

MODERN APPROACHES TO PHARMACOTHERAPY OF ALLERGIC RHINITIS IN CHILDREN

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Abstract

Aim. To summarize current evidence on traditional (standard, ARIA-based) pharmacotherapy of allergic rhinitis in children and to illustrate its practical application using the treatment protocol applied to the group of children with isolated seasonal allergic rhinosinusitis within the present study.

Material and methods. Current international clinical guidelines (ARIA, EAACI, ICAR-Allergic Rhinitis) and primary studies addressing the efficacy and safety of the principal drug classes used in pediatric allergic rhinitis — second-generation oral antihistamines, intranasal corticosteroids, saline irrigation, and leukotriene receptor antagonists — were reviewed. As an illustration, the traditional-therapy protocol applied to the study's isolated-SAR group is presented: a treatment scheme differentiated by ARIA severity classification (mild intermittent/persistent versus moderate-severe), with age-based dosing determined by each drug's approved product information.

Results. The indications, dosing regimens, and evidence base of the principal drug classes used in traditional pediatric allergic rhinitis therapy are systematized. In mild intermittent/persistent disease, second-generation oral antihistamines, combined where needed with isotonic saline irrigation, are first-line; in moderate-severe disease, a 4–6-week course of intranasal corticosteroids during exacerbation, combined where needed with an oral antihistamine, is preferred. Leukotriene receptor antagonists are considered a second-line option, particularly when a bronchoobstructive component coexists.

Conclusion. Traditional, severity-stratified pharmacotherapy grounded in objective disease assessment remains the mainstay of treatment for allergic rhinitis in children and serves as the reference comparator when evaluating the efficacy of optimized multidisciplinary management strategies in children with combined viral-allergic pathology.

Keywords: allergic rhinitis, children, antihistamines, intranasal corticosteroids, ARIA, pharmacotherapy

1. Introduction

Allergic rhinitis (AR) in children is a chronic inflammatory condition of the nasal mucosa mediated by IgE-dependent hypersensitivity to inhalant allergens, and its management has been standardized

internationally since the introduction of the Allergic Rhinitis and its Impact on Asthma (ARIA) classification, which stratifies disease by duration (intermittent versus persistent) and severity (mild versus moderate-severe) rather than by the older “seasonal versus perennial” dichotomy [1,2]. This severity-based classification underlies current treatment algorithms and allows a graded, reproducible approach to pharmacotherapy that can be applied consistently across primary care, pediatric, and specialist settings [1].

Despite the availability of increasingly sophisticated digital decision-support tools and biologic therapies for refractory cases, the overwhelming majority of children with AR are, and will continue to be, managed with a comparatively small set of well-established drug classes: second-generation oral antihistamines, intranasal corticosteroids (INCS), saline nasal irrigation, and, in selected cases, leukotriene receptor antagonists [1,3]. This traditional pharmacotherapy is not merely a historical baseline superseded by newer approaches; it remains the evidence-based first- and second-line standard of care against which any optimized or multidisciplinary management strategy — including the algorithm-guided, multidisciplinary tactics evaluated elsewhere in this research project for children with combined viral-allergic pathology — must be compared [4].

The present article summarizes the current evidence base for traditional pharmacotherapy of AR in children and illustrates its practical, severity-stratified application using the treatment protocol applied to the isolated-SAR comparison group of a broader study on the diagnosis and management of seasonal allergic rhinosinusitis in schoolchildren.

Aim

To systematize current evidence on the indications, dosing, and safety of the principal drug classes used in traditional pharmacotherapy of allergic rhinitis in children, and to describe their application in a severity-stratified treatment protocol.

2. Materials and Methods

Current international clinical guidelines addressing pediatric allergic rhinitis — the ARIA guidelines and their 2020 GRADE-based update, the EAACI position paper on paediatric rhinitis, and the International Consensus Statement on Allergy and Rhinology (ICAR-Allergic Rhinitis) — were reviewed, together with primary clinical studies on the efficacy and safety of the main pharmacological classes used in children [1,2,3,5]. As a practical illustration, the traditional-therapy protocol used for the isolated-SAR (Group IV) comparison arm of the parent study is described: children with confirmed isolated seasonal allergic rhinosinusitis, without a current viral infection or asthmoid component, were treated according to a scheme differentiated by ARIA severity grade rather than by a single fixed regimen applied uniformly to all patients. Management in this group was conducted by the otorhinolaryngologist alone, without involvement of other specialists, since no indications for infectious-disease or endocrinology consultation were present.

