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SHORT COMMUNICATION

Therapeutic management of allergic rhinitis: a survey of otolaryngology and allergology specialists

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Abstract

Purpose To describe the current management of allergic rhinitis (AR) in Spain's specialized care according to the next-generation ARIA guidelines.

Methods An ad hoc online survey was distributed to AR specialists to appraise their perceptions of pathology management, knowledge of next-generation ARIA guidelines (including four case clinics), and their views on the principal barriers and the actions to proper AR management.

Results one hundred nine specialists (38.5% allergists and 61.5% otolaryngologists) completed the study survey. Most respondents (87.2%) had read all or part of the Next-Generation ARIA Guidelines, and 81.6% stated that they considered the patient's treatment choice preferences. However, only 20.2% of specialists answered according to the recommendations in at least three of the four case clinics. Most participants failed to fulfill the treatment duration according to the guidelines. They regarded the lack of multidisciplinary teams (21.7%) and the lack of patients' AR treatment adherence (30.6%) as the most critical healthcare system- and patient-related barriers to the correct management of AR, respectively. Promoting patients' education was considered the most crucial action to improve it.

Conclusion Despite specialists' awareness, there is a gap between the evidence-based guidelines' recommendations and their implementation in clinical practice.

Keywords Allergic rhinitis · Adherence · Next-generation ARIA guidelines · Clinical practice

Introduction

The main treatment goal of allergic rhinitis (AR) is to control symptoms to alleviate their impact on patient's daily lives and well-being. Nowadays, a wide range of medications can be administered alone or combined to manage them [1]. However, real-world data suggest that around 60% of these patients might have poorly controlled symptoms [2]. To optimize patients' management, guidelines on Allergic Rhinitis and its Impact on Asthma (ARIA) established a series of recommendations [3]. Applying ARIA recommendations considerably improved the control of the disease in clinical trials [4]. However, physicians' adherence in clinical practice to these guidelines was found to be limited [5, 6]. Therefore, the next-generation ARIA guidelines [7] were released to improve their applicability, optimize treatment, and promote a patient-centered care model.

Given this scenario, we deem it necessary to describe the current management of AR by specialists and their knowledge and degree of adherence to next-generation ARIA guidelines. Additionally, we aim to appraise their perceptions regarding the principal barriers to and actions for proper AR therapeutic management.

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Materials and methods

We conducted a cross-sectional survey-based study targeting allergists and otolaryngologists practicing within the Spanish healthcare system (public and private sectors). A scientific committee comprised two experts in AR (allergist and otolaryngologist) developed the *ad hoc* questionnaire, containing 19 questions organized in four sections: (i) sociodemographic and AR management; (ii) knowledge of next-generation ARIA guidelines (including four case clinics); (iii) barriers for proper AR management; (iv) actions for improvement (Supplementary Table 1).

Participants were identified and selected by the study sponsor based on their experience in AR management. They were invited to participate via email, and data were collected from November 2020 to March 2021. The study sample size was estimated based on the assumption of maximum variability criterion [8] $\left[n = N \cdot Z_{\alpha}^{2} \cdot p \cdot q \,/\, e^{2} \cdot (N-1) + Z_{\alpha}^{2} \cdot p \cdot q\right]$ with a 95% confidence interval and 10.0% precision. The calculation included the number of otolaryngology ($n = 1904$) and allergology ($n = 631$) specialists that practice their profession in the Spanish public healthcare [9]. As a result, the minimum required sample size was estimated at 93 specialists.

A descriptive analysis was conducted: absolute and relative frequencies for qualitative variables and measures of central tendency and dispersion for quantitative variables were estimated. Participants adhered to the guidelines if they appropriately answered the patients' therapeutic management questions in at least three out of four hypothetical case clinics.

