WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 14, Issue 16, 01-09. Review Article ISSN 2277–7105

ALLERGIC RHINITIS: IMPACT ON QUALITY OF LIFE

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Article Received on
21 June 2025,

Revised on 11 July 2025,
Accepted on 01 July 2025

DOI: 10.20959/wjpr202516-37372

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ABSTRACT

Besides its usual symptoms, one's physical, mental, and overall quality of life (QOL), and social well-being are all severely impacted by allergic rhinitis. Environmental causes and lifestyle changes are contributing to its rising global incidence. Nasal congestion symptoms can make it difficult to sleep, wear you out, and interfere with everyday activities, especially when they coexist with other disorders like asthma. Studies have demonstrated the efficacy of medication and variations in prevalence according to gender. This study aims to thoroughly evaluate how allergic rhinitis impacts quality of life.[1] Pharmacotherapy and avoiding allergens are the best forms of treatment. When appropriate, targeted symptom control with immunotherapy and an assessment for allergic rhinitis should be considered. Patients with allergic rhinitis are treated with decongestants, immunotherapy, anticholinergic drugs, corticosteroids, and antihistamines.[2] The most effective and often used drugs are antihistamines and intranasal corticosteroids. Studies have shown that people with allergic rhinitis who take both of these drugs experience improvements in their quality of life.[3] The disease's overall burden extends beyond functional limitations in the body and society. It also has a financial impact, which increases when we take into account the data suggesting that, in addition to sinusitis and asthma, allergic rhinitis can also induce other illnesses. The most common symptom, nasal blockage, is linked to sleep difficulties. This can significantly affect attention, behavior, learning, and mental health.[4]

KEYