

Prevalence And Clinical Profile of Allergic Rhinitis As Seen At University of Abuja Teaching hospital

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Background: Allergic rhinitis (AR) is a growing global health problem with considerable variation in the use of various diagnostic and management options. Some of the key action statements of the 2015 clinical practice guideline of AAO-HNS focused on improving accurate clinical diagnosis of AR and avoiding unnecessary allergy testing and sinonasal imaging. Thus, the aim of this study was to determine the prevalence, clinical features, x-ray findings and responses to treatment of allergic rhinitis at our institution.

Materials And Method: This was a 10 year retrospective study from 2002 to 2011. Collated data from patients' folders, in line with the aim of the study, were analysed.

Results: The prevalence of allergic rhinitis in our study was 2.4%. Out of the 238 cases of Allergic Rhinitis seen within the study period, the folders available for the study were 222; 117 males and 105 females.

The commonest symptoms included frequent sneezing – 222 (100%) and bilateral nasal discharge – 210 (94.6%). Two hundred and two patients (91%) were able to identify their triggers. The commonest examination finding was bilateral rhinorrhea – 202 (91.0 %).

One hundred and ninety seven patients (88.7%) had Xray of the paranasal sinuses with normal findings observed in 75.6% (149).

Within the periods of their presentations, they all had satisfactory responses to treatment.

Conclusion: The prevalence of Allergic rhinitis in our study was 2.4%. The clinical profile of our patients is similar to those observed in previous works.

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I. Introduction

Allergic rhinitis (AR) is a common chronic disorder of the nasal mucosa induced by an immunoglobulin E-mediated inflammation due to exposure to allergens. The contiguity in the ciliated respiratory mucosal lining of the nasal cavities and paranasal sinuses makes sinusitis almost inevitable whenever there is rhinitis. Thus, Allergic Rhinosinusitis (ARS) can be used interchangeably with AR. AR/ARS is typically characterised by nasal congestion, watery nasal discharge, excessive sneezing and nasal itching. Its prevalence varies worldwide, ranging from 0.8% to 40%; affecting 8.8% to 16% in the United States of America (USA), 39.7% of school children aged 13 to 14 years and 29.6% of young adults in Nigeria. It constituted 28.8 %, 40.79% and 64.5% respectively of AR cases among the rhinosinusitis cases seen at UDUTH (Sokoto), UCH (Ibadan) and NECC (Kaduna). It may be associated with otitis media with effusion, eustachian tube dysfunction, conjunctivitis, asthma, nasal polyps and adenoid hypertrophy. These associated conditions confer additional morbidity on patients, thereby impairing their quality of life. It generates \$2 to \$5 billion in direct health expenditures annually and responsible for as much as \$2 to \$4 billion in lost productivity annually.¹⁴ Allergic rhinitis has a huge socioeconomic impact. Indeed, it is a growing global health problem^{3,5,15} with considerable variations in the use of various diagnostic and management options.¹⁴ These variations have been given attention in the Clinical Practice Guidelines of AAO-HNSF on Allergic Rhinitis.¹⁴ The primary purpose of the Guidelines was; “to address quality improvement opportunities for all clinicians, in any setting, who are likely to manage patients with AR as well as to optimize patient care, promote effective diagnosis and therapy, and reduce harmful or unnecessary variations in care.”

The Key Action Statements of the guidelines include;

“STATEMENT 1. PATIENT HISTORY AND PHYSICAL EXAMINATION: Clinicians should make the clinical diagnosis of AR when patients present with a history and physical examination consistent with an allergic cause and 1 or more of the following symptoms: nasal congestion, runny nose, itchy nose, or sneezing.”

“statement 2. Allergy testing: Clinicians should perform and interpret, or refer to a clinician who can perform and interpret, specific IgE (skin or blood) allergy testing for patients with a clinical diagnosis of AR who do not respond to empiric treatment, or when the diagnosis is uncertain, or when knowledge of the specific causative allergen is needed to target therapy.”

“statement 3. Imaging: Clinicians should not routinely perform sinonasal imaging in patients presenting with symptoms consistent with a diagnosis of AR.”

In view of these, a retrospective review of the AR/ ARS cases managed at our centre from January 2002 to December 2011 was carried out. The aim of the study was to determine the prevalence of allergic rhinitis, the clinical features, x-ray findings and responses to treatment as seen in these patients

II. Materials And Method

This study was a 10 year retrospective review of all cases clinically diagnosed of and managed for AR/ARS at the ENT Clinic, University of Abuja Teaching Hospital (UATH), from January 2002 to December 2011. Information from the clinic registers were used to retrieve patients’ folders and data were collated from the folders in line with the aim of the study. Collated data were analysed using simple descriptive statistics was carried out.

