



Allergic Rhinitis in Senegal: Epidemiological, Clinical and Therapeutic Aspects

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Abstract

Introduction: Allergic rhinitis is an inflammation of the nasal mucosa, characterized by functional symptoms triggered by immediate and IgE-mediated hypersensitivity. The primary objective of this study was to describe the epidemiological, diagnostic, therapeutic, and disease progression of allergic rhinitis.

Materials and Methods: This was a prospective study involving 46 cases collected over a 6-month period from March 4, 2024, to August 31, 2024. During this period, all patients presenting with 2 or more of the cardinal symptoms of AR associated with positive allergy tests were collected.

Results: The mean age was 25.65 years with a sex ratio of 0.35. A history of familial atopy was reported in 80.4% of patients. The main symptoms included ENT pruritus (88.8%), rhinorrhea (87%), and sneezing (80.4%). The mean initial VAS score was 7.2. The intermittent moderate/severe form was the most frequent (52.2%, n = 24), followed by the persistent moderate/severe form (21.7%, n = 10) and the intermittent mild form (19.6%, n = 9). Regarding the allergens found, dust mites were predominant (80.4%) followed by pollens found in 32.6% of cases. The treatment initiated mainly consisted of oral antihistamine, local corticosteroid and nasal wash. The average VAS 2 score was 3.1. We thus concluded that the treatment was effective in 73.9% of cases (n = 34) and an improvement in the quality of life in 71.7%.

Conclusion: Allergic rhinitis is a condition with high global prevalence, increasing with pollution.

Keywords: Allergic Rhinitis; Atopy; Allergy

Abbreviations

AR: Allergic Rhinitis; HNS: Head and Neck Surgery; VAS: Visual Analogue Scale.

Introduction

Allergic rhinitis (AR) refers to the set of nasal functional manifestations resulting from the development of an immediate IgE-mediated hypersensitivity of the nasal mucosa

in response to exposure to various types of allergens [1]. It is the most common allergic disease, affecting approximately one-fifth of the general population [2]. The allergens most frequently involved are aeroallergens present in the domestic environment, in the general atmosphere, and/or in the workplace [3]. The aim of our study was to assess the epidemiological, diagnostic, therapeutic, and prognostic aspects of AR.

Materials and Methods

This was a prospective study conducted over a 6-month period, from March 4, 2024, to August 31, 2024, in the Department of Otorhinolaryngology (ENT) and Head and Neck Surgery (HNS) at the Ouakam Military Hospital. During this period, all patients presenting with two or more of the cardinal symptoms of allergic rhinitis namely, paroxysmal sneezing; watery rhinorrhea; nasal obstruction; nasal, palatal, or throat pruritus together with positive allergy test results, were included. The following parameters were analyzed: age, sex, occupation, personal and family history of atopy, clinical and paraclinical findings, treatment, and response to therapy. The severity of symptoms was assessed using the visual analogue scale (VAS) [4]. This is a psychometric tool

used to evaluate a variable and subjective trait or condition. The VAS generally consists of a 100 mm (10 cm) horizontal line with descriptors at each end representing the two extremes of a given feeling. Patients with AR marked the point that best reflected the severity of their symptoms or their current level of disease control (ranging from 0 to 10 cm, representing “no symptoms” to “very severe symptoms,” respectively). The VAS was measured at the first consultation (VAS1) and two months after treatment (VAS2). A score below 50 mm (on the 100 mm scale) indicates uncontrolled allergic rhinitis; between 20 and 50 mm, partially controlled AR; and below 20 mm, well-controlled AR.

Results

A total of 46 cases of AR were recorded. Patients' ages ranged from 5 to 64 years, with a mean age of 25.65 years. The sex ratio was 0.35. The majority of participants reported a family history of atopy (80.4%, n = 37). Otorhinolaryngological pruritus (nasal, throat, and/or palatal itching) was the most common clinical manifestation, observed in 88.8% of patients. Associated allergic manifestations were also noted (Table 1).

Symptoms	Number of Cases	Percentage (%)
ENT pruritis	38	88,8
Rhinorrhea	40	87
Sneezing	37	80,4
Ocular pruritis	25	83,3
Tearing	14	46,7
Eczema	14	46,7

Table 1: Functional and associated symptoms.

The intensity of these symptoms, as assessed by VAS1, ranged from 3 to 10, with a mean score of 7.2. Half of the patients rated their discomfort between 6 and 8.

According to the ARIA classification, the most frequent form was moderate-to-severe intermittent AR (52.2%, n = 24), followed by moderate-to-severe persistent AR (21.7%, n = 10) and mild intermittent AR (19.6%, n = 9). Mild persistent AR was the least represented form (6.5%, n = 3) (Table 2).

