



STUDY OF SKIN PRICK TESTING IN ALLERGIC RHINITIS PATIENTS

Dr. Rajashri Shailendra Mane*	Professor & HOD Otorhinlaryngology, D. Y. Patil Medical College, Kolhapur. *Corresponding Author
Dr. Balasaheb Patil	Professor of Otorhinlaryngology, D. Y. Patil Medical College, Kolhapur.
Dr. Sombit	Resident, Otorhinlaryngology, D. Y. Patil Medical College, Kolhapur
Dr. Anjana Mohite	Associate Professor, D. Y. Patil Medical College, Kolhapur

ABSTRACT Allergic Rhinitis is a common condition affecting the day to day life of many Indians. Skin prick test is a reliable method to diagnose and quantify the extent of the allergic rhinitis. We have studied the results of skin prick test in 50 patients of allergic rhinitis presented in Allergic clinic.

KEYWORDS :**INTRODUCTION**

In IgE-mediated diseases like Allergic Rhinitis, Asthma, urticaria, atopic eczema, Skin prick testing (SPT) is a reliable method to diagnose and quantify the extent of the disease. Helmtraud Ebruster published the first article about SPT in 1959 [1]. He extensively researched SPT and since then, it has been used in type I hypersensitivity reactions as a primary diagnostic tool. The advantages of SPT includes

1. diagnosis can be confirmed and evidence can be obtained regarding a suspected type I allergy.
2. It is minimally invasive, and
3. results are immediately available.

Over the years, a lot of changes and interpretations have occurred in SPT although the principle still somewhat resembles the original methods. SPT should be done so that findings from clinical practice and research become more comparable. It is considered as the gold standard in the diagnosis of allergy [3]

MATERIAL AND METHODS

This prospective clinical study was conducted for a period of 12 months (December 2016 to December 2017). Sample population was based on the AR patients referred to the Allergy Clinic, Department of ENT, Dr. D. Y. Patil Medical College Hospital and Research Center, Kolhapur. Patients were selected 18 to 65 years. They were patients who had a positive history of nasal inflammation (at least 2 or more of the following symptoms: rhinorrhea, sneezing, nasal blockage, nasal itchiness, and postnasal drip) for at least one-year duration and clinically showed signs of Allergic Rhinitis.

Patients were told to stop taking antihistamines at least 5 days before the test, while patients with severe urticaria were excluded from the study. All the patients were explained in detail in their mother language about the procedure and the possibility of an allergic reaction during the test and written informed consent was obtained from all the patients who were willing to be a part of this study, after which they were subjected to the study. 50 patients were included in this study and the test was performed by the same investigator.

A total of 200 allergens were used in this study and SPT was performed according to international guidelines [6] as a one-time test done on two forearms with lancets and allergens placed at least 2 cm apart to avoid contamination. A positive reaction is a wheal ≥ 3 mm in diameter. Histamine hydrochloride (1%) and normal saline (0.9%) were used as positive and negative controls, respectively. Patients with negative skin prick test were excluded from the study. The patients' data was classified according to the ARIA guidelines and SPT results were analyzed. SPSS 16 software (Chicago Illinois) was used in the analysis and value of less than 0.05 was considered significant.

RESULTS

A total of 50 suspected patients of allergic rhinitis were tested during

the study period. There were 28 males(56%) and 22 females(44%). Based on ARIA guidelines, most patients (...%) had moderate-severe AR (intermittent and persistent) and this was significantly related to animal exposure and not to age, gender, or family history of atopy. There was no significant relationship between these predominant symptoms and any of the aeroallergens.

There was a significant association between AR severity and the predominant complaints by the patients. There was no significant association between AR severity and the presence of asthma or family history of atopy.

Food allergens yielded the highest number of positive responses followed by house dust mites. Weed pollen allergen yielded the least, while animal dander and fungi allergen were also seen to elicit a positive response. There was no single allergen that has the tendency for monosensitization. Furthermore, no relationship was observed between the allergens tested and duration of AR (intermittent and persistent)

DISCUSSION

The prevalence of AR is increasing worldwide, yet it remains underdiagnosed and undertreated especially in developing countries [3]. A self-reported survey of AR among adult Nigerians observed a prevalence of 29.6% and a mean age of 29.3 years [7] which was close to the mean age observed in this study.

We could not establish any relationship between these predominant symptoms and the aeroallergens used in this study. This study observed that a majority of AR patients were categorized as moderate-severe persistent AR, according to ARIA classification, while the least were mild intermittent AR. This has been observed by most studies [3, 5, 12] with warm climate like India. A constantly high environmental temperature and humidity could lead to a persistently high concentration of indoor and outdoor allergens all year round [3]. There could also be a selection bias, since patients would more likely present for treatment when their condition is severe and persistent.

No relationship was established between the type of AR and the allergen to which the patients were sensitized. This was similarly observed in a national, cross-sectional study of AR patients in Mexico [13]. This study emphasizes the need for increased research in this aspect. Further studies are needed to. Our study also revealed a tendency for multiple sensitizations for allergens among the patients. This was statistically significant in all except animal dander. Thus a patient with positive sensitization to house dust mites could also be sensitized against pollen, insect, or fungi allergens. This supports the argument that time of exposure (seasonal or perennial) does not properly define AR patients [10]. There is need for the use of SPT that incorporates wide variety of allergens within a specific environment in order to avoid skipping some of the sensitive allergens attributed to each individual. This will ensure a holistic treatment of the AR and better outcome.

