Razi Med J. 2026;2(1):63-66
https://doi.org/10.69667/rmj.26109
Razi Medical Journal
https://razi.edu.ly/rmj/index.php/hm

Short communication

Prevalence of Bronchial Asthma among Patients with Allergic Rhinitis in Misurata, Libya: A Cross-Sectional Study

Ahmed Eshtaiwi[1], Khaled Elheshani[2]*

[1]*Department of Surgery, Misurata University, Faculty of Medicine, Misurata, Libya*
[2]*Department of Otolaryngology, Misurata Medical Center, Misurata, Libya*
Corresponding email. *elheshani@gmail.com*

Abstract
Allergic rhinitis is a known risk factor for asthma. Patients with allergic rhinitis are more likely to develop asthma. Epidemiological data indicate a global increase in cases of allergic rhinitis accompanied by asthma. This study aims to determine the prevalence of bronchial asthma among patients diagnosed with allergic rhinitis attending the outpatient clinic over three months from August to October 2025. The present study was conducted on patients who attended the ENT outpatient department at Misurata Medical Center (MMC) and Misurata Golden Policlinic who were diagnosed with allergic rhinitis. All patients were asked whether they had been previously diagnosed with bronchial asthma or not. Out of 120 patients with allergic rhinitis, 43 patients were found to have bronchial asthma, giving a prevalence rate of 35.8%. It was observed that patients with allergic rhinitis were likely to have bronchial asthma, and patients with allergic rhinitis should be evaluated for bronchial asthma, for early detection and treatment of the comorbidity.
Keywords: *Allergic rhinitis, bronchial asthma, prevalence, comorbidity, Misurata, Libya*

Received*: 27/11/25*
Accepted*: 25/01/25*
Published*: 30/01/26*

Introduction

Allergic rhinitis is a common, debilitating disorder that affects both children and adults. It is an immunoglobulin E (IgE)–mediated response to allergens like dust mites, pet dander, cockroaches, molds, and pollens. Symptoms consist of sneezing, nasal congestion, rhinorrhea, cough, itching, sinus pressure, headache, and epistaxis. Although allergic rhinitis is not life-threatening, it can seriously reduce daily functioning and quality of life. It may be a factor in children's behavioral problems, poor school performance, and sleep disturbances [1]. In adults, allergic rhinitis has been shown to reduce workplace productivity by up to 10%; however, this effect may be lessened to about 3% with appropriate management [2]. According to the "one airway hypothesis," asthma and allergic rhinitis frequently co-occur because upper and lower airway inflammation are related [3].

Allergic rhinitis is common in asthma patients, especially those who have allergic asthma. It has been demonstrated that allergic rhinitis significantly affects asthma morbidity in adults and that treating allergic rhinitis improves asthma control [4]. Allergic rhinitis may occur prior to asthma [5], and it has been proposed as a risk factor for bronchial asthma [6]. Uncontrolled allergic rhinitis in individuals with asthma has been associated with nearly a twofold increase in emergency department visits and almost a threefold rise in hospitalization rates [7]. Given this strong interrelationship, assessing the prevalence of bronchial asthma among patients with allergic rhinitis is of considerable clinical importance.

Methods

This cross-sectional study was conducted at the ENT outpatient departments of Misurata Medical Center and Misurata Golden Policlinic over three months (August–October 2025). Patients presenting with symptoms suggestive of allergic rhinitis were clinically examined, and the diagnosis was confirmed based on history, physical examination, and investigations as needed.

Asthma diagnosis was based on the patient's self-report. Participants were directly asked whether they had previously been diagnosed with bronchial asthma by a healthcare provider. Those who reported having asthma confirmed that their managing physician had made the diagnosis and that they were receiving medical treatment for the condition. Ethical approval for this study was obtained from the Ethics Committee at Misrata Medical Center. All participants were informed about the purpose of the study and their rights, and verbal consent was obtained before participation.

Razi Med J. 2026;2(1):63-66
https://doi.org/10.69667/rmj.26109
Razi Medical Journal
https://razi.edu.ly/rmj/index.php/hm

Confidentiality and privacy of all participants were strictly maintained, and all data were handled in accordance with ethical research standards.

Descriptive statistics were used to summarize demographic characteristics and clinical findings, with results expressed as numbers and percentages.

Results

A total of 120 patients were enrolled in the study. Of these, 42 (35%) were males, and 78 (65%) were females, indicating a higher predominance of females in the study population (Figure 1).

