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Creation of an international Inter-Society Pediatric Allergology Network (ISPAN): preliminary data from a survey of pediatric allergist in Italy, Spain, and Portugal

Maria Angela Tosca[a]*, Chiara Trincianti[a], Ana Martinez-Canavate Burgos[b], Liberio Ribeiro[c], Maria Mesa Del Castillo[d], Ana Neves[e], Salvatore Barberi[f], Franco Frati[g], Michele Miraglia Del Giudice[h]

[a]*UOSD Allergy Center, IRCCS Istituto Giannina Gaslini, Genoa, Italy*
[b]*Unidad de Alergia Infantil, Hospital Materno Infantil Virgen de las Nieves de Granada, Spain*
[c]*Centro Médico 5 Outubro Lda., Lisboa, Portugal*
[d]*Hospital Universitario de Móstoles, Madrid, Spain*
[e]*Hospital Universitario de Santa Maria, Lisboa, Portugal*
[f]*Pediatric Unit, Rho and Garbagnate Milanese Hospital, ASST-Rhodense, Milan, Italy*
[g]*Medical Department, Lofarma S.p.A., Milan, Italy*
[h]*Department of the Woman, Child, General and Specialized Surgery, University of Campania "Luigi Vanvitelli," Naples, Italy*

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Abstract
Allergic rhinitis and asthma are among the most important chronic diseases in children and young adults, with increasing prevalence and significant impact on the healthcare system and quality of life. Allergen Immunotherapy (AIT) remains the only causal treatment capable of modifying the natural course of allergy. However, despite its proven efficacy, real-world data on its application in the pediatric population remain limited. This study aimed to evaluate and compare the management and clinical practice of allergic diseases in the pediatric population, particularly the current use of AIT for respiratory allergy, by pediatricians and allergists in Italy, Spain, and Portugal. A comprehensive online survey developed by the pediatric allergy societies of the three countries was distributed to pediatric allergists to collect demographic data, diagnostic and treatment approaches, and AIT prescription attitudes. A total of 171 responses were analyzed in this study. The results show that most allergists treat high numbers of pediatric allergic patients on weekly basis, primarily using skin and laboratory tests for diagnosis of allergy, and pulmonary function tests to diagnose asthma. AIT was prescribed by the majority of allergists (91.2%), primarily for children aged ≥5 years, and

***Corresponding author**: Maria Angela Tosca, UOSD Allergy Center, IRCCS Istituto Giannina Gaslini, Genoa, Italy. *Email address*: mariangelatosca@gaslini.org

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mainly for allergic rhinoconjunctivitis and asthma. Of the respondents, 64.1% chose sublingual AIT over subcutaneous AIT (35.9%) because of compliance (77.6%) or practical reasons (67.9%). Patients were mainly treated for 3 years (39.7%) to 5 years (21.2%) and were regularly monitored every 6 months (51.3%). This initiative marks the first multinational collaboration between pediatric national allergology societies in Mediterranean countries, establishing a fundamental network for future collaborations. This study provides valuable insights and encourages further efforts to harmonize pediatric allergy care across similar sociocultural and environmental regions.

Introduction

The prevalence of allergic rhinitis and asthma, the most common chronic diseases in children, adolescents, and young adults, is increasing progressively.[1,2] Overall, these factors have a considerable socioeconomic impact on healthcare costs, daily activities, quality of life (QoL), school performance, absences, and hospital admissions.

According to the most recent Global Initiative for Asthma (GINA) report, asthma is a heterogeneous disease usually characterized by chronic airway inflammation and a history of respiratory clinical manifestations, such as wheezing, shortness of breath, tightness of the chest, and cough.[3,4] Its prevalence appears to be underestimated, as its degree of control is unsatisfactory; according to the literature, approximately 50% of pediatric patients have partially or uncontrolled asthma.[5] Likewise, according to the Allergic Rhinitis and its Impact on Asthma Guidelines, allergic rhinoconjunctivitis (AR) is a pathology of nasal and conjunctival mucosa induced by immunoglobulin E (IgE)-mediated inflammation following allergenic exposure that is clinically characterized by nasal manifestations (e.g., nasal obstruction, rhinorrhea, nasal itching, and sneezing) and ocular manifestations (e.g., hyperemia, ocular itching, and tearing) that reverse spontaneously or with specific therapy.[1,6] AR, often associated with asthma (affecting up to 90% of children and adolescents with asthma), is the leading risk factor for its onset, particularly if not controlled adequately. Despite the best available medical treatments, poorly managed AR remains a therapeutic challenge.[7] Allergen immunotherapy (AIT), a fundamental treatment option for patients with persistent moderate or severe clinical manifestations that remain poorly controlled despite avoidance strategies and consistent medication use, is the only causal treatment option.[8] Moreover, it is the only disease-modifying therapy that attenuates the natural course of AR and asthma. Subcutaneous immunotherapy (SCIT) or sublingual immunotherapy (SLIT), consisting of the administration of culprit allergen(s), can not only desensitize a patient, thereby ameliorating their clinical manifestations, but also deliver long-term clinical benefits that may persist for years after completion of treatment.[9,10]

