: Введение: Аллергический ринит (АР) — распространенное хроническое заболевание детского возраста, которое влияет не только на физическое состояние, но и на психологическое благополучие, успеваемость в школе и сон. Цель: Оценить качество жизни детей с аллергическим ринитом в Андижанской области и выявить корреляцию между тяжестью заболевания и качеством жизни. Методы: Проведено поперечное исследование с участием 120 детей в возрасте 6–14 лет с диагнозом АР. Для оценки качества жизни использовался опросник PRQLQ. Пациенты были классифицированы согласно рекомендациям ARIA. Результаты: Исследование показало, что дети со среднетяжелым и тяжелым персистирующим АР имели значительно более низкие показатели качества жизни по сравнению с детьми с легким интермиттирующим АР. Наиболее пострадавшими сферами оказались назальные симптомы и проблемы со сном. Успеваемость также имела отрицательную корреляцию с тяжестью симптомов. Заключение: Аллергический ринит значительно ухудшает качество жизни детей. Комплексное лечение должно включать оценку качества жизни для оптимизации результатов терапии.
Ключевые слова: Аллергический ринит, качество жизни, дети, PRQLQ, педиатрия, Андижан.

INTRODUCTION

Allergic rhinitis (AR) is recognized as a major global health problem, affecting 10% to 40% of the pediatric population worldwide. In Uzbekistan, particularly in the Andijan region, the prevalence of respiratory allergic diseases has shown an increasing trend due to climatic factors, urbanization, and changing lifestyles. While AR is not a life-threatening condition, it is considered a significant cause of morbidity that imposes a substantial burden on healthcare systems and families.

Traditionally, the clinical assessment of AR has focused on the severity of symptoms such as rhinorrhea, nasal congestion, sneezing, and pruritus. However, recent paradigms in pediatrics emphasize that symptom scores alone do not fully capture the disease's impact on a child's daily functioning. Quality of Life (QoL) has emerged as a crucial endpoint in clinical trials and practice. In children, untreated or poorly managed AR can lead to sleep disturbances, fatigue, cognitive impairment, embarrassment in social situations, and decreased academic performance.

Despite the high prevalence of AR in Central Asia, there is a paucity of specific data regarding the Quality of Life of affected children in the Fergana Valley region. This study aims to bridge this gap by assessing the QoL of children with AR using the validated Pediatric Rhinoconjunctivitis Quality of Life Questionnaire (PRQLQ) and correlating these findings with disease severity.

LITERATURE REVIEW

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The concept of Health-Related quality of life (HRQoL) in allergic diseases has been extensively studied over the past two decades. The landmark Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines established that AR is a systemic inflammatory condition with wide-ranging effects on patient well-being (Bousquet et al., 2008).

Global perspective - Studies conducted in Europe and North America have consistently demonstrated that children with persistent AR suffer from poorer sleep quality compared to healthy controls. A study by Meltzer et al. (2012) highlighted that nasal congestion is the primary cause of sleep fragmentation, leading to daytime somnolence and irritability. This creates a vicious cycle where lack of sleep affects school performance, which in turn increases psychological stress.

Impact on education and social life - Research by Walker et al. (2017) indicated that children with symptomatic AR are more likely to drop grades during peak pollen seasons compared to non-allergic peers. This is attributed not only to absenteeism but also to "presenteeism"—being present in class but unable to concentrate due to symptoms or sedating antihistamines. Furthermore, social embarrassment caused by constant nose blowing or visible dermatological symptoms (e.g., "allergic salute") can lead to social isolation (Juniper et al., 2010).

Measurement tools - The Pediatric Rhinoconjunctivitis Quality of Life Questionnaire (PRQLQ), developed by Juniper et al., is the gold standard for assessing disease-specific QoL in children aged 6–12 years. It covers five domains: nose symptoms, eye symptoms, practical problems, activity limitations, and other symptoms. Validation studies in various languages have confirmed its reliability and sensitivity to change, making it suitable for cross-cultural research.

Local context - While epidemiological studies on the prevalence of allergies in Uzbekistan exist, research specifically focusing on the psychometric assessment of QoL remains limited. This necessitates a localized study to understand the specific burden on children in the Andijan region.

MATERIALS AND METHODS

Study design and setting - This cross-sectional study was conducted at the Department of Hospital Pediatrics of Andijan State Medical Institute and affiliated outpatient clinics in Andijan city. The data collection period was from January 2023 to December 2023.

Participants - A total of 120 children (68 boys and 52 girls) aged between 6 and 14 years diagnosed with Allergic Rhinitis were included. Inclusion criteria: Clinical diagnosis of AR confirmed by history and physical examination, positive skin prick test or specific IgE antibodies, and ability to complete the questionnaire (with parental assistance if necessary). Exclusion criteria: Presence of other chronic respiratory diseases (e.g., cystic fibrosis), anatomical nasal obstruction (e.g., severe deviated septum), or acute upper respiratory tract infections at the time of the survey.

