



CODEN [USA]: IAJPBB

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF  
**PHARMACEUTICAL SCIENCES**

<http://doi.org/10.5281/zenodo.1069483>Available online at: <http://www.iajps.com>

Research Article

**COMPARATIVE ANALYSIS OF ASTHMA  
SEVERITY & CONTROL AMONG PATIENTS PRESENTING  
WITH & WITHOUT CO-MORBID RHINITIS**

Rashid Ahmed Khan<sup>1\*</sup>, Muhammad Iqbal<sup>2</sup>, Nadeem Memon<sup>3</sup>,  
Hamid Nawaz Ali Memon<sup>4</sup>, Syed Jahangir<sup>5</sup>, Maryam Iqbal<sup>6</sup>,  
Muhammad Muneeb<sup>7</sup> and Aatir H. Rajput<sup>8</sup>

<sup>1</sup>Department of Pulmonology, Liaquat University of Medical & Health Sciences, Jamshoro

<sup>2</sup>Department of Medicine, Liaquat University of Medical & Health Sciences, Jamshoro

<sup>3</sup>Department of Medicine, Muhammad Medical College, Mirpurkhas

<sup>4</sup>Zulekha Hospital Dubai, United Arab Emirates

**Abstract:**

**Objective:** This study hopes to compare the severity and control of asthma among patients presenting with and without co-morbid rhinitis.

**Methodology:** This retrospective, comparative analysis was conducted upon a total of 377 asthmatic patients, presenting at the medical out-patient department with and without co-morbid rhinitis. The data was collected using a structured interview based questionnaire (after taking written informed consent) which included in-depth inquiries regarding the asthma severity and control for the past 4 week. The data obtained was analyzed using SPSS v. 21. 0.

**Results:** Among the 377 subjects, 200 were males while 177 were females. Mean age of the subjects was 36 years. 172 asthmatic patients in the sample suffered from the co-morbid rhinitis, while the remaining did not have the said comorbidity. Asthmatic patients with co-morbid rhinitis experienced more frequent asthmatic attacks. The incidence of visits to the emergency room and frequency of hospital admissions too was high among asthmatic patients with co-morbid rhinitis.

**Conclusion:** The results reveal that, all attempts to draw a comparison of asthma severity and control among patients with and without comorbid rhinitis yield clear and unidirectional results, leading to a transparent conclusion i.e. the asthma severity and control is considerably poorer in asthmatics with co-morbid rhinitis.

**Keywords:** Asthma, Severity, Control, Rhinitis and Co-morbidity.

**Corresponding author:****Dr. Rashid Ahmed Khan,**

Assistant Professor,

Liaquat University,

Jamshoro

Email: [muhammadiqbalshah22@gmail.com](mailto:muhammadiqbalshah22@gmail.com)

Phone: +92-300-3034963

QR code



Please cite this article in press as Rashid Ahmed Khan et al., *Comparative Analysis of Asthma Severity & Control among Patients Presenting With & Without Co-Morbid Rhinitis*, Indo Am. J. P. Sci, 2017; 4[11].

**INTRODUCTION:**

Rhinitis is a high-prevalence disease around the world, affecting nearly ten to forty percent of the adults everywhere. [1–3]. Prevalence of rhinitis is on the rise and the rise has been accelerating for many years now, especially in the western world. Evidence based research conducted in the western agree with the aforementioned statement in nearly all countries and all age groups, differing only in the extent of acceleration. Up to 15% for children aged six to seven years, up to 40% for children aged thirteen to fourteen years and up to 41% for adults aged twenty to forty four years [1, 2].

Evidence based analysis, aiming to reach a conclusive prevalence of rhinitis among patients with asthma, featuring in reputed search engines and scientific indices from 1983 to 2004, the prevalence ranged from twenty four to ninety four percent, with the lifetime prevalence ranging from fifty to hundred percent among adults with asthmatic subjects in the western world [8]. The relation is also bi-directional, and symptoms of asthma are found in patients suffering from rhinitis [9].

