VOLUME - 11, ISSUE - 07, JULY - 2022 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Medical Science

A STUDY TO ASSESS THE PREVALENCE OF MITE ALLERGY IN BROCHIAL ASTHMA PATIENTS.

Dr. Monika Singh*	Resident Respiratory Medicine, Govt. Medical College Kota *Corresponding Author
Dr. Anil Saxena	Senior Professor, Respiratory Medicine, Govt. Medical College Kota
Dr. Babulal Bansiwal	Assistant Professor Respiratory Medicine, Govt. Medical College Kota

ABSTRACT

INTRODUCTION: Asthma Is Major Health Issue In both developed and developing countries1.In India prevalence of Asthma is between 2% to 23%2. Risk factors to Asthma varies according to Geographical locations, local tradition and environmental factors. Skin Prick Test Can Be Used to detect hypersensitivity to Inhalant, Food, Medication or Occupational allergen most prevalent Aeroallergen In India Are Wheat Dust, Home Dust, Cotton Dust, Paper Dust And House Dust Mite. **Aim Of Study:** 1) To Test For Skin Sensitivity For Common Mites Causing Bronchial Asthma In Patients. 2) To Find Out The Common Mite Causing Allergy Amongst The Three (Dermatophagoides Farina, D. Pteronyssinus, Blomia Tropicalis) Of Mites In Patients With Bronchial Asthma, By Skin Prick Testing. **Material And Method:** Study Populations: Diagnosed Case Of Bronchial Asthma Were Taken And Taking Consent Skin Prick Test (Using Credisol Allergen Kit) Was Done. **Sample Size:** 100 Diagnosed Cases Of Bronchial After Injecting Allergen Wheal Diameter Was Noted After 15 Mins. A diameter of 3mm or more Wheal Diameter Was Considered Positive Response.Positive Test For Specific Allergen Will Help In Starting Immunotherepy Against That Specific Allergen. **Statistical Analysis:** Statistical Analysis Was Done By Using Chisquare Test, Sample T Test. SPSS For Window Was Used For Logistic Regression **RESULTS:** The Most Prevalent Age Groups Were 28-37 Years Followed By 38-47 Years.The Mean Age Group Was 34.3 In The Study.Gender Distribution Was 55% Females And 45% Males. 85% Patients Showed Positive Response To Any One Mite Tested. In Our Study Most Common Mite Was D. Pteronyssinus 70% Followed By D. Farina And B. Tropicalis 66% And 61% Respectively. 43.5% Cases Had Symptoms Of Allergic Rhinitis Along With Bronchial Asthma With A Mite Sensitisation, 30% Patients Tested Positive For Mites Was Having Bronchial Asthma With Allergic Conjunctivitis **Conclusion:** Dust Mite Is One Of The Most Prevalent Aero Allergen And Identified As An Emerging Worldwide Problem. By Skin Prick Testing We Would Be Able To Observe The Pattern For Aeroallergens In Cases And Probing Into The Panel Of Positive Allergens Makes Us Formulate Necessary Preventive Measures Which Can Be Initiated To Avoid The Allergen. Based On Our Interpretation Here By Plan Further Treatment

KEYWORDS : Bronchial Asthma , Skin Prick Test , Dust Mite , D.Pteronyssinus

INTRODUCTION

Asthma Is Major Health Issue In both developed and developing countries[1].In India prevalence of Asthma is between 2% to 23%[2]. Risk factors to Asthma varies according to Geographical locations, local tradition and environmental factors.[3] Skin Prick Test Can Be Used to detect hypersensitivity to Inhalant, Food, Medication or Occupational allergen most prevalent Aeroallergen In India Are Wheat Dust, Home Dust, Cotton Dust, Paper Dust And House Dust Mite[5] Mite Protein Which Are Allergen Causing Asthma Symptoms Originate From Decaying Mite Remnants Or Mite Faeces[6] Dermatophagoides Pteronyssinus, D. Farina And Euroglyphusmaynei Are Most Common Species But In Tropical And Subtropical Regions Blomia Tropicalis And Dermatophagoides Pteronyssinus Are Abundant[7] . Other Than Asthma Dust Mite Can Lead To Allergy Disorders Like Atopic Dermatitis, Urticaria, Oculorhinitis And Chronic Rhinitis[8]

AIM OF STUDY

1) To Test For Skin Sensitivity For Common Mites Causing Bronchial Asthma In Patients
2) To Find Out The Common Mite Causing Allergy Amongst The Three (Dermatophagoides Farina, D. Pteronyssinus, Blomia Tropicalis) Of Mites In Patients With Bronchial Asthma, By Skin Prick Testing.

