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Allergen Awareness among Patients Attending Allergy Consultations at the Pneumophthisiology Department of Ignace Deen University Hospital

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ABSTRACT **Published Online : August 30, 2025**

Objective: The aim of the study was to determine the allergen sensitisation profile of patients attending allergy consultations in Conakry.

Patients/Methods : This was a prospective cross-sectional study lasting seven months, from 1 December 2023 to 30 June 2024. The study included patients with asthma and/or rhinitis outside of flare-ups who had stopped taking antihistamines (7 **days)** and corticosteroids (**5-7 days)** before allergen exposure.

Results : The most represented age group was 11-20 years old, accounting for **45%** of the study population, with a mean age of **26 years** (range: **2-68 years**). The prevalence of sensitisation was **96.**25%, with sensitisation dominated by house dust mites (**Dp= 53.09%**; **Df= 49.38%** and **Bt= 53.16%)**, followed by mould (**Alternaria alternata=25%)**. In terms of diagnosis, allergic rhinitis (**36.80%)** was the most common in , followed by allergic asthma (**29.63%)**. We also noted an association between asthma and allergic rhinitis in **18.51%** of cases and asthma + allergic conjunctivitis in **7.41%** of cases. The majority of our patients were sensitised to at least one allergen (**64.19%)** compared to **35.81%** to at least two allergens (**22.23%** and **13.58%)**.

Conclusion: The majority of our patients were sensitised to at least one allergen, and the prevalence of sensitisation was higher in young people and was dominated by dust mites and mould.

KEYWORDS:
sensitisation, prick test, pneumallergen and Conakry.

INTRODUCTION

Sensitivity or atopy to airborne allergens is on the rise in many parts of the world. Data on sensitivity to airborne allergens is scarce in Africa **[1]**. The prevalence of respiratory allergies has increased worldwide over the past two decades **[2]**. Currently, nearly 30% of the population is atopic, with 5-10% suffering from asthma and just over 20% from allergic rhinitis. Atopy and allergen exposure have been identified as the main risk factors for asthma and rhinitis [**2]**.

Pneumallergens come mainly from the indoor environment. Outdoors, there are moulds and plant pollen spread by the wind **[3]**. Widely used since the 1970s, skin tests for pneumallergens are an essential step in identifying sensitisation (, i.e. the presence of specific IgE on skin mast cells). Two methods are routinely used: the prick test and the intradermal reaction test [**4].**

Multiple sensitivities are common in atopic individuals. In France, their frequency is estimated at between 62% and 75% of patients consulting for a respiratory allergic disease **[5]**. Mites are invisible to the naked eye (150 to 500 µm) and have four pairs of legs, like spiders, whereas insects have three. They require heat (20 to 35°C) and humidity (>60%) and are found worldwide, with variations depending on latitude. There are two main types of house dust mites, both belonging to the Dermatophagoides genus of the Pyroglyphidae family: Dermatophagoides pteronyssinus and Dermatophagoides farinae. They feed on human skin flakes found in bedding, where they are warm and protected from drying out, making this their main ecological niche. They also take refuge in carpets and any textiles within their reach [**3].** A humid climate promotes the development of mites and mould and is

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associated with an increased incidence of respiratory allergies. Several studies have shown a high prevalence of sensitisation to mites and cockroaches in sub-Saharan African populations, revealed by skin tests or specific IgE assays [**6].** No studies have been conducted on this subject in Guinea, which is why we initiated this study with the aim of determining the allergenic sensitisation profile of patients attending allergy clinics in Conakry.

PATIENTS AND METHODS

Study setting: our study was conducted in the pulmonology department of the Ignace Deen University Hospital.

Study material: patients attending allergy consultations constituted our study material.

Data collection: we used a pre-established observation form to collect data.

Type and duration of study: this was a prospective cross-sectional study lasting seven months, from 1 December 2023 to 30 June 2024.

Target population: consisted of all patients seen in allergy consultations at the Pneumology Department of the Ignace Deen University Hospital.

Study population: The study included all patients who underwent prick tests.