The aforementioned also suggests that the two ailments are linked in a way that the symptoms of asthma, affect rhinitis and the symptoms of rhinitis aggravate the severity of asthma and impairs asthma control [10–13]. Furthermore, as logic may predict, attempts at treating rhinitis yield positive effects on asthma as well, in terms of severity and control measured by the number of asthma attacks, number of visits to the emergency room and frequency of hospital admissions [11, 14-16].

Fresher literature in the evidence pool also showed recently that patients of asthma that did not suffer A scientific meta-

from co-morbid rhinitis held a probability of up to five times better control of asthma compared to patients with co-morbid rhinitis [10]. Likewise, surveys in outpatient departments, similar to ours hint that long term rhinitis is the strongest correlate of visits to the emergency room and hospital admissions brought about by exacerbation of asthma and increased frequency of asthmatic episodes. The purpose of this retrospective comparative analysis was to compare the severity and control of asthma among patients presenting with and without co-morbid rhinitis.

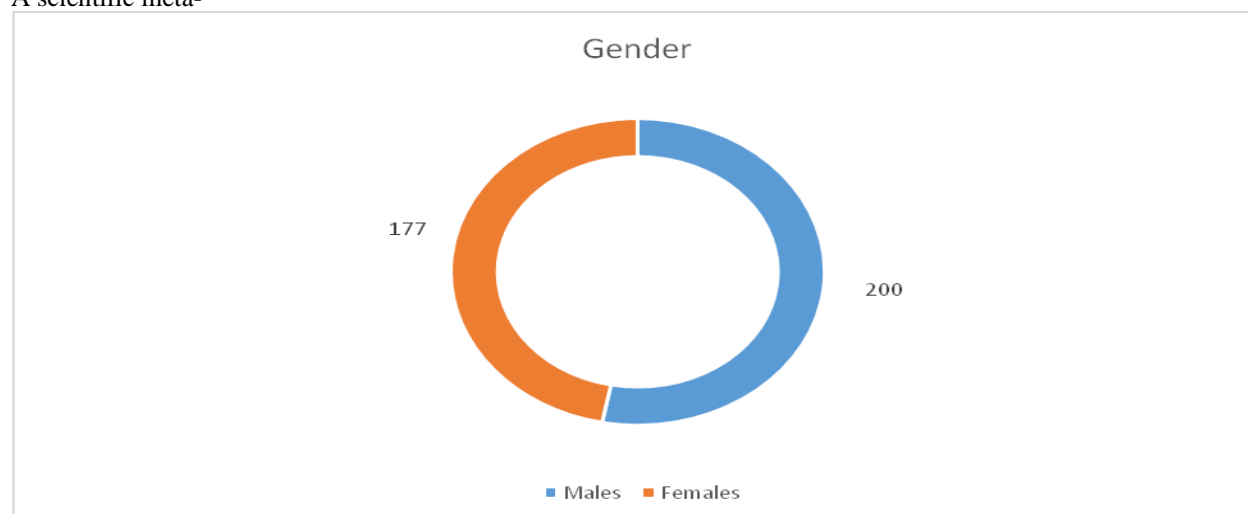
**METHODOLOGY:**

This retrospective, comparative analysis was conducted upon a total of 377 asthmatic patients, presenting at the medical out-patient department with and without co-morbid rhinitis. The data was collected using a structured interview based questionnaire (after taking written informed consent) which included in-depth inquiries regarding the asthma severity and control for the past 4 week. The data obtained was analyzed using SPSS v. 21. 0.