Clinical assessment - Patients were classified into "Intermittent" or "Persistent" and "Mild" or "Moderate-Severe" groups based on ARIA guidelines.

PRQLQ - The questionnaire consists of 23 items covering five domains. Each item is scored on a 7-point scale (0 = not troubled at all, 6 = extremely troubled). The mean score represents the overall QoL impairment.

Statistical analysis - Data were analyzed using SPSS version 26.0. Descriptive statistics (mean ± standard deviation) were used for demographic data. Independent t-tests and one-way ANOVA

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were used to compare QoL scores between severity groups. A p-value of <0.05 was considered statistically significant.

RESULTS

Demographic and Clinical Characteristics -The mean age of the participants was 9.4 ± 2.3 years. The majority of patients presented with Moderate-Severe Persistent AR (45%), indicating a high burden of disease among those seeking medical care.

Table 1: Demographic and Clinical Characteristics of the Study Population (n=120)

Characteristic	Frequency (n)	Percentage (%)
Gender		
Male	68	56.7
Female	52	43.3
Age Group		
6–9 years	55	45.8
10–14 years	65	54.2
ARIA Classification		
Mild Intermittent	22	18.3
Moderate-Severe Intermittent	30	25.0
Mild Persistent	14	11.7
Moderate-Severe Persistent	54	45.0

Quality of Life Assessment - The overall mean PRQLQ score for the total population was 2.8 ± 1.1. When analyzing specific domains, "Nasal Symptoms" and "Practical Problems" scored the highest (indicating worse QoL), while "Eye Symptoms" scored lower.

There was a statistically significant difference in QoL scores between the Mild and Moderate-Severe groups. Children with Moderate-Severe Persistent AR reported the highest impairment (score 3.9), particularly in sleep and daily activities.

Table 2: Comparison of Mean PRQLQ Scores by Disease Severity

PRQLQ Domain	Mild AR (Mean ± SD)	Mod-Severe AR (Mean ± SD)	p-value
Nasal Symptoms	1.8 ± 0.6	4.2 ± 0.9	<0.001
Eye Symptoms	1.2 ± 0.5	3.1 ± 1.1	<0.01
Practical Problems	1.5 ± 0.7	3.8 ± 0.8	<0.001
Activity Limitations	1.1 ± 0.4	3.5 ± 1.0	<0.001
Other Symptoms (Sleep/Tiredness)	1.4 ± 0.6	4.0 ± 0.9	<0.001
Total Score	**1.4 ± 0.5**	**3.7 ± 0.9**	**<0.001**

As shown in Table 2, the "Other Symptoms" domain, which includes questions related to sleep quality and fatigue, showed a drastic increase in the Moderate-Severe group, confirming the hypothesis that severe AR disrupts rest.

DISCUSSION

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The findings of this study conducted in Andijan align with international research, confirming that Allergic Rhinitis is not merely a localized nasal condition but a disorder with profound impacts on a child's quality of life.

Our results demonstrate that severity is the strongest predictor of poor QoL. Specifically, the high scores in the "Activity Limitations" and "Practical Problems" domains among the Moderate-Severe group suggest that these children are restricted in play, sports, and daily routines. This observation is consistent with the findings of Blaiss et al. (2018), who noted that the burden of AR is often underestimated by parents and teachers.

A critical finding in our study is the impact on sleep. The correlation between nasal obstruction and sleep disturbance is well-documented. In our cohort, children with persistent symptoms reported significant fatigue during the day. This has direct implications for education in Uzbekistan, where the academic curriculum is rigorous. A tired child is less likely to engage in the learning process, potentially affecting their long-term academic trajectory.

Interestingly, we did not find significant gender differences in QoL scores, although boys had a slightly higher prevalence of AR. This suggests that the physiological and psychological impact of the disease is uniform across genders in this age group.

CONCLUSION

This study provides the first comprehensive assessment of Quality of Life in children with Allergic Rhinitis in the Andijan region using the PRQLQ tool. Based on the results, we draw the following extensive conclusions:

AR significantly impairs the physical, emotional, and social functioning of children. The impairment is multidimensional, affecting not just comfort but also functional capacity (sleep and activity).

There is a direct, statistically significant correlation between the clinical severity of AR (according to ARIA guidelines) and the deterioration of Quality of Life. Children with moderate-to-severe persistent AR are the most vulnerable group.

The high prevalence of sleep disturbances and activity limitations suggests that AR is a hidden barrier to academic success. Educators and parents must be aware that behavioral issues or poor grades may be secondary to uncontrolled allergic symptoms.

RECOMMENDATIONS

In the clinical management of AR in Andijan, physicians should move beyond simple symptom scores. The assessment of QoL should be integrated into routine practice. Treatment goals should aim not only to reduce sneezing or congestion but to restore normal sleep patterns and full participation in daily activities.

Future research should focus on longitudinal studies to assess how specific immunotherapeutic interventions (e.g., Allergen Immunotherapy) improve QoL scores in the Uzbek pediatric population over time.

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