Results

The survey was completed by 109 participants (42 allergists, 67 otolaryngologists) representing most Spanish regions, with 20.9 ± 9.2 years of experience in AR management. Many worked in the public and private sectors (48.6%), while 25.6% worked only in the public or private sectors. They were estimated to attend 83.9 ± 76.7 AR patients/month, of whom 40% had the uncontrolled disease. Questions regarding AR management showed that more than half (51.4%) of the specialists did not use a visual analog scale (VAS) or a numeric analog scale (NAS) to evaluate the patient's state. However, most of them (81.6%) stated that they considered the patients' preferences for the treatment choice (Table 1).

By the time of the study, most specialists (87.1%) had read all or part of the Next-Generation ARIA Guidelines. As for the question on AR management activities, 59.6% had not participated in any during the last year, whereas the rest (40.4%) had attended seminars, courses, or research projects.

Only 22 specialists out of 109 (20.2%) were classified as adherent to the Next Generation ARIA Guidelines. Although more than half answered according to the guidelines on therapeutic strategies for cases 1 (63.3%) and 4 (59.6%), the % of correct answers was much lower for cases 2 and 3. In these cases, almost half of the specialists responded accurately to the assumptions on the type of treatment (49.5% case 2; 45.8% case 3); however, the majority did not choose the appropriate duration of therapy. Table 2 details specialists' responses to the four case clinics proposed.

Participant characteristics did not influence adherence to the guidelines since significant differences were not found in the subgroup analysis (Supplementary Table 2). Nonetheless, higher percentages of adherents were observed in those participants involved in research projects on AR or in training (seminars or courses) on its management (25.0 vs 16.9%; $p = 0.30$), those that use the VAS or NAS to evaluate the state of the patient (26.4 vs 14.3; $p = 0.11$), and those considering patient preferences during treatment election (22.4 vs 10.0%; $p = 0.35$).

When asked about the most critical barriers related to the health system (Fig. 1a), participants mainly pointed out the lack of multidisciplinary teams to treat AR (21.7%), the physicians' therapy inertia (19.6%), and the shortage of time during the medical consultations (17.4%). As for the patient and treatment barriers (Fig. 1b), they considered that low patients' adherence to treatment (30.6%), lack of reimbursement of medicines (22.6%), and patients' self-medication (18.9%) were the most decisive in preventing the correct therapeutic management of AR.

According to the respondents, the best strategies to improve the therapeutic management of AR among the seven proposed were: (1) to promote patient education on their pathology and treatment (27.2%); (2) to encourage multidisciplinary teamwork through consultations or symposiums (22.6%); and (3) to conduct AR updates sessions aimed at specialists, such as training sessions, courses, seminars, congresses, and symposiums (17.4%) (Fig. 2).

Discussion

The present study sets out in the context of the publication of the next-generation ARIA guidelines and the need to improve the therapeutic control of AR patients in our settings. Therefore, we describe how the current management of AR by specialists (otolaryngologists and allergists) was according to new guidelines in the Spanish Public and Private Healthcare System.

Table 1 Specialists' sociodemographic characteristics and results about their perspective on allergic rhinitis management

Variables	*N* (109)
Sociodemographic characteristics	
Age (years), mean ± SD	47.78 ± 9.00
Gender (male), *n* (%)	60 (55.04)
Speciality, *n* (%)	
Allergology	42 (38.53)
Otolaryngology	67 (61.47)
Total	109 (100)
Time practicing (years), mean ± SD	20.91 ± 9.22
Work settings, *n* (%)	
Public healthcare only	28 (25.69)
Private healthcare only	28 (25.69)
Public and Private Healthcare	53 (48.62)
Total	109 (100)
AR management	
AR patients attended per month, mean ± SD	83.87 ± 76.72
Percentage of patients without controlled AR in public healthcare (according to specialists' view), mean ± SD	45.20 ± 21.82
Percentage of patients without controlled AR in public healthcare (according to specialists' view), mean ± SD	38.32 ± 21.73
Use of VAS or a NAS scale to evaluate the state of the patient, % (CI 95%)*	
No use at all	51.38 (42–61)
Use to evaluate the patient's overall state	22.02 (15–31)
Use to evaluate specific patient symptoms	30.28 (22–39)
Both uses	3.67 (1–9)
Patients' preferences consideration for the treatments' choice, % (CI 95%)*	
Yes	81.65 (73–88)
No	18.34 (12–27)
Total	100