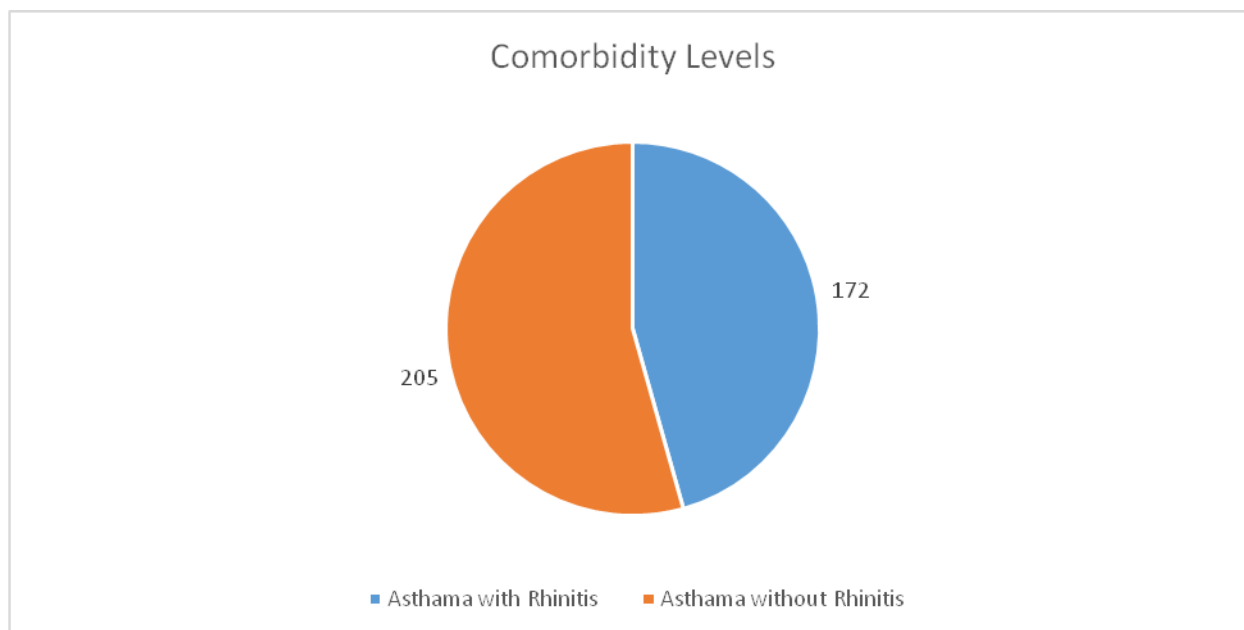
**RESULTS:**

Among the 377 subjects, 200 were males while 177 were females.

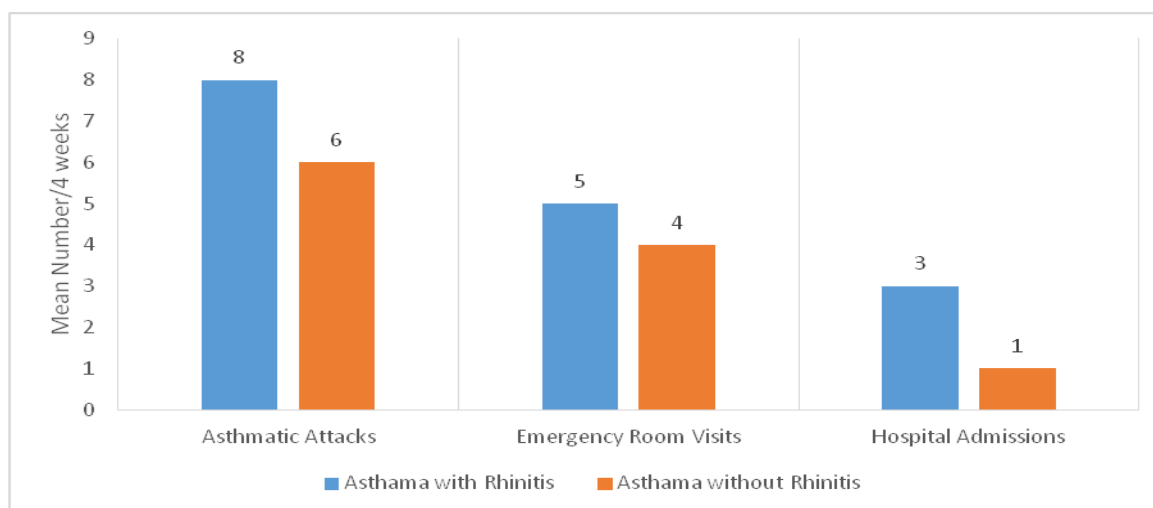
literature lists discoveries of unchallengeable statistics regarding the epidemiology and pathophysiology that rhinitis and asthma are strongly associated [4–6]. The prevalence of the comorbidity i.e. rhinitis among asthmatic patients is very high, reaching up to a hundred percent among patients with allergic asthma[5, 7].