MATERIAL AND METHOD:

Study Populations: Diagnosed Case Of Bronchial Asthma Were Taken And Taking Consent Skin Prick Test (Using Credisol Allergen Kit) Was Done.

Sample Size: 100 Diagnosed Cases Of Bronchial Asthma.

Exclusion Criteria:

a. Patient Age Below 12 Years And Above 80 Years.
b. Use Of Drugs (Antihistamine And Corticosteroids) With In 3 Days That Could Affect The SPT.
c. Presence Of Extensive Skin Lesions.
d. Patient Taking Allergen Immunotherapy.
e. Patient Who Refused To Give Written Consent.

Study Design: Observational Cross Sectional Study method - Skin Prick Testing

Credisol Allergen Kit Was Used To Check Hypersentivity

After Injecting Allergen Wheal Diameter Was Noted After 15 Mins. A diameter of 3mm or more Wheal Diameter Was Considered Positive Response.Positive Test For Specific Allergen Will Help In Starting Immunotherepy Against That Specific Allergen.

Statistical Analysis: Statistical Analysis Was Done By Using Chisquare Test, Sample T Test. SPSS For Window Was Used For Logistic Regression.

RESULTS

The Most Prevalent Age Groups Were 28-37 Years Followed By 38-47 Years.The Mean Age Group Was 34.3 In The Study.Gender Distribution Was 55% Females And 45% Males. 70% Of Patients Were From Rural Area. 85% Of Total Study Patients Had Positive Skin Prick Test For Dust Mite.

Table 1 Mite Sensitization Patterns Observed In Bronchial Asthma

Gender	Positive response	Negative response	Total	% of mite sensatisation
Female	49	6	55	89%
Male	36	9	45	80%
Total	85	15	100	

85% Patients Showed Positive Response To Any One Mite Tested.

TABLE 2 Sensitivity Seen To D. Farinare And D. Pteronyssinus

SPT result	D. Farinare And D. Pteronyssinus sensitization	%
Positive	14	14%
Negative	86	86%

D.Farinare And D.Pteronyssinus Sensitivity Was Present in 14% Of Patients.

TABLE 3- Sensitivity Seen To D. Farinare And B. Tropicalis

SPT Result	Sensitivity Seen To D. Farinare And B. Tropicalis	%
Positive	4	4%
Negative	96	96%

D.Farinare and B.Tropicalis Sensitivity was present In 4% Of Study Population.

TABLE 4 - Sensitivity Seen To D.Pteronyssinus and B.Tropicalis

SPT Result	Sensitivity Seen To D. Farinare And B. Tropicalis	%
Positive	9	9%
Negative	81	81%

D. Farinare And B. Tropicalis Sensitivity Was Present In 4% Of Study Population

TABLE 4 Sensitivity seen to all three mites.

SPT Result	Sensitivity to all three mites	%
Positive	47	47%
Negative	63	63%

47% Of Study Population Had Sensitivity To All 3 mites.

Table 5-Allergic conjunctivitis in mite sensitized bronchial asthma cases.

Allergic Rhinitis	Mite Sensitized Bronchial Asthma	Mite Non Sensitized Bronchial Asthma
Present	37/85	6/15
Absent	48/85	9/15

In Our Study Out Of Total 85 Mite Sensitized Brochial Asthma Patients 37 Patients Had Allergic Rhinitis And 6 Patients Of Non Mite Sensitized Bronchial Asthma Patients Have Allergic Rhinitis.

Table 5-Allergic Conjuctivitis In Mite Sensitized Bronchial Asthma Cases.

Allergic Conjuctivitis	Mite Sensitized Bronchial Asthma	Mite Non Sensitized Bronchial Asthma
Present	26/85	7/15
Absent	59/85	8/15

In Our Study Out Of Total 85 Mite Sensitized Brochial Asthma Patients 26 Patients Had Allergic Rhinitis And 7 Patients Of Non Mite Sensitized Bronchial Asthma Patients Have Allergic Rhinitis.