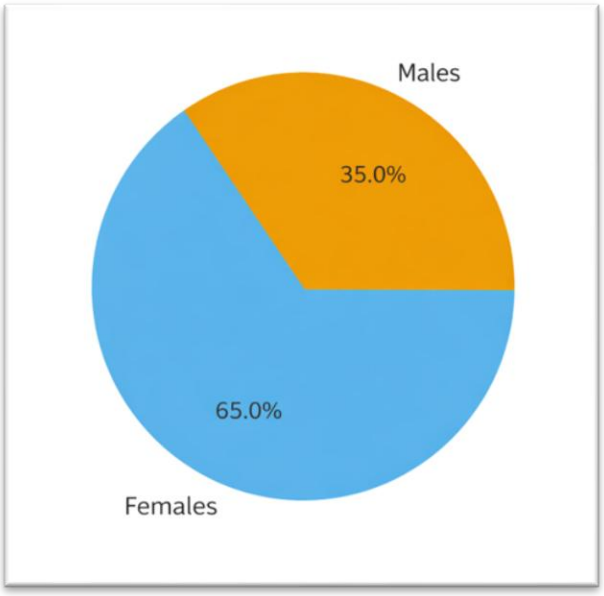

Figure 1. Gender Distribution

The participants in the study ranged in age from 5 to 73 years. The age-group distribution was as follows: 31 patients (%25.8) were between 5 and 14 years old, 45 patients (37.5%) were between 15 and 35 years old, 37 patients (%30.8) were between 36 and 60 years old, and 7 patients (5.8%) were between 61 and 80 years old. This distribution reflects a predominance of younger and middle-aged participants, with fewer individuals represented in the oldest age group. This shows that the majority of the patients were within the 15–35-year age group (Figure 2).

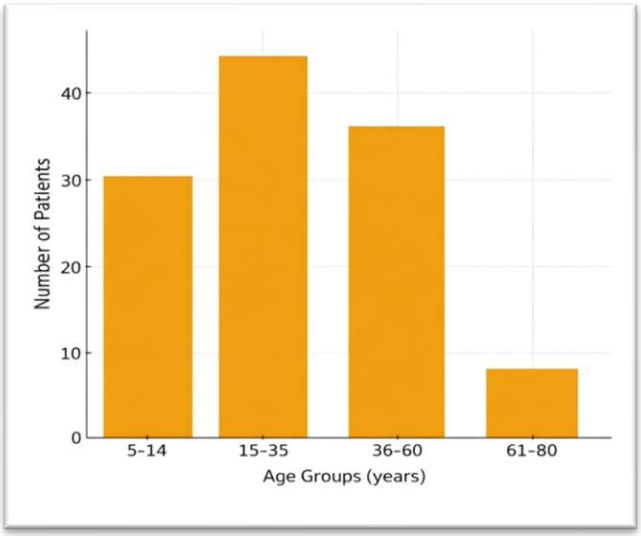

Figure 2. Age distribution of patients

Razi Med J. 2026;2(1):63-66
https://doi.org/10.69667/rmj.26109
Razi Medical Journal
https://razi.edu.ly/rmj/index.php/hm

Out of the total study sample, 43 patients diagnosed with allergic rhinitis were found to have coexisting bronchial asthma, representing 35.8% of all allergic rhinitis cases. Among these patients, 27 (62.7%) were females, while 16 (37.2%) were males, reflecting a higher prevalence of asthma comorbidity among females (Figure 3).

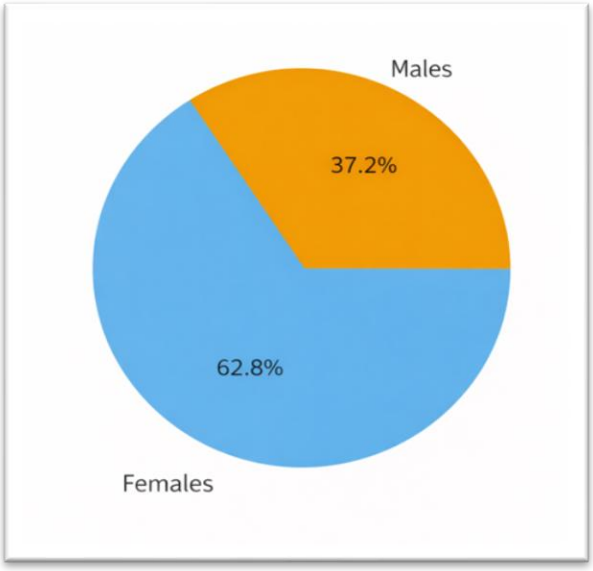

Figure 3. Asthma prevalence in allergic rhinitis patients

Discussion

Allergic rhinitis (AR) is one of the most common chronic disorders, with reported prevalences ranging from 3% to 19% in various countries [8]. Allergic rhinitis is a heterogeneous disorder that includes seasonal AR (SAR) symptoms ('hay fever') and the more difficult diagnostic category, perennial AR (PAR). One study [8] suggested that SAR is found in approximately 10% of the general population, and PAR in 10% to 20%. Other studies estimate even higher figures; for example, Meltzer [9] suggested that AR affects 25% of the general population and 40% of children. It is estimated that asthma affects 4% to 11% of the general population [10].

Allergic rhinitis is often associated with asthma. Up to 78% of asthma patients have allergic rhinitis, and 38% of patients with allergic rhinitis have asthma. Rhinitis patients without asthma often manifest bronchial hyperresponsiveness. The aggravation of allergic rhinitis coincides with exacerbation of asthma; accordingly, treatment of nasal inflammation can reduce bronchospasm, asthma-related emergency department visits, and hospitalizations [11]. Most studies on the association between rhinitis and asthma evaluate the prevalence of asthma in patients with allergic rhinitis, while few assess the prevalence of rhinitis in patients with asthma. The prevalence of allergic rhinitis among asthma patients varies widely in published studies, ranging from 80% to 95% in the most recent. The Estudio Ibérico, 49% of patients with allergic rhinitis had concomitant asthma (56% intermittent, 44% persistent, 33% mild, 10% moderate, and 1% severe). In the 2005 Alergological study, 37% of patients with allergic rhinitis had concomitant asthma and 65% conjunctivitis [12].

In comparison with the above studies, our results were similar, although the condition appeared slightly less common in our research. We found that the incidence of bronchial asthma among Libyan cases with allergic rhinitis was 35.8%. Therefore, bronchial asthma is a frequent comorbidity in patients with allergic rhinitis and should be routinely considered and managed whenever present, as its treatment contributes to improved asthma control.

Conclusion

The prevalence of bronchial asthma in Libyan individuals with allergic rhinitis was 35.8%. This relatively high rate underscores the importance of routinely assessing for asthma in patients with allergic rhinitis and providing appropriate management to optimize asthma control.

Conflict of interest. Nil

Razi Med J. 2026;2(1):63-66
https://doi.org/10.69667/rmj.26109
Razi Medical Journal
https://razi.edu.ly/rmj/index.php/hm

References

1. Hossny E, Adachi Y, Anastasiou E, et al. Pediatric asthma comorbidities: Global impact and unmet needs. World Allergy Organ J. 2024 May. 17 (5):100909.
2. Meltzer EO. Productivity costs of antihistamines in the workplace. Occup Health Saf. 1996 Aug. 65(8):46-50.
3. Stern J, Chen M, Fagnano M, Halterman JS. Allergic rhinitis co-morbidity on asthma outcomes in city school children. J Asthma. 2023 Feb. 60 (2):255-261.
4. Alsamarai AM, Alwan AM, et al. The relationship between asthma and allergic rhinitis in the Iraqi population. Allergol Int. 2009;58:549–555. doi: 10.2332/allergolint.09-OA0093.
5. Settipane RJ, Hagy GW, Settipane GA. Long-term risk factors for developing asthma and allergic rhinitis: a 23-year follow-up study of college students. Allergy Asthma Proc. 1994 Jan-Feb;15:(1):21-5.
6. Bousquet J, Gaugris S, Kocevar VS, Zhang Q Yin DD, Polos PG et al. Increased risk of asthma attacks and emergency visits among asthma patients with allergic rhinitis: a subgroup analysis of the investigation of montelukast as a partner agent for complementary therapy. Clin Exp Allergy. 2005 Jun;35(6):723-7.
7. Crystal-Peters J, Neslusan C, Crown WH, Torres A. Treating allergic rhinitis in patients with comorbid asthma: the risk of asthma-related hospitalizations and emergency department visits. J Allergy Clin Immunol. 2002 Jan. 109(1):57-62.
8. Skoner DP. Allergic rhinitis: Definition, epidemiology, pathophysiology, detection, and diagnosis. J Allergy Clin Immunol. 2001 Jul;108(1 Suppl):S2–S8.
9. Meltzer EO. Role for cysteinyl leukotriene receptor antagonist therapy in asthma and their potential role in allergic rhinitis based on the concept of “one linked airway disease”. Ann Allergy Asthma Immunol. 2000 Feb;84(2): 176–85.
10. Philip G, Nayak AS, Berger WE, Leynadier F, Vrijens F, Dass SB, et al. The effect of montelukast on rhinitis symptoms in patients with asthma and seasonal allergic rhinitis. Curr Med Res Opin. 2004 Oct;20(10):1549–58.
11. Milgrom H, Leung DYM. Allergic rhinitis, In: Kliegman RM, Stanton BF, St. Geme JW, Schor NF, Behrman RE, editors. Nelson textbook of pediatrics, 18th ed. Philadelphia: Sauders; 2007. p.942-8
12. Mullol J, Valero A, Alobid I, Bartra J, Navarro AM, Chivato T, et al. Allergic Rhinitis and its Impact on Asthma update (ARIA 2008). The perspective from Spain. J Investig Allergol Clin Immunol. 2008;18(5):327-334.