Inclusion criteria: patients with asthma and/or rhinitis outside of flare-ups who had stopped antihistamine treatment (**7 days**) and corticosteroids (**5-7 days**) before allergen exposure were included in our study.

Exclusion criteria: patients taking antihistamines and corticosteroids and/or who did not agree to participate in our study were excluded.

Sampling: we conducted an exhaustive recruitment of all patients who met our criteria.

Collection technique:

- **The observation form included the following information**:

Personal details: age, gender, occupation, origin.

Reason for consultation and clinical history

History: personal, family, medications and environment.

The skin test battery used included:

- Controls: positive (histamine), negative (saline solution)
- Mites: Dermatophagoides pteronyssinus, Dermatophagoides farinae, Blomia tropicalis
- Animal dander: cat hair and dog hair
- Mould: Alternaria alternata
- Pollen: Cynodon

***Clinical information relating to rhinitis and asthma, according to ARIA 2023 and GINA 2023 recommendations*:**

- **Rhinitis**: intermittent or persistent; mild, moderate or severe.
- **Asthma**: intermittent or persistent; mild, moderate or severe.

The prick test was performed according to the following protocol:

- Location: on the front of the forearm in adults; with positive and negative controls.
- Disinfection of the site with 70% alcohol.
- The locations of the drops are determined in advance by marking them with a ballpoint pen on healthy skin.
- Spacing between allergens > 2 cm.
- The prick is made in the centre of the allergen drops using Stallerpointes® lancets specifically designed for prick tests. The prick is made through the drop at a 90° angle, allowing a quantity of the allergen solution to penetrate the epidermis.
- ® : prick perpendicularly with a slight twisting motion between the index finger and thumb (apply steady, moderate pressure = depression of 2 to 5 mm from the base of the Stallerpointe). The test is usually performed correctly when the circumference of the Stallerpointe is visible (according to the Stallergènes laboratory information sheet).
- The prick should not be deep enough to reach the dermis, and the pressure should be the same for all tests.
- The control is read after 5 minutes and the allergen results are read after 20 minutes in daylight. The reading is taken by measuring the diameter of the papule using a millimetre ruler.
- Tests are positive if the diameter is ≥2/3 of the diameter of the positive control (or ≥ 3mm of the negative control).

Data analysis:

Our data were analysed using Epiinfo software version 7.2.6.0.

RESULTS

Table I: Distribution of patients according to sociodemographic characteristics

Sociodemographic characteristics	Number	Per cent
Age		
0	5	6.17
11	3	45.68
21	16	19.75
31	10	12.35
41	8	9.88

51	1		1.23
61	4		4.94
Gender			
Female	50		61.73
Male	31		38.27
Occupation			
Liberal profession		12	14.81
Student	3		44.4
Civil servant	22		27.16
Other	11		13.58
Origin			
Conakry	7		88.89
Outside Conakry	9		11