Therefore, much work remains to be done to improve treatment and optimize the control of AR and asthma; to this end, it is necessary to establish an international clinical and research collaborative network. The exchange of medical knowledge and clinical information is fundamental. It can be a powerful tool for the benefit of all specialists who offer a common diagnostic and therapeutic approach to treat allergic patients. To create and strengthen such a network, a good starting point could be to compare allergological clinical practices among various experts in different European countries after collecting information on the training of the professionals involved and the diagnostic and therapeutic management strategies for allergic patients, including AIT, using an online survey.

Since data in the literature on the management of allergies in pediatric patients remain scarce or theoretical, often borrowed from the data on adult patients, a comparison between Mediterranean European countries, such as Italy, Portugal, and Spain, is useful to identify similarities and differences in the diagnosis and treatment of pediatric allergic patients in real life. Providing a professional relationship between pediatric allergists in the same macro-geographical area could be advantageous, because these countries share climatic, social, and economic characteristics that could influence the clinical features and other peculiarities in the treatment of pediatric allergic diseases.[11–13]

For these reasons, we created an online survey aimed at all pediatric allergologists working in Italy, Spain, and Portugal. This initiative was conducted under the guidance of the Pediatric Allergy and Immunology Societies of Italy (Società Italiana di Allergologia e Immunologia Pediatrica [SIAIP]), Spain (Sociedad Espanola de Inmunologia Clinica, Alergologia y Asma Pediatrica [SEICAP]), and Portugal (Sociedade Portuguesa de Alergologia Pediatrica [SPAP]), which collaborated to create and disseminate the survey.

This study aimed to collect data from an online survey addressed to pediatric allergists in Italy, Spain, and Portugal. Through this survey, it is possible to obtain information about their clinical practice, with a special focus on the diagnosis of allergic diseases and the prescription and use of AIT. This effort involved the creation of a multinational network of pediatric allergologists from different countries to share knowledge and clinical information in the field, belonging to three different societies of pediatric allergology and immunology. Creating a link between different pediatric allergology societies can be helpful for the members of international community.

Materials and Methods

The Pediatric Allergy and Immunology Societies of Italy, Spain, and Portugal proposed an online survey to collect

data from pediatric allergists working in these countries and obtain information on their clinical practice, with a focus on AIT for treating allergic diseases.

The survey targeted all pediatricians who prescribed or not prescribed AIT in Spain, Portugal, and Italy. A short cover letter was sent online to all members of the sponsoring scientific societies to support this initiative and asked them to complete the survey.

The pharmaceutical company Lofarma S.p.A. provided the survey platform and distributed the survey to the members of the three scientific societies involved.

The survey comprised 31 multiple-choice questions. The first part of the survey focused on the participants' demographic characteristics, including age, gender, and years of professional practice (<5, 5–10, 10–20, or >20 years). The questionnaire also collected information about the participants' professional education, in particular the medical courses they had completed, such as pediatric and/or allergy and immunology specialization or a postgraduate Master's degree in allergy and clinical immunology as well as the type of organization where they had worked (university, hospital, territory, or private facility).

The second part of the survey included questions about the clinical practice of the respondents, focusing on the average number of pediatric patients with allergic diseases treated per week. In particular, we aimed to identify the type of allergic diseases treated by specifying the percentage of children with asthma, AR, or food allergies. We collected information on the types of allergy diagnostic tools/tests used routinely, including skin tests, specific IgE tests for inhalant and food allergens, component resolved diagnosis (CRD), pulmonary function tests, exhaled nitric oxide tests (FeNO), specific questionnaires (asthma control test, childhood asthma control test), and GINA questions on asthma control.