III. Results

Within the study period, a total of 9,996 patients were seen at the clinic. Chronic rhinosinusitis was managed in 804 patients, with 238 Allergic Rhinitis cases clinically diagnosed and managed within the study period. The prevalence of Allergic rhinitis in this study was 2.4%, while accounting for 29.6% of chronic rhinosinusitis. But those with relevant data for the study were 222; 117 males and 105 females - M : F of 1.1 : 1. The age of the patient ranged from 5 to 74 years, with a mean age of 29.4 years. Table 1, below outlines the age distribution with most cases seen in the third and fourth decades of life respectively while a steady decline was progressively noted from the fifth decade of life.

Seasonal presentations were described in 115 patients (51.8%) while 107 patients (42.8%) had Perennial presentations, with seasonal exacerbation.

Table 1: Age Distribution

AGE	NUMBER	PERCENTAGE
1 – 10	17	7.7%
11 – 20	30	13.5%
21 – 30	73	32.9%
31 – 40	64	28.8%
41 – 50	25	11.3%
51 – 60	9	4.1%
61 – 70	3	1.3%
71 AND ABOVE	1	0.4%
TOTAL	222	100%

Table 2: Symptoms Profile

SYMPTOMS	Number	Percentage	Percentage
Frequent/ Excessive Sneezing	222	100%	
Rhinorrhea	210	94.6%	
Nasal Congestion/ Blockage	189	85.1%	
Itching (Nose, Eyes, Ears ,Throat)	181	81.5%	
Hyposmia	158	71.2%	
Post Nasal Drip	98	44.1%	
Snoring/ Mouth breathing	56	25.2%	
Throat hawking	43	19.4%	
Recurrent sorethroat/ throat pain	38	17.1%	
Facial aches/ pain/(cheek, eye/ periorbital)	32	14.4%	
Eye redness	32	14.4%	
Headache	32	14.4%	
Feeling of FB in the throat	24	10.8%	
Hearing loss	23	10.4%	

Epistaxis	16	7.2%
Otalgia	15	6.8%
Halitosis	9	4.1%
Tinnitus	8	3.6%

Figure1: Most Common Symptom

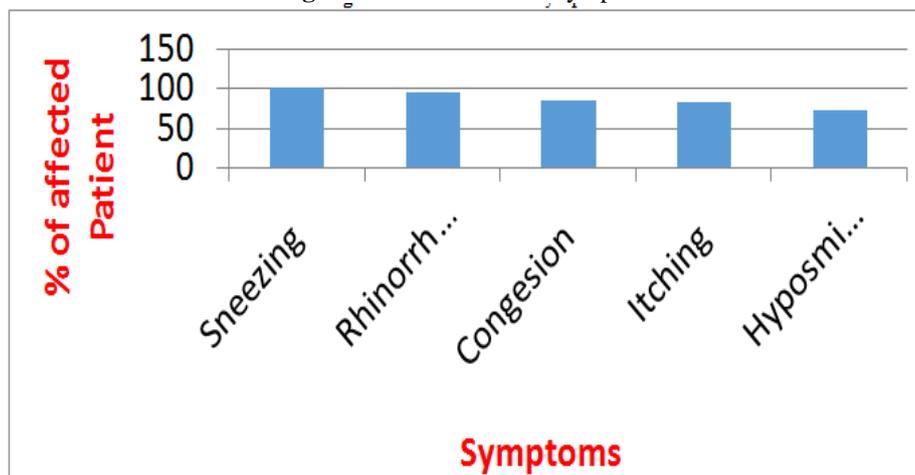


Table 3: Identified Triggers (N= 202)

Identified Allergens	Numbers	Percentages
Dust	118	58.4%
Cold Environment	55	27.2%
Smoke	54	26.7%
Perfumes	37	18.3%
Gloves	6	3.0%
Grasses	4	2.0%
Pepper	3	1.5%
Pollen	2	1.0%

Table 2 describes the spectrum of symptoms that were seen in the patients while Figure 1 emphasises the most common symptoms. The most common triggers/ aggravators of symptoms (possible allergens) were dust, cold environments, smoke, perfumes; as outlined in Table 3. A family history of allergic rhinitis and asthma were found in 38 (17.1 %) and 21 (9.5%) patients respectively. Findings at first presentation and X-ray findings are presented in tables 4 and 5 respectively.