Mean age of the subjects was 36 years. 172 asthmatic patients in the sample suffered from the co-morbid rhinitis, while the remaining did not have the said comorbidity.



Asthmatic patients with co-morbid rhinitis experienced more frequent asthmatic attacks. The incidence of visits to the emergency room and frequency of hospital admissions too was high among asthmatic patients with co-morbid rhinitis.



### DISCUSSION:

This retrospective comparative study mirrors closely, the real life statistics owing to the efficient methodology. This was, to our knowledge, the first comparative study done in this regard in patients of asthma. Our study was carried out upon a rich sample of patients at a study setting that plays host to patients from a diverse sociodemographic background.

Research literature has continuously been updated with fresh studies that provided statistics of the epidemiology and pathophysiology and indicated that

the two ailments, i.e. asthma and rhinitis frequently exist together [16-22]. Evidence pertaining to epidemiology demonstrates that an approximate twenty to sixty percent of patients suffering from rhinitis mirror clinical asthma, and more than eighty percent of allergic asthmatic patients shadow symptoms of rhinitis [17-19]. According to evidence, an approximate 1/3<sup>rd</sup> of all patients with rhinitis have persistent symptoms of asthma [23, 24]. Deeper, more extensive research exploring the matter in anatomical and physiological perspectives, have given rise to decisive evidence pertaining to the bronchi and nose [21-24]. In addition to that, a

similarity is also present among the triggering agents that aggravate asthma. Furthermore, the resultant inflammatory responses as a result of the said triggers are also the same [22-26].

Hence the fact that attempts at treating rhinitis yield positive effects on asthma as well, in terms of severity and control measured by the number of asthma attacks, number of visits to the emergency room and frequency of hospital admissions [11, 14-16].

### CONCLUSION:

The results reveal that, all attempts to draw a comparison of severity and control of asthma among patients with and without comorbid rhinitis yield clear and unidirectional results, leading to a transparent conclusion i.e. the severity and control of asthma is considerably poorer in asthmatics with comorbid rhinitis.