DISCUSSION:

The study population included 100 participants comprised of 34 males and 46 females in a ratio of 44 % and 56%. the age group included for study was patients above 12 year and les s than 80 years the mean age group in the study was 34.3 yRsAnd the most common age range was 28-37 years in our study which was similar to li m fl et al9 study with 66.6% females and the mean age was 34 years (range 18-59 year).a population study among adults in european union countries reported that female have a higher incidence of asthma in adulthood,in our study also females showed more prevalence to mite sensitivity more than male bronchial asthma patients1

Skin prick Test Was Observed I N 96 Pati Ents Out Of 100 Enrolled Patients In The Stud Y. Study Conducted In 4 Region Of China By Li J Et Al[11] In 6304 Patients It Was Observed That SPT Response For Any One Allergen Was Seen In 72.1% Patients In Our Study 100 Diagnosed Cases Of Bronchial Asthma Was Studied And The Skin Prick Test Sensitization To Mites Performed On The Study Group Had The Following Pattern Positive Skin Prick Test For Dust Mite Was Observed In 85 Patients Which Is 85 % Of The Total Patients Included In The Study. In Our Study Most Common Mite Was D. Pteronyssinus 70% Followed By D. Farina And B. Tropicalis 66% And 61% Respectively. Results From A Study By Misirlioğlu ED[12] Et Al In Ankara , Turkey Revealed 63.3% Patients Had Allergy To House Dust Mites In A Population Of 3025 Patients In Which 1902 Had Undergone SPT A Study Conducted By Ediger D Et Al[13] In A Group Of Bronchial Asthma And Allergic Rhinitis Patients Showed That Dermatophagoides Farinae (50%) And D. Pteronyssinus (44%) As The Most Common Aeroallergen. In Our Study D. Farinare And D. Pteronyssinus Sensitivity Was Present In 14% Of Patients. D. Farinare And B. Tropicalis Sensitivity Was Present In 4% Of Study Population. D. Pteronyssinus And B. Tropicalis Sensitivity Was Present In 9% Of Study Population. 47% Of Study Population Had Sensitivity To All 3 Mites In Malaysia[9], A Study For Aeroallergens In Office Workers Recorded Sensitisation To House Dust Mites D.Pteronyssinus 50.3% , D. Farinae 49 %, Which Was Similar To The Study Conducted In Our Setting Where D.Pteronyssinus Was The Most Prevalent Allergen In House Dust Mite. Majority Of Participants In The Malaysian Study 90% Were Sensitised To Atleast One Allergen And Was Observed To Have Reacted To House Dust Mites (66%), Blomia Tropicalis (62%) . In Our Study Also 97.5 % Of The Individuals Were Tested Positive For Any One Aeroallergen. The Mean Age Group In The Study Was 34.3 Years And Mite Allergy Was Preavalent In The Age Range 28 - 37 Years With Mite Sensitivity In 27 Patients. Median Age In A Study Trivedi Et Al [14] Involving 1671 Patients Was 40 Years And 93.6 % Were Aged Above 15 Years Which Was Supporting The Results Of Our Study But The Mean Age Was 34.3. Symptoms Commonly Observed In The Study Were Dry- Cough 82.5%, Chest - Tightness 60 %, Wheezing 46.25%, Breathlessness 41.25 % And Some Has Symptoms Of Rhinitis 46.25% And Watering Of Eyes 33.75%. Similarly HDM Allergy Studied In Bronchial Asthma Patients By Lim FL Et Al[9] Indicated That Mite Sensitised Individuals Reported Wheeze, At Least One Airway Symptoms, Doctor-Diagnosed Asthma, Current Asthma, Rhinitis And Rhinoconjuctivitis, These Symptoms Are Similar To That Observed In Our Population. In Our Study Population 43.5% Cases Had Symptoms Of Allergic Rhinitis Along With Bronchial Asthma With A Mite Sensitisation, Chen M Et Al[15] Conducted A Chinese Epidemiological Study, The Inference Was 54.93 %Patients With Bronchial Asthma Also Had Allergic Rhinitis Which Is Supporting Our Study. In Our Study 30% Patients Tested Positive For Mites Was Having Bronchial Asthma With Allergic Conjunctivitis . A Study Conducted In Northern Greece By Almaliotis D Et Al[16] Evaluated Allergic Patients With Bronchial Asthma And Allergic Conjucitvitis, They Had SPT Positive For Mites 124/370 (43.6%), We Also Got A Similar Result In Our Study.