Table 4: Findings At First Presentation

Signs	Number	Percentage
Rhinorrhea (bilateral)	202	91.0%
Cobble Stoning – PPW	167	75.2%
Inf. Turb. Engorgement (bilateral)	158	71.2%
Post Nasal Discharge	83	37.4%
Polyps	28	12.6%
Tonsillomegally	22	9.9%
Dull TM/ TM Retraction	21	9.5%
Bulging TM	7	4.1%

The bilateral rhinorrhea was watery in 131 (64.9%), mucoid in 36 (17.8%), mucopurulent in 21 (10.4%) and not qualified in 14 (8.1%) cases. One hundred and ninety seven patients (88.7%) had X-ray of the paranasal sinuses with clear sinuses observed in 75.6% (149) of them. There was bilateral inferior turbinates engorgement in 140 (71.1%) patients, Findings in the maxillary, frontal and ethmoid sinuses were bilateral in four patients. Features of Pansinusitis were seen in 14 patients. All the patients with opacity of the ethmoid air cells had polyps. Air Fluid Level (AFL) in the maxillary antri was bilateral in two patients and unilateral in seven patients; five on the right and two on the left.

Table 5; X-Ray Findings (N = 48)

X-Ray Findings	Maxillary	Frontal	Ethmoid	Sphenoid
Haziness	11 (22.9%)	13 (27.1%)	10 (20.8%)	8 (17%)
Opacity	11 (22.9%)	8 (0.17%)	15 (31.25%)	6 (12.5%)
Mucosal thickening	26 (54.2%)	-		-

Treatment modalities were medical and surgical. Responses to treatments were satisfactory in all the cases. Symptoms had completely resolved in all the patients that had medical treatments by the third week of their treatment. Thirty three patients (14.87%) had surgical procedures. The follow-up period following each presentation of these patients ranges between one and six weeks.

IV. Discussion

1,3,4,5,15,26

Globally the prevalence of allergic rhinosinusitis ranges from 0.8% - 40%. Our study revealed a prevalence of 2.4%, perhaps because it is a retrospective and hospital-based study, true prevalence may be higher. Yadav et al in a hospital-based study of 1075 allergic rhinitis patients got an incidence of 3.19% over one year. The study by Pefura-Yone et al, with a prevalence of 11.4%, was a cross-sectional, community-based study of 2,304 participants among adults aged 19 years and above in Yaounde, the Capital City of Cameroon, within a five-month period. Another cross-sectional, community-based study by Desalu et al, with a prevalence of 29.6%, had 733 participants aged between 18 and 45 years in the city of Ilorin, Nigeria, within a seven-month period. Allergic rhinitis constituted 29.6% of chronic rhinosinusitis in this study. This is similar to the finding of Iseh et al who reported 28.8%, while Fasunla and Nwaorgu and Mainasara et al reported 40.79% and 64.5% respectively of AR cases among the rhinosinusitis cases they studied.

A slight male preponderance was noticed in our study. This agrees with some of the previous works. Yadav et al opines that the male preponderance was possibly due to work place related allergens and stress. In this study allergic rhinitis was most prevalent in the third and fourth decades of life. This is similar to the findings of Desalu et al, Yadav et al and Mgbor and Mgbor. The mean age is similar to the findings of Desalu et al and Ibekwe and Ibekwe. The spectrum of symptoms seen in this study is as documented in the literatures.

Yadav et al alluded to the findings of Malmberg who observed that the maximum number of patients showed a seasonal relationship of AR. In this study, symptoms were described as being seasonal in 51.8% while 42.8% had Perennial presentations with seasonal exacerbations. Dust (58.4%) and cold environment (27.2%) were the leading triggers or aggravators of symptoms found in this study. This agrees with Yadav et al, Desalu et al (dust – highest). We did not record any allergy to food unlike Yadav et al who reported 3.9%. We found a coexistence of asthma with allergic rhinitis 8.1% while Yadav et al, Ibekwe and Ibekwe and Deb et al documented 11%, 13.5% and 50.2% respectively. Desalu et al opines that individuals with allergic rhinitis were 6 times as likely to develop asthma as those without. Family history of allergic rhinitis and asthma were found to be 17.1 % and 9.5% patients respectively in our study, while Ibekwe and Ibekwe found a 56.8% of positive family history of atopy. Typical of the nasal discharge of allergy, the bilateral rhinorrhea was watery in 64.9%. This is consistent with previous works. In this study, 28 patients (12.6%) had clinical features of OME, 8 (3.6%) of whom were in the first decade of life; Kreiner-Moller et al and Ashok and Meghna showed a strong association between AR and OME, in children. However, Souter et al suggested a limited effect of allergy in the pathogenesis of OME, in 6 – 7 years.