### REFERENCES:

1. Burney P, Chinn S, Jarvis D, Luczynska C, Lai E, on behalf of the European Community Respiratory Health Survey. Variations in the prevalence of respiratory symptoms, self-reported asthma attacks, and use of asthma medication in the European Community Respiratory Health Survey (ECRHS). *Eur Respir J* 1996;9:687–695.
2. International Rhinitis Management Working Group. International consensus report on diagnosis and management of rhinitis. *Allergy* 1994;49:1–34.
3. Bachert C, van Cauwenberge P, Olbrecht J, van Schoor J. Prevalence, classification and perception of allergic and nonallergic rhinitis in Belgium. *Allergy* 2006;61:693–698.
4. Leynaert B, Neukirch F, Demoly P, Bousquet J. Epidemiologic evidence for asthma and rhinitis comorbidity. *J Allergy Clin Immunol* 2000; 106:S201–S205.
5. Leynaert B, Neukirch C, Kony S, Guenegou A, Bousquet J, Aubier M et al. Association between asthma and rhinitis according to atopic sensitization in a population-based study. *J Allergy Clin Immunol* 2004;113:86–93.
6. Peters S. The impact of comorbid atopic disease on asthma: clinical expression and treatment. *J Asthma* 2007;44:149–161.
7. Linneberg A, Nielsen HN, Frolund L, Madsen F, Dirksen A, Jorgensen T. The link between allergic rhinitis and allergic asthma: a prospective population-based study. The Copenhagen Allergy Study. *Allergy* 2002;57:1048–1052.
8. Gaugris S, Sazonov-Kocevar V, Thomas M. Burden of concomitant allergic rhinitis in adults with asthma. *J Asthma* 2006;43:1–7.
9. Demoly P, Bozonnet MC, Dacosta P, Daures JP. The diagnosis of asthma using a self-questionnaire in those suffering from allergic rhinitis: a pharmacoepidemiological survey in everyday practice in France. *Allergy* 2006;6:699–704.
10. Djukanovic R, Lai C, Wilson J, et al. Bronchial mucosa manifestation of atopy: a comparison of markers of inflammation between atopic asthmatics, atopic nonasthmatics and healthy controls. *Eur Respir J* 1992;5:538-44.
11. Halpern MT, Schmier JK, Richner R, et al. Allergic rhinitis: a potential cause of increased asthma medication use, costs and morbidity. *J Asthma* 2004;41:117-26.
12. Price DB, Zhang Q, Sazonov Kocevar V, et al. Effect of a concomitant diagnosis of allergic rhinitis on asthma-related health care use by adults. *Clin Exp Allergy* 2005;35:282-7.
13. Bousquet J, Gaugris S, Sazonov Kocevar V, et al. Increased risk of asthma attacks and emergency visits among asthma patients with allergic rhinitis: a subgroup analysis of the improving asthma control trial. *Clin Exp Allergy* 2005;35:723-7.
14. Corren J, Adinoff AD, Buchmeier AS, et al. Nasal beclomethasone prevents the seasonal increase in bronchial responsiveness in patients with allergic rhinitis and asthma. *J Allergy Clin Immunol* 1992;90:250-6.
15. Wood RA, Eggleston PA. The effects of intranasal steroids on nasal and pulmonary responses to cat exposure. *Am J Respir Crit Care Med* 1995;151:315-20.
16. Crystal-Peters J, Neslusan C, Crown WH, et al. Treating allergic rhinitis in patients with comorbid asthma: the risk of asthma-related hospitalizations and emergency department visits. *J Allergy Clin Immunol* 2002;109:57-62.
17. Magnan A, Meunier JP, Sagnac C, Gasteau J, Neukirch F. Frequency and impact of AR in asthma patients in everyday general medical practice: a French observational cross-sectional study. *Allergy* 2008;63:292-8.
18. Bousquet J, Vignola AM, Demoly P. Links between rhinitis and asthma. *Allergy* 2003; 58:691-706.  
<http://dx.doi.org/10.1034/j.1398-9995.2003.00105.x>.
19. Leynaert B, Neukirch C, Kony S, et al. Association between asthma and rhinitis according to atopic sensitization in a population-based study. *J Allergy Clin Immunol* 2004;113:86-93.  
<http://dx.doi.org/10.1016/j.jaci.2003.10.010>.
20. Linneberg A, Henrik Nielsen N, Frolund L, Madsen F, Dirksen A, Jorgensen T. The link between AR and allergic asthma: a prospective population-based study. The Copenhagen Allergy Study. *Allergy*

2002;57:1048-52.

21. Bauchau V, Durham SR. Epidemiological characterization of the intermittent and persistent types of AR. *Allergy* 2005;60:350-3. <http://dx.doi.org/10.1111/j.1398-9995.2005.00751.x>

22. Slavin RG. The upper and lower airways: the epidemiological and pathophysiological connection. *Allergy asthma proc* 2008;29:553-6. <http://dx.doi.org/10.2500/aap.2008.29.3169>.

23. Simons FER. Allergic rhinobronchitis: the asthma-AR link. *J Allergy Clin Immunol* 1999;104:534-40. [http://dx.doi.org/10.1016/S0091-6749\(99\)70320-9](http://dx.doi.org/10.1016/S0091-6749(99)70320-9)

24. Braunstahl GJ. The unified immune system: Respiratory tract nasobronchial interaction mechanisms in allergic airway disease. *J Allergy Clin Immunol* 2005; 115:142-8. <http://dx.doi.org/10.1016/j.jaci.2004.10.041>.

25. Rowe-Jones JM. The link between the nose and the lung, perennial rhinitis and asthma -is it the same disease? *Allergy* 1997;52(suppl 36):20-8. <http://dx.doi.org/10.1111/j.1398-9995.1997.tb04818.x>

26. Durham SR. Mechanisms of mucosal inflammation in the nose and lungs. *Clin Exp Allergy* 1998;28(Suppl 2):11-16.