House dust mites were the main allergen identified, with sensitization observed in 80.4% of participants (n = 37). Pollens ranked second (32.6%, n = 15), followed by cockroaches and cat dander (6.5% each, n = 3). Other sensitizations including shrimp, molds, mosquitoes, dermographism, and dog/cat allergens were less common ($\leq 4.3\%$).

The most frequently associated allergic comorbidities were atopic dermatitis (13%, n = 6) and asthma (8.7%, n = 4). Allergic conjunctivitis was observed in 6.5% of patients (n = 3).

Comorbidities	Number	Percentage
Oral antihistamines	45	95.7
Nasal irrigation	44	93.6
Topical Corticosteroïde	43	91.5
Oral corticostéroïde	11	23.4
Leukotriene Antagonist	4	8.5
Turbinate Radiofrequency	1	2.1

Table 2: Distribution of Patients by Treatment.

The post-treatment VAS 2 scores ranged from 0 to 7, with an average of 3.1. Half of the patients had VAS 2 scores between 2 and 4. Treatment was therefore considered effective in 73.9% of cases ($n = 34$), with an improvement in quality of life observed in 71.7% of patients.

Discussion

The incidence of rhinitis has reached the level of a global epidemic, affecting approximately 500 million patients worldwide, including 25% of the population in Europe and 30% in the United States [7]. In Benin, the prevalence is reported at 35.7% in the general population [8]. In Nigeria, the study by Obianuju B [9] reported a frequency of 22.8%. Very few African studies have been published on AR. However, we believe that the reported prevalence rates do not reflect the true number of affected individuals. In Senegal, for example, AR is often trivialized, and patients generally seek medical attention only when symptoms become persistent, troublesome, or when complications arise.

In our series, the 20–30-year age group was the most represented. In Nigeria, AR prevalence increased with age, from 3% in children to about 10% in adults [9]. In North Africa (Tunisia, Algeria, Morocco), the mean age was 29.9 ± 15.7 years, with 72.3% adults and 27.7% children [10]. In fact, AR may occur at any age: in infants, children, adolescents, adults, and the elderly. Across the literature, prevalence appears low in early childhood, peaks in adolescence, and decreases again in adulthood. A male predominance is typically reported in childhood, while females are more affected during adolescence, a trend observed worldwide except in Asia [11]. In contrast, Charfi, et al. [10] and our series both found a female predominance across all age groups. Conversely, some studies suggest that men are at higher risk than women between the ages of 15 and 35 [12,13].

Dust was identified as the main triggering factor in our series. It has also been consistently reported in other studies as one of the most important contributors to the onset or worsening of allergic symptoms in genetically predisposed individuals [4,14]. Atmospheric pollution was the second most common factor, in line with findings from other studies [15,16]. Indeed, global air pollution levels are steadily increasing, with significant consequences for health.

According to the ARIA classification, most of our patients presented with moderate to severe intermittent AR. These findings vary across countries [17], likely due to climatic differences. However, the main functional symptoms are consistent worldwide, with rhinorrhea and nasal obstruction reported in about 80% of cases. Other cardinal symptoms of AR were also observed. Diagnosis is based on these clinical signs in association with positive allergy

testing. Unfortunately, such tests could not be performed for all of our patients, mainly due to limited resources, recurrent shortages of standard allergen panels, and their unavailability in public hospitals. Among the minority who were tested, sensitization to dust mites and pollens was most common, as also reported by Charfi et al. in North Africa [10]. In Europe, a Swedish study found IgE sensitization in 80% of cases, with 51% of patients polysensitized to food allergens, pollens, and perennial aeroallergens [18]. Beyond confirming the diagnosis, allergy testing is crucial for guiding the first and essential therapeutic measure: allergen avoidance.

In our series, in addition to allergen avoidance, oral antihistamines were prescribed for all patients, intranasal corticosteroids in 84.4% of cases, and leukotriene antagonists for 7 asthmatic patients (4.4%). Although not performed in our study, specific immunotherapy remains the only treatment capable of modifying the natural course of allergic disease [10]. Overall, our results were satisfactory, with most patients experiencing an improvement in quality of life. Treatment failures were most often related to poor adherence. Allergen avoidance measures are also not always strictly observed, either due to financial constraints or because certain environmental and climatic factors are difficult to control.

Conclusion

Allergic rhinitis is a highly prevalent condition worldwide, with increasing incidence driven by pollution, yet it remains largely underestimated in our regions. Clinical diagnosis should be confirmed by allergy testing, particularly skin prick tests. In our setting, sensitization to dust mites and pollens was predominant. However, allergen panels must be adapted to the climatic realities of each region. Treatment is effective and, in most cases, leads to an improvement in quality of life.

Conflicts of Interest

The authors declare that they have no conflicts of interest

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