AR allergic rhinitis; *CI* confidence interval; *NAS* numeric analog scale; *SD* standard deviation; *VAS* visual analog scale

*CI was estimated using the Wilson method

One of the most important aspects of AR management is the evaluation of disease control. In this respect, although the VASs or NASs are well-established easy-to-use instruments in clinical practice, less than half the participants used them regularly to evaluate specific AR symptoms, and only 22% to assess the overall patients' state. By contrast, most specialists considered the patient's preferences for treatment choices (81.6%). In this case, specialists aligned with the ARIA 2016 revision [3] and especially with the next-generation ARIA guidelines, which firmly promote a care model in which pharmacotherapy treatment selection considers patient preferences, empowerment, and age [7].

When asked about their knowledge of the latest guidelines, the degree of awareness was considerably higher (87.2%) than that reported previously for general practitioners (51%) and pharmacists (13%) [10]. This greater awareness contrasted with the low adherence rates obtained for the therapeutic recommendations, as only 20.2% of specialists in our study were classified as adherent to those recommendations. Notably, most participants failed to fulfill treatment duration according to the guidelines. The next-generation ARIA guidelines [7] recommend assessing the treatment efficacy up to three days after initiation for mild–moderate patients (VAS < 5) and up to seven days for severe patients (VAS ≥ 5). However, most specialists selected more extended periods for these evaluations. These answers may be because the time lapse between visits to specialists is usually longer; thus, short treatment duration and evaluation periods might not be feasible in our setting. Another result to consider is that almost 20% of the respondents would prescribe combination therapy to a hypothetical patient with mild-intermittent AR, which could indicate over-treatment. This tendency has been reported in previous studies, where up to 49% of patients in the same situation were treated with combined therapy [5, 11] and could be a target for improving guideline implementation.

According to the needs highlighted in ARIA guidelines [12], participants considered that the most critical barrier

Table 2 Specialists' responses to the appropriate therapeutic strategy for the four case clinics proposed, *n* (%)

Case 1. A 15-year-old patient with persistent AR treated with intranasal corticosteroids for at least ten days with mild symptoms (VAS = 3)	
The appropriate therapeutic strategy	
Continue the treatment	**69 (63.30)**
Stop the treatment	8 (7.34)
Add a drug to the treatment regimen	23 (21.10)
Change the treatment	9 (8.26)
Case 2. A treatment-naive adult with persistent AR who presents with moderate symptoms (VAS = 5)	
The appropriate therapeutic strategy	
Intranasal corticosteroids ± allergen immunotherapy program	**7 (6.42)**
Intranasal corticosteroids + intranasal antihistamines ± allergen immunotherapy program	**4 (3.67)**
Azelastine-Fluticasone (MPAze-Flu) ± allergen immunotherapy program	**43 (39.45)**
Oral antihistamines alone or in combination	39 (35.78)
Other combinations	16 (14.68)
*The duration of selected treatment before evaluating its efficacy**	
≤ 3 days	**1 (1.85)**
> 3 days	53 (98.15)
Case 3. An adult patient with intermittent AR who does not respond to treatment with intranasal corticosteroid and has moderate-to-severe symptoms (VAS = 7)	
The appropriate therapeutic strategy	
Continue the treatment	1 (0.92)
Stop the treatment	1 (0.92)
Add a drug to the treatment regimen	**58 (53.21)**
Change the treatment	**49 (44.95)**
The appropriate treatment to add to the therapy regimen	
Oral antihistamine	20 (34.48)
Chromone	1 (1.72)
Oral corticosteroid	4 (6.90)
Intranasal antihistamines	**28 (48.28)**
Allergen immunotherapy program to be considered	5 (8.62)
The appropriate change of treatment regimen	
Azelastine-Fluticasone (MP AzeFlu) ± allergen immunotherapy program	**22 (44.90)**
Combinations based on oral antihistamines	19 (38.78)
Other combinations	8 (16.33)
*The duration of selected treatment before evaluating its efficacy**	
≤ 7 days	**7 (14.00)**
> 7 days	43 (86.00)
Case 4. A 14-year-old patient with intermittent AR who, after ten days with oral antihistamines, still has mild symptoms (VAS = 1) and is no longer exposed to the allergen	
The appropriate therapeutic strategy	
Continue the treatment	14 (12.84)
Stop the treatment	**65 (59.63)**
Add a drug to the treatment regimen	19 (17.43)
Change the treatment	11 (10.09)