Additional questions aimed to verify whether the participants routinely prescribed AIT, and if so, whether they used SCIT and SLIT as drops and/or tablets and for which disease (e.g., asthma or rhino-conjunctivitis). Based on physicians' experience, we also asked about physicians' satisfaction regarding SCIT/SLIT treatment, with a score ranging from 1 (very dissatisfied) to 5 (very satisfied) in terms of efficacy, safety, and patient compliance with treatment. Subsequently, we asked questions about the duration of AIT prescription (0–3, 3–5, or >5 years), age at the start of AIT, and frequency of visits dedicated to treatment monitoring (once every 3 months, once every 6 months, or once a year). In the final part, the survey focused on collecting data regarding the use of biological drugs for treating allergic diseases, the use of AIT in patients with uncontrolled or partially controlled asthma, and whether AIT was used as an add-on therapy along with other treatments.

Results

The survey data were collected and analyzed to obtain the following results:

We collected 171 responses (120 from Italy, 20 from Spain, and 31 from Portugal); the majority of physicians were females (56.1%), aged >55 years (53.2%), and had >20 years of professional experience (64.9%) (Figure 1). Most had completed an internship in medicine and pediatrics (53.2%) or had a postgraduate Master's degree in allergy and clinical immunology (29.2%). Of the participants, 69% practised in hospitals, and 74.9% assessed more than 10 patients/week with allergic diseases, such as asthma (98.2%), AR (92.4%), or food allergies (91.8%).

The participants routinely used skin tests (98.2%) and molecular diagnostic tests for inhalant and food allergens (84.8%)

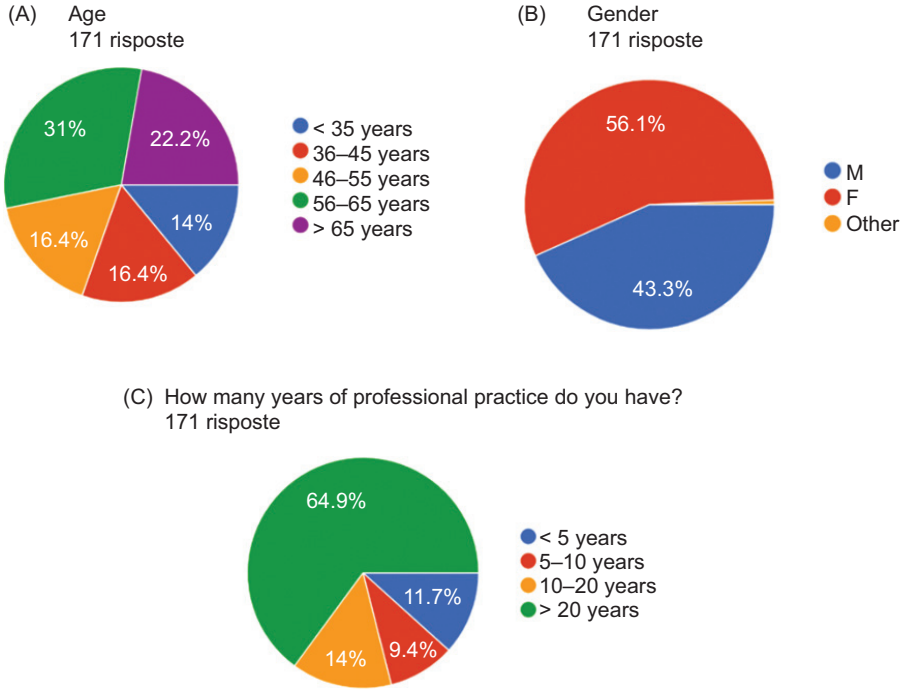

Figure 1 Characteristics of the physicians who participated in the survey. (A) Age; (B) Gender; (C) Years of professional practice.

as well as spirometry (90.6%) and bronchodilation tests (64.3%). Some also used exhaled nitric oxide assays (40.9%). Overall, 60.2% of the participants defined asthma control based on the GINA criteria, while 44.4% used a default questionnaire, such as the asthma control test.

Of the respondents, 91.2% reported prescribing AIT to children aged >5 years (71.2%) or aged 3–5 years (26.3%) for 3 (39.7%), 4 (10.9%), or 5 (21.2%) years. Of these, 64.1% chose SLIT as tablets or drops (53.2% and 52.6%, respectively), compared to SCIT (35.9%) (Table 1). The reasons for these choices were compliance issues (77.6%), practical issues (67.9%), and economic reasons (21.2%). Physicians prescribed AIT primarily for AR (96.8%), followed by asthma (87.8%), and much less frequently for hymenoptera venom and food allergies (0.6%).