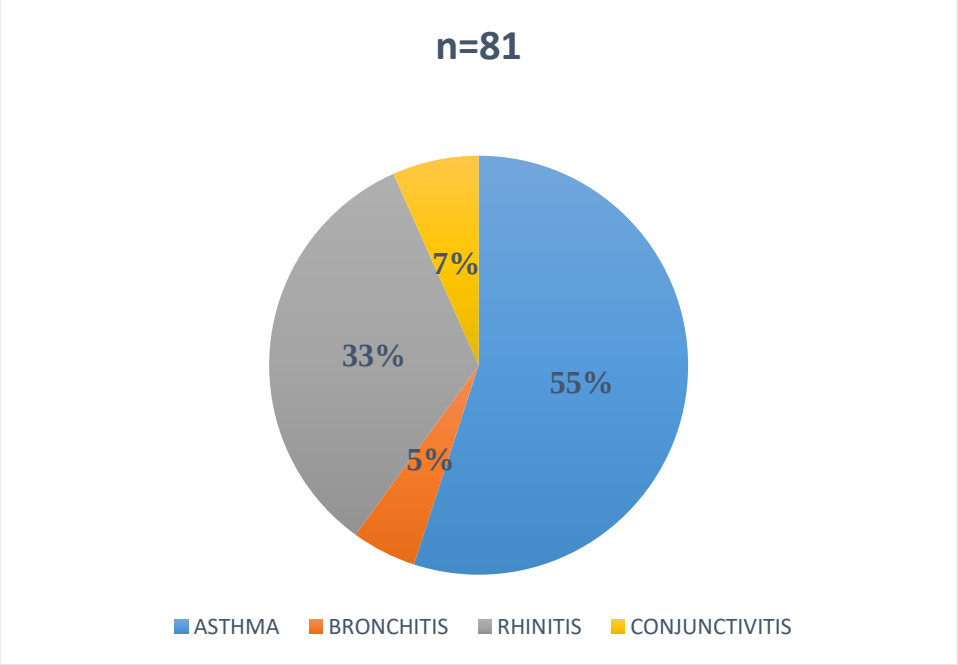

Figure1 : Distribution of patients according to their medical history

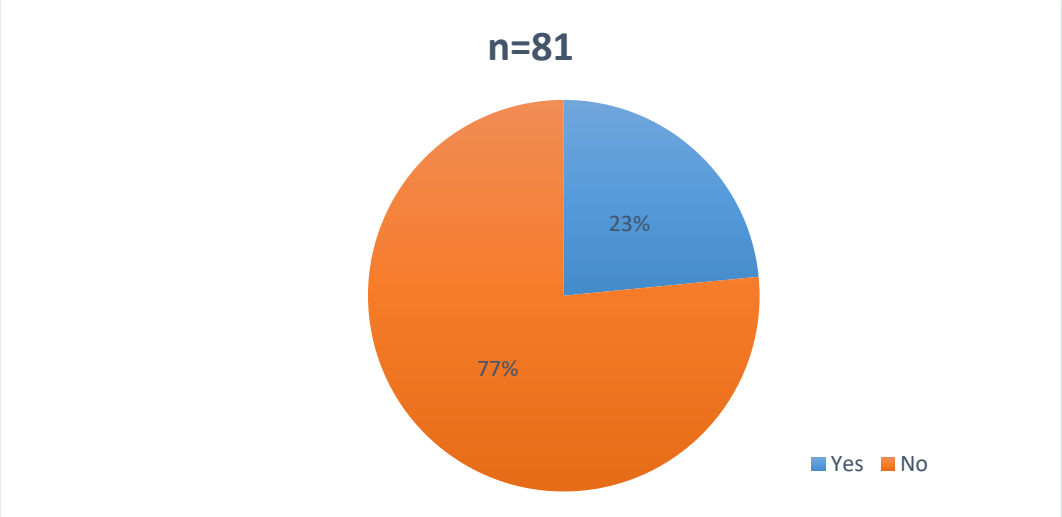

Figure2 : Distribution of patients according to the presence or absence of familial atopy

Table II: Distribution of patients according to their domestic environment

Patient environment	Number	Percentage
Pets		
YES	34	41.98
NO	47	58.02
Flowers		
YES	23	28.40
NO	58	71.60
Carpet		
YES	5	64.20
NO	2	35.80
Perfumes		
YES	38	46.91
NO	43	53.09
Humidity in the house		
YES	4	58.02
NO	34	41.98

Table III: Distribution of patients according to allergy symptoms

Symptoms	Number	Percentage
Nasal congestion	47	58.02
Nasal discharge	1	22.22
Wheezing	5	61.7
Sneezing	5	62.96
Pruritus	66	81.48
Cough	43	53.09

Table IV: Distribution of patients according to prick test results

Allergens	Number	Percentage

Controls		
Controls (-) less than 3 mm	3	3.75
Controls (+) greater than 3 mm	7	96.25
Dermatophagoides pteronyssinus		
Negative	38	46.91
Positive	43	53.09
Dermatophagoides farinae		
Negative	41	50.62
Positive	40	49.38
Blomiatropicalis		
Negative	37	46.84
Positive	42	53.16
Dog		
Negative	72	93.51
Positive	5	6.49
Chat		
Negative	74	96.10
Positive	3	3.90
Alternate alternata		
Negative	57	75.00
Positive	19	25