Correct answers in bold

AR allergic rhinitis; *VAS* visual analogic scale

*Only those who responded about treatment correctly

to optimal AR management in the health system is the lack of multidisciplinary units to treat AR. However, there is greater recognition of a more complex concept of integrated care pathways, implementing patient-focused tools to define the sequence and timing of actions needed to improve patient outcomes [13]. For this to happen, other barriers must also be overcome, such as the lack of time

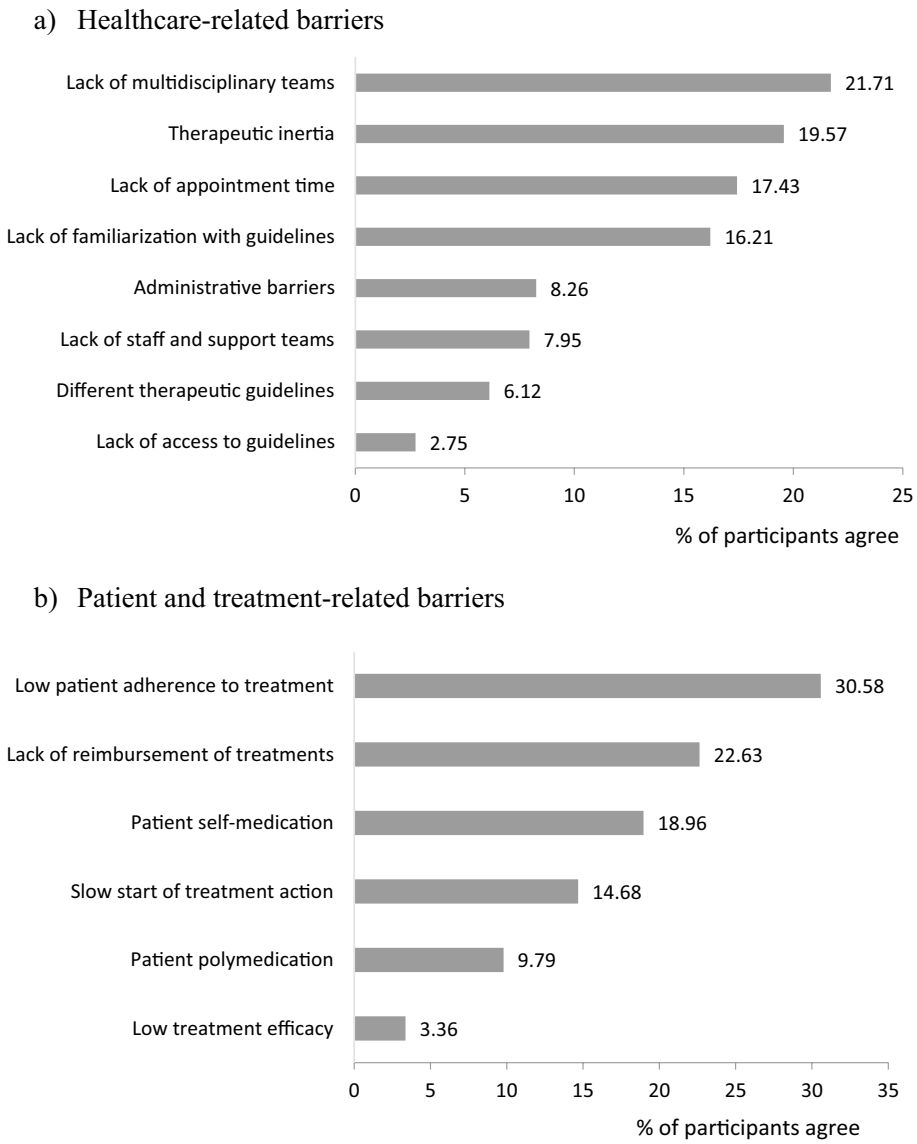

Fig. 1 Specialists' opinion (% of participants) on the barriers for the management of allergic rhinitis related to health system (**a**) and patients and treatment (**b**)