CONCLUSION:

Dust Mite Is One Of The Most Prevalent Aero Allergen And Identified As An Emerging Worldwide Problem.By Skin Prick Testing We Would Be Able To Observe The Pattern For Aeroallergens In Cases And Probing Into The Panel Of Positive Allergens Makes Us Formulate Necessary Preventive Measures Which Can Be Initiated To Avoid The Allergen. Based On Our Interpretation Here By Plan Further Treatment. Skin Prick Test Is Also Aids As Guiding Tool For Immunotherapy And Also To See The Prognosis Of Treatment. In GINA Guidelines 2021 Allergy Immunotherapy (AIT) Is A

Non-Pharmacological Measure For Controlling Symptoms And Risk Reduction In Future.

REFERENCES

1. Network GA. Global Asthma Report 2014.New Zealand 2015
2. Beasley R. The Global Burden Of Asthma Report,Global Initiative For Asthma
3. Masoli M, Fabian D, Holt S, Beasley ,Global Initiative For Asthama Program.Global Burden Of Asthma: Executive Summary Of GINA Dissemination Committee Report.Allergy 2004 May 59(5):469-78
4. Heinzereling L,Mari A,Bergmann Kc Bresciani M, Burbach G, Darshow U, Durham S, Fokkens W, Gjomarkaj M,Haahtela T, Bom AT.THESIN PRICK TEST EUROPEAN STANDARD. CLINICAL AND TRANSLATIONAL ALLERGY 2013 DEC (1):1-0
5. Kumar R,Kumar M, Bist,Singh K,Prevalance Of Aeroallergen In Patients Of Bronchial Asthma And Allergic Rhinitis In India Based On Skin Prick Test Reactivity,Indian Journal Of Allergey,Asthma And Immunology 2017 Jul 1;31(2):45
6. Yu JM, Luo QH, Sun JL, Shi CL, Yin J, Zhou YL, Tang R, Zhang H, Yu Z, Chen M. Diversity Of House Dust Mite Species In Xishuangbanna Dai, A Tropical Rainforest Region In Southwest China. Biomed Research International. 2015 May 4;2015.
7. Meher BK, Pradhan DD, Mahar J, Sahu SK. Prevalence Of Allergic Sensitization In Childhood Asthma. Cureus. 2021 May;13(5)
8. GAFFIN JM,PHIPATANAKUL W.THE ROLE OF INDOOR ALLERGEN IN THE DEVELPOMENT OF ASTHMA. CURRENT OPINION IN ALLERGY AND CLINICAL IMMUNOLOGY.2009 APR;9(2):128
9. Lim FL, Hashim Z, Than LT, Md Said S, Hisham Hashim J, Norbäck D. Asthma, Airway Symptoms And Rhinitis In Office Workers In Malaysia: Associations With House Dust Mite (HDM) Allergy, Cat Allergy And Levels Of House Dust Mite Allergens In Office Dust. Plos One. 2015 Apr 29;10(4):E0124905.
10. De Nijs SB, Venekamp LN, Bel EH. Adult-Onset Asthma: Is It Really Different?. European Respiratory Review. 2013 Mar 1;22(127):44-52.
11. Li J, Sun B, Huang Y, Lin X, Zhao D, Tan G, Wu J, Zhao H, Cao L. Se Zhong N, China Alliance Of Research On Respiratory Allergic Disease (CARRAD). A Multicentre Study Assessing The Prevalence Of Sensitizationsn Patients With Asthma And/Or Rhinitis In China. Allergy Jul;64(7):1083-92.
12. Misirlioglu ED. Cengizlier MR. Skin Prick Test Results Of Child Patients 007 Diagnosed As Bronchial Asthma. Allergologia Et Immunopathologia. 20 Jan 1;35(1):21-4.
13. Kalpaklioglu AF. Kalkan IK. Akcay A. Reisli I. Can D. Uzuner N. H, Kirmaz C, Gulen F, Ediger D.Awareness Of Allergy .World Allergy Organization Journal. 2011 Dec;4(11):170-8.
14. Trivedi M, Denton E. Asthma In Children And Adults—What Are Differences And What Can They Tell Us About Asthma?. Frontiers In Pediatrics. 2019 Jun 25;7:256.
15. Chen M. Wu Y, Yuan S, Chen J, Li L, Wu J, Zhang J, Yin Y. Research On Allergic Rhinitis Improvement In Asthmatic Children After Dust Mite Exposure Reduction: A Randomized, Double-Blind, Cross-Placebo Study Protocol. Trials. 2020 Dec;21(1):1-0
16. Almaliotis D, Michailopoulos P. Gioulekas D, Giouleka P, Papakosta D. Siempis T, Karampatakis V. Allergic Conjunctivitis And The Most Common Allergens In Northern Greece. World Allergy Organization Journal, 2013 Dec;6(1):1-5.