Mild intermittent/persistent disease. A second-generation oral H1-antihistamine (e.g., cetirizine, loratadine, desloratadine) at an age-appropriate dose was used as monotherapy, combined where needed with isotonic saline nasal irrigation. Second-generation antihistamines are preferred over first-generation agents in children because they cross the blood-brain barrier less readily, producing substantially less sedation and cognitive impairment while retaining comparable efficacy against sneezing, itching, and rhinorrhea [1,3].

Moderate-severe disease. A 4–6-week course of an intranasal corticosteroid during the exacerbation period was used, combined where clinically indicated with an oral antihistamine. INCS are recommended as first-line therapy for moderate-severe AR in both adults and children because they act on all major nasal symptoms, including nasal obstruction — a domain in which antihistamines are comparatively less effective — and modern intranasal molecules (mometasone, fluticasone furoate/propionate) have demonstrated a favorable systemic safety profile in pediatric populations, with growth-suppression signals, where present, generally below the threshold of clinical concern at recommended pediatric doses [3,6].

For each child, the specific molecule and formulation were selected individually by the treating

physician, respecting the age restrictions specified in each drug's approved product information; the dosing ranges used in the protocol were treated as general approximate ranges rather than a rigid scheme mandatory for every patient.

3. Results

Evidence base by drug class.

Second-generation oral antihistamines are supported by a large body of randomized controlled trial evidence in both adults and children and remain the recommended first step for mild AR under ARIA and EAACI guidance, owing to their favorable efficacy-to-side-effect ratio and once-daily dosing, which supports adherence in the pediatric population [1,2].

Intranasal corticosteroids have the strongest evidence base among AR pharmacotherapies for symptom control across all four cardinal nasal symptoms, including obstruction. A systematic evaluation of pediatric INCS safety data found no clinically meaningful adverse effect on final adult height with the currently approved intranasal molecules and doses, supporting their use as first-line therapy in moderate-severe pediatric AR when applied for defined treatment courses rather than indefinitely [6].

Leukotriene receptor antagonists (e.g., montelukast) have demonstrated efficacy in pediatric AR, particularly in children with a concomitant bronchoobstructive component, and are generally positioned as a second-line option or as an adjunct rather than as first-line monotherapy, given that head-to-head evidence generally favors INCS for isolated nasal symptom control [7].

Allergen immunotherapy, while not part of the traditional first-line pharmacotherapy scheme described here, is recognized as the only disease-modifying option for AR and may be considered as an adjunct in children with confirmed single-allergen sensitization and inadequate control on pharmacotherapy alone; both subcutaneous and sublingual routes have shown comparable long-term efficacy in pediatric populations, with the sublingual route generally associated with a more favorable safety profile for outpatient pediatric use [8].

4. Discussion

The severity-stratified approach described here reflects the central organizing principle of the ARIA framework: treatment intensity is matched to objectively assessed disease severity rather than applied uniformly, which both limits unnecessary corticosteroid exposure in mild disease and ensures adequate anti-inflammatory coverage in more severe presentations [1,2]. This stratification also has direct relevance for the broader diagnostic-and-management protocol of which the present illustration forms a part: because the isolated-SAR comparison group is managed according to this well-established, guideline-concordant scheme by a single specialty (otorhinolaryngology) without additional multidisciplinary input, it provides an appropriate, evidence-based reference standard against which the added value of a multidisciplinary approach — applied specifically to children with combined viral-allergic pathology and an asthmoid component — can be meaningfully evaluated once comparative efficacy data from that arm of the study become available [4].

A practical limitation of traditional pharmacotherapy, acknowledged in current guidelines themselves, is that molecule and formulation selection in children must always be individualized against each product's approved age indications rather than extrapolated from adult dosing, and that the dosing ranges summarized in guideline documents and in the protocol described here should be treated as general approximations subject to the treating physician's judgement rather than as a mandatory fixed scheme [1,3]. A further consideration specific to real-world pediatric practice is treatment adherence: once-daily oral antihistamines and simplified INCS regimens are generally preferred over more complex multi-drug schemes precisely because adherence, rather than intrinsic drug efficacy, is frequently the limiting factor in outpatient AR control in children [3].

5. Conclusion

Traditional pharmacotherapy of allergic rhinitis in children — second-generation oral antihistamines for mild disease and intranasal corticosteroids, with or without an antihistamine, for moderate-severe

disease, stratified according to ARIA severity criteria — remains a well-evidenced, guideline-concordant standard of care. Applied consistently and with individualized, age-appropriate dosing, it provides both effective first-line management for the majority of children with isolated allergic rhinitis and a necessary reference standard for evaluating newer, optimized management strategies in children with more complex, combined pathology.

AUTHOR INFORMATION

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