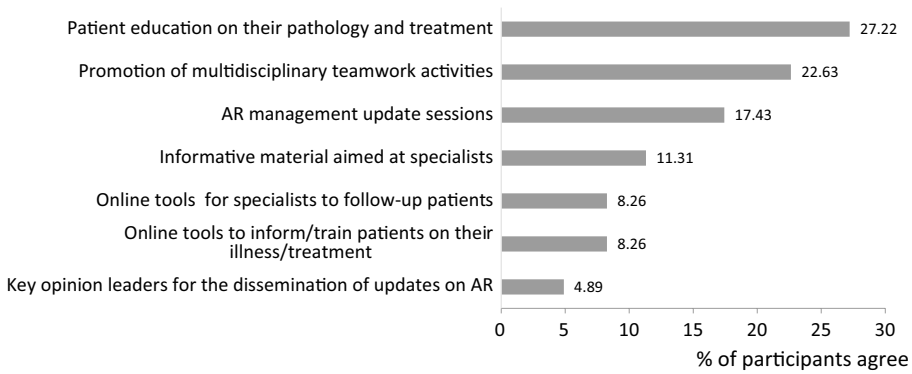

Fig. 2 Specialists' opinion on the actions to improve the therapeutic management of allergic rhinitis (% of participants)

for medical consultations, selected by participants in third place after therapy inertia.

The Mobile Airways Sentinel Network (MASK) provided an understanding of the treatment patterns in real life by over 9000 AR users in 22 countries and observed that not only were patients poor adherents [14, 15] but also often self-medicated [16] and not follow physicians' prescriptions [14–16]. Non-adherence and self-medication were also

critical barriers identified in this study. In this respect, our respondents regarded promoting patients' education as the most crucial action to improve therapeutic AR management, as suggested in previous initiatives [17]. Moreover, considering patients' treatment preferences might help improve patients' adherence and, ultimately, treatment efficacy [18].

We want to acknowledge as a limitation of our study that the results are based on an *ad hoc* questionnaire explicitly designed by experts on AR but not validated. Furthermore, since the questionnaire was developed by Spanish physicians and targeted to the Spanish setting, the extrapolation of the results to different environments or countries should be taken with caution. Nevertheless, this study provides relevant information on the existing barriers in clinical practice for implementing new recommendations and the improvement actions that can be taken to optimize the management of AR.

Conclusion

Results suggest that there is still a gap between the evidence-based guidelines' recommendations and their implementation in clinical practice. The adherence to the next-generation ARIA guidelines on managing AR is especially low for those questions related to treatment duration and follow-up. This fact highlights that the recommended short treatment follow-up periods are too demanding for Spanish specialized care, where the timelapse between visits is considerably longer. Furthermore, multidisciplinary teams and patient education and treatment compliance could help optimize AR management and, thus, improve patients' daily lives and well-being.

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Author contributions CC and IA designed the questionnaire, interpreted the data, and reviewed the manuscript. MEA-S revised the manuscript to ensure scientific accuracy and consideration of intellectual property. LB-P contributed to the study development and coordination and the writing of this manuscript.

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Declarations

Conflict of interest CC declares relationships with Novartis, GSK, Sanofi, Viatris, Chiesi, MSD, Takeda, Roxall, and ThemoFisher. MEA-S is an employee of Viatris Pharmaceuticals S.L. LB-P works for an independent research entity and has received fees for her contribution to performing the study. IA declares relationships with Novartis, Salvat, GSK, Sanofi, Viatris, Olympus, Galenus Heath, and Menarini.

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