The imaging of choice in the management of rhinosinusitis is the CT Scan of the paranasal sinuses. This was not available in our centre during the period reviewed. X rays of the Paranasal sinuses were usually requested in all cases of chronic rhinosinusitis.

The maxillary sinus was the most involved while sphenoid was the least involved; This is in agreement with what is profoundly established in the literature

Skin tests, immunological tests, and nasal smears have proven to be useful laboratory tools in the diagnosis of AR. Skin prick test (SPT) is considered to be the gold standard in the diagnosis of allergy. However, while Ibekwe and Ibekwe reported 77% of allergic rhinitis patients with positive SPT, only 23.7% of the 76 AR cases studied by Mgbor and Mgbor had positive SPT. Ibekwe and Ibekwe found house dust mite as the commonest aeroallergen, while house dust mite and house dust were the most common reported by Mgbor and Mgbor. Both alluded to previous works in Nigeria with the same findings.

None of the skin/ immunologic tests was done in this study. The diagnosis of AR in our study was strictly based on clinical features and all the patients responded satisfactorily to medications. This approach is the focus of the first two key action statements of the Clinical Practice Guideline (of AAO-HNSF) on Allergic Rhinitis. Medical and Surgical treatments were offered to our patients as appropriate. Following each presentation of the patients, they all had satisfactory responses to treatments within one to three weeks of their treatment.

V. Conclusion

The prevalence of allergic rhinitis / rhinosinusitis in our study was low. Our clinical features and radiological findings were similar to what had been documented in previous works. Majority of the x-ray findings revealed clear paranasal sinuses. No allergy testing was done in all the patients and the responses to the treatments offered were satisfactory. It is worthy to note that it appears there is no national prevalence of allergic rhinitis in Nigeria. There is a need for multicentre / multiregional studies and possibly a Clinical Practice Guideline that will be realistic and appropriate for our environment.

References

- [1]. Naclerio RM, Sahin-Yilmaz A. Allergic Rhinitis. In: Snow JB and Wackym PA's Ballenger's Otorhinolaryngology Head and Neck Surgery. 17th edition. BC Decker Inc. Shelton, USA. 2009; 531 – 550.
- [2]. Ciprandi G, Mora F, et al (Cassano M, Gallina AM, Mora R) Visual Analog Scale (VAS) and nasal obstruction in persistent allergic rhinitis. *Otolaryngol – Head Neck Surg* 2009; 141: 527 – 529.
- [3]. Scadding G, Durham S. Allergic Rhinitis. In Scott-Brown's Otorhinolaryngology, Head and Neck Surgery. 7th edition. Hodder Arnold. London, Great Britain. 2008; 1386 – 1407.
- [4]. Desalu OO, Salami AK, Iseh KR, Oluboyo PO. Prevalence of self-reported Allergic Rhinitis and its relationship with asthma among adult Nigerians. *J. Investig Allergol Clin Immunol* 2009; vol. 19 (6). 474 – 480
- [5]. European Position Paper on Rhinosinusitis and Nasal Polyps 2012. Fokkens WJ, Lund VJ, Rhinology. Vol 50 (23). March 2012.
- [6]. Iseh KR and Makusidi M. Rhinosinusitis: a retrospective analysis of clinical pattern and outcome in North Western Nigeria. *Ann. Afr. Med.* 2010. Jan – March 9 (1): 20 – 6. doi: 10.4103/15963519.62620.
- [7]. Fasunla AJ, Nwaorgu OGB. Adult Chronic Rhinosinusitis; Spectrum of Clinical features and management in a Tertiary Health Institution and Literature Review. *East Cent. Afr. J. surg.* (Online)
- [8]. Mainasara MG, Labaran AS, KirfiAM, FuforeMB, Fasunla AJ, Sambo GU. Clinical profile and management of chronic rhinosinusitis among adults in North-Western Nigeria. *The American Journal of Innovative Research and Applied Sciences.* 2015; 1 (4) : 133 – 136.
- [9]. Ashok MV, Meghna P. Allergic Rhinitis and its effect on Middle Ear Pressure. *National Journal of Otorhinolaryngology and Head & Neck Surgery*, Vol. 1 (10) No 2, August 2013.
- [10]. Kreiner-Moller E, Chawes BLK, Caye-Thomasen P, Bonnelyke K, Bisgaard H. Allergic Rhinitis is associated with Otitis Media with Effusion; a birth cohort study. *Clinical and Experimental Allergy*; 2012 (42); 1615 – 1620. doi: 10.1111/j.1365 – 2222. 2012.04038.x
- [11]. Shin JH, Kang JM, Kim SW et al. Effect of oral tolerance in a mouse model of allergic rhinitis. *Otolaryngol Head Neck Surg* 2010; 142: 370 – 375
- [12]. Shin H, Han DH, et al (Lim YS, Kim HJ, Kim D, Lee CH, Min Y, Rhee C). Nonasthmatic nasal polyposis patients with allergy exhibit greater epithelial MMP positivity. *Otolaryngology – Head Neck Surg*, 2009; 141: 442 – 447.
- [13]. Kirtsreesakul V, Chansaksung P, Ruttanaphol S. Impact of pretreatment nasal symptoms on treatment outcome in allergic rhinitis. . 2010; 142: 376 – 381. *Otolaryngol Head Neck Surg*
- [14]. Seidman MD, Gurgel RK, Lin SY, Schwartz SR, Baroody FM, Bonner JR et al. Clinical Practice Guideline on Allergic Rhinitis. *Otolaryngol Head and Neck Surg* February 2015 vol. 152 no. 1 supplS1-S43
- [15]. Sandez-Borges M et al (Fernandez-Caldas E, Capriles-Hulett A, Caballero-Fonseca F). Mite Hypersensitivity in patients with rhinitis and rhinosinusitis living in a tropical environment. *Allergol Immunopathol (Madr).* 2012. <http://dx.doi.org/10.1016/j.aller.2012.07.011>
- [16]. Yadav SPS, Goel HC, Chanda R, Ranga R, Gupta KB. A Clinical Profile of Allergic Rhinitis in Haryana. *Indian J Allergy Asthma Immunol.* 2001; 15 (1): 13 – 15.
- [17]. Ibekwe PU and Ibekwe TS. Skin Prick Test Analysis in Allergic Rhinitis Patients: A Preliminary Study in Abuja, Nigeria. *Journal of Allergy* Volume 2016, Article ID 3219104, 5 pages <http://dx.doi.org/10.1155/2016/3219104>
- [18]. Nepali R, Sigdel B, Baniya P. Symptomatology and allergen types in patients presenting with allergic rhinitis. *Bangladesh J Otorhinolaryngol.* 2012; 18(1): 30-35.