The criteria for AIT suspension included good clinical results after 3–4 years of treatment (57.1%), poor adherence and compliance (61.5%), adverse effects (57.1%), and negative patient opinion about treatment (35.3%). The level of satisfaction with SCIT was higher (rated 4–5 for >50%) for efficacy than for safety and patient compliance (rated 2–3 for >50% of respondents), although most physicians answered that they did not prescribe SCIT. Regarding SLIT, safety was rated as 5 (highest rating) by most participants; 80% also rated 4 or 5 for satisfaction regarding its efficacy, while the assessment of its compliance was more controversial.

Clinical control in patients treated with AIT was monitored once every 6 months (51.3%), once every 3 months (22.4%), or once annually (19.9%) (Table 1). Overall, 82.5% of the participants reported not prescribing AIT for uncontrolled or only partially controlled asthma. In comparison, 49.1% of the respondents reported prescribing biological drugs in their clinical practice, particularly for the management of severe or uncontrolled asthma.

Table 1 Survey results on the AIT prescriptive attitude.

Answer	Number (n)	Percentage (%)
Do you prescribe AIT in your routine clinical practice?		
Yes	156/171	91.2
No	15/171	8.8
What kind of AIT do you use?		
SCIT	39/156	25
SLIT	100/156	64,1
Both SCIT and SLIT	64/156	41
For which disease(s) do you use AIT?		
Allergic rhinitis	151/156	96.8
Asthma	137/156	87.8
Others	5/156	3.2
For how many years do you prescribe AIT?		
3 years	62/156	39.7
4 years	17/156	10.9
5 years	33/156	21.2
>5 years	18/156	11.5
Other	26/156	16.6
At what age do you advise to start AIT in children?		
3–5 years	41/156	26.3
>5 years	111/156	71.2
Other	4/156	2.5
How often do you monitor your patient during AIT?		
Once every 3 months	35/156	22.4
Once every 6 months	80/156	51.3
Once a year	31/156	19.9
Other	10/156	6.4

AIT: allergen immunotherapy; SCIT: subcutaneous immunotherapy; SLIT: sublingual immunotherapy.

Discussion

Collaboration between the scientific societies of different countries in the same field within the same geographical area is fundamental to sharing knowledge and experience, particularly in pediatric allergology and clinical immunology, a constantly growing discipline.[14,15] This survey represents the first concrete effort to connect pediatric allergologists from Italy, Spain, and Portugal.

The main strength of our survey is that its widespread diffusion obtained cross-sectional data on real-life experiences with the diagnosis and treatment of allergic diseases in three countries.[16,17] Knowledge of clinical practices and routine interventions in other countries can improve communication and strengthen bonds between specialists, facilitating the standardization of diagnostic and therapeutic strategies.[18] Our survey results are still limited; however, owing to the collaboration created herein, more accurate and original studies are possible.

The main weakness of our survey was the imbalance in the geographical origin of the collected data, which mainly was due to Italian specialists and, to a lesser extent, because of Spanish and Portuguese specialists.

This could be because SIAIP reached a large number of participants because of its favorable response to the proposed initiative.

However, the success of our project was in the creation of a real network, strengthened by further projects that would help us to share diagnostic and therapeutic protocols capable of improving the care of pediatric patients.

Conclusion

The survey provided the first real-world overview of the activities of pediatric allergists in Spain, Portugal, and Italy regarding AIT for respiratory allergy, highlighting several interesting aspects that suggested the need for further efforts to make the management of allergic patients more uniform and standardized across three surveyed countries.

Although the results presented were limited and required future validation, the primary objective of establishing a network between the included countries in the study was achieved. The creation of this network represented a springboard for future collaborative studies on larger populations living in the Mediterranean area, which could expand and improve our knowledge about allergies.

Mandatory Disclosure on Use of Artificial Intelligence

The authors declare that no AI-assisted tools were used in the preparation of this manuscript. All references have been manually verified for accuracy and relevance.

Author's Contribution

All authors contributed equally to this article.

Conflict of Interest

Franco Frati works for the pharmaceutical company Lofarma S.p.A., which provided the survey platform and distributed the survey.

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