Table V: Distribution of patients according to the frequency of pneumallergens

Pneumallergens	Number	Percent
DP	43	53.09
DF	40	49.38%
Blomia	42	53
Alternate	1	25
Dog's coat	5	6.4
Cat's coat	3	3.9
Cynodon	2	2.67%

Table VI: Distribution of patients according to their diagnoses

Associated conditions	Number	Per cent
Allergic rhinitis	29	35.8
+ allergic rhinitis with conjunctivitis	4	4.9
Allergic rhinosinusitis	3	3
Allergic asthma	24	29.63
+ e asthma Allergic rhinitis	1	1
+ e asthma with allergic conjunctivitis	6	7.41

Table VII: Distribution of patients according to the number of sensitised pneumallergens

Number of sensitised pneumallergens	Number (n)	Frequency
One (01)	5	64.1
Two (02)	1	22.23

More than three (+3)	11	13.5
Total	81	10

DISCUSSION

During our study, we performed 81 skin tests for pneumallergens over a period of seven (07) months.

The most represented age group was 11-20 years old, accounting for 45% of the total, with an average age of 26 (range 2-68 years). **(Table I)**

This result differs from that found in Niger by **M Gagara Issoufou** et **al [5]**, who found an age group between 20 and 29 years. Students were the most represented group, accounting for 44% of cases. This result could be explained by the fact that students are the group most exposed to pneumallergens.

Females were more represented, accounting for **62%. (Table I)** Our result is comparable to that obtained by **E.W Peufura** et **al** in Cameroon **[1]**, who reported a female predominance of **52.4%** in a study conducted in an urban area, specifically in Bandjou.

The majority of patients lived in Conakry, at **88.89**%. This result is due to the fact that the pulmonology department is located in Conakry. **(Table I)**

Family atopy was found in **23.46%** of cases. Our results are similar to those of **M Gagara Issoufou [5]** et **al,** who reported a **24.7%** prevalence of family atopy. **(Figure 2)**

The patient history was dominated by asthma (**55%**), followed by rhinitis (**33%**) and conjunctivitis (**7%**). **(Figure 2)**

With regard to the patients' environment, we identified the presence of pets in **41.**9% of cases, carpeting in **64.**20% of cases, fragrance intolerance in **46.**9% of cases, and damp homes in **58.**02% of cases. **(Table II)**

We found clinical signs of allergy in all patients, with symptoms predominantly dominated by pruritus (**81.**48%), sneezing (**62.**96%), dyspnoea (**61.**73%), nasal congestion (**58.**02%) and cough (**58.**02%). (**Table III)**

The prevalence of sensitisation was **96.**25%, and sensitisation was dominated by dust mites (**Dp= 53.09%**; **Df= 49.38%** and **Bt= 53.16%**), followed by mould (**Alternaria alternata=25%**). (**Table IV)** Our results differ from those found by N**. Pham-Thi et al [7],** who reported that mites were the most common pneumallergens (**77%)**, followed by grass pollen (**75%)** and animal dander (**43%)**. This difference could be explained by the high level of pollination in Europe compared to sub-Saharan Africa.

In terms of diagnosis, allergic rhinitis (**35.80%**) ranks first, followed by allergic asthma (**29.63%**). We also noted an association between asthma and allergic rhinitis in **18.51%** of cases and asthma + allergic conjunctivitis in **7.41%** of cases. **(Table VI)**

The majority of our patients were sensitised to at least one allergen (**64.19%**) compared with 35.81% to at least two allergens (**22.23%** and **13.58%**). (**Table VII)** Our results differ from those found by **Migueres** et **al, who reported 35%** monosensitisation and **64%** polysensitisation in patients consulting for rhinitis and/or asthma.

CONCLUSION

Conclusion

The majority of our patients were sensitised to at least one allergen and the prevalence of sensitisation was higher in young people and was dominated by dust mites and mould. This survey also provided information on sensitisation to at least two allergens, hence the interest in performing prick tests.

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