CONCLUSION

In conclusion, most AR patients presenting for treatment have moderate-severe persistent AR and show similar SPT sensitization pattern with other countries having similar climatic conditions. Sensitization patterns are not related to ARIA classification or any predominant AR symptoms but rather may rely on the environmental condition of study area and genetic makeup of the study population.

CONFLICT OF INTEREST

None

REFERENCES

1. J. Bousquet, N. Khaltaev, A. A. Cruz et al., "Allergic rhinitis and its impact on asthma (ARIA) 2008 update (in collaboration with the World Health Organization, GA2LEN and AllerGen)," *Allergy*, vol. 63, supplement 86, pp. 8–160, 2008. View at Publisher • View at Google Scholar
2. S. O. Adebola, B. Abidoye, F. E. Ologe, O. E. Adebola, and B. A. Oyejola, "Health-related quality of life and its contributory factors in allergic rhinitis patients in Nigeria," *Auris Nasus Larynx*, vol. 43, no. 2, pp. 171–175, 2016. View at Publisher • View at Google Scholar • View at Scopus
3. Z. A. Asha'ari, S. Yusof, R. Ismail, and C. M. C. Hussin, "Clinical features of allergic rhinitis and skin prick test analysis based on the ARIA classification: a preliminary study in Malaysia," *Annals of the Academy of Medicine Singapore*, vol. 39, no. 8, pp. 619–624, 2010. View at Google Scholar • View at Scopus
4. B. Sinha, Vibha, R. Singla, and R. Chowdhury, "Allergic rhinitis: a neglected disease—a community based assessment among adults in Delhi," *Journal of Postgraduate Medicine*, vol. 61, no. 3, pp. 169–175, 2015. View at Publisher • View at Google Scholar • View at Scopus
5. A. Deb, S. Mukherjee, B. K. Saha et al., "Profile of patients with allergic rhinitis (AR): a clinic based cross-sectional study from Kolkata, India," *Journal of Clinical and Diagnostic Research*, vol. 8, no. 1, pp. 67–70, 2014. View at Publisher • View at Google Scholar • View at Scopus
6. J. Bousquet, L. Heinzerling, C. Bachert et al., "Practical guide to skin prick tests in allergy to aeroallergens," *Allergy*, vol. 67, no. 1, pp. 18–24, 2012. View at Publisher • View at Google Scholar • View at Scopus
7. O. O. Desalu, A. K. Salami, K. R. Iseh, and P. O. Oluboyo, "Prevalence of self reported allergic rhinitis and its relationship with asthma among adult Nigerians," *Journal of Investigational Allergology and Clinical Immunology*, vol. 19, no. 6, pp. 474–480, 2009. View at Google Scholar • View at Scopus
8. S. Oladeji, C. Nwawolo, and O. Adewole, "Allergic rhinitis among adult bronchial asthmatic patients in Lagos, Nigeria," *Journal of the West African College of Surgeons*, vol. 3, no. 2, pp. 1–14, 2013. View at Google Scholar
9. L. Colavita, M. Miraqlia Del Giudice, G. Strocio et al., "Allergic rhinitis and adenoid hypertrophy in children: is adenoidectomy always really useful?" *Journal of Biological Regulators & Homeostatic Agents*, vol. 29, no. 2, supplement 1, pp. 58–63, 2015. View at Google Scholar
10. C. H. Lee, J. H. Jang, H. J. Lee et al., "Clinical characteristics of allergic rhinitis according to allergic rhinitis and its impact on asthma guidelines," *Clinical and Experimental Otorhinolaryngology*, vol. 1, no. 4, pp. 196–200, 2008. View at Publisher • View at Google Scholar
11. A. Shah and R. Pawankar, "Allergic rhinitis and co-morbid asthma: perspective from India-ARIA Asia-Pacific workshop report," *Asian Pacific Journal of Allergy and Immunology*, vol. 27, no. 1, pp. 71–77, 2009. View at Google Scholar • View at Scopus
12. K. K. Anastassakis, A. Chatzimichail, I. Androulakis et al., "Skin prick test reactivity to common aeroallergens and ARIA classification of allergic rhinitis in patients of Central Greece," *European Archives of Oto-Rhino-Laryngology*, vol. 267, no. 1, pp. 77–85, 2010. View at Publisher • View at Google Scholar • View at Scopus
13. D. Larenas-Linnemann, A. Michels, H. Dinger et al., "Allergen sensitization linked to climate and age, not to intermittent-persistent rhinitis in a cross-sectional cohort study in the (sub)tropics," *Clinical and Translational Allergy*, vol. 4, article 20, 2014. View at Publisher • View at Google Scholar
14. E. O. Bandeje, O. O. Elegbeleye, K. O. Williams, and D. Femi Pearse, "An analysis of skin prick test reactions on asthmatics in Lagos," *Journal of the National Medical Association*, vol. 75, no. 5, pp. 511–514, 1983. View at Google Scholar • View at Scopus
15. S. M. Oladeji, C. C. Nwawolo, O. O. Adewole, and A. J. Fasunla, "Pattern of skin sensitivity to various aeroallergens in bronchial asthmatic patients in Lagos, Nigeria," *African Journal of Medicine and Medical Sciences*, vol. 43, no. 4, pp. 339–345, 2014. View at Google Scholar • View at Scopus
16. Y. Takwoingi, E. Akang, G. Nwaorgu, and C. Nwawolo, "Comparing nasal secretion eosinophil count with skin sensitivity test in allergic rhinitis in Ibadan, Nigeria," *Acta Oto-Laryngologica*, vol. 123, no. 9, pp. 1070–1074, 2003. View at Publisher • View at Google Scholar • View at Scopus