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- [19]. Lasisi AO, Lawal HO, Ogun GO et al. Correlation between eosinophilia and nasal features in allergic rhinosinusitis- A pilot study. *Journal of Asthma and Allergy Educators*. Dec. 2010; 1(6):219-222
- [20]. Mgbor NC and Mgbor SO. Pattern of Skin Prick Allergy Test Results In Enugu. *Nigerian Journal of Otorhinolaryngology*. September 2006 Vol.3 (2): 65 – 71.
- [21]. Flint PW et al. Allergic Rhinitis. In: *Cummings Otolaryngology – Head and Neck Surgery*. 5th edition. Mosby Elsevier. Philadelphia, USA. 2010; Vol.1, Part 4; Chapter 40
- [22]. Souter MA, Mills NA, Mahadevan M et al. The prevalence of atopic symptoms in children with Otitis Media with Effusion. *Otolaryngol Head Neck Surg* 2009 141: 104 – 107
- [23]. Amodu et al. Chronic Rhinosinusitis: correlation of symptoms with computed tomography scan findings. *The Pan African Medical Journal*. 2014; 18: 40. doi: 10.11604/pamj.2014.18.40.2839
- [24]. Adoga AA and Ma'an ND. The Epidemiology and Economic impact of Rhinosinusitis in Jos, North Central Nigeria. *J. Clinic Res Bioeth* 2: 166. doi: 10.4172/21559627.1000116
- [25]. Da Lilly-Tariah OB. Pattern of Clinical Features of Chronic Simple Rhinosinusitis in Port Harcourt. *Nigerian Journal of Clinical Practice*. December 2006 Vol 9 (2): 142 – 146
- [26]. Pefura-Yone EW, Kengne AP, Balkissou AD, Boulleys-Nana JR, Efe-de-Melingui NR, Ndjeutcheu-Moualeu PI, et al. (2015) Prevalence of Asthma and Allergic Rhinitis among Adults in Yaounde, Cameroon. *PLoS ONE* 10(4): e0123099. <https://doi.org/10.1371/journal.pone.0123099>
- [27]. Deb A, Mukherjee S, Saha BK et al. Profile of Patients with Allergic Rhinitis (AR): A Clinic Based Cross-Sectional Study from Kolkata, India. *Journal of Clinical and Diagnostic Research*. 2014 Jan, Vol-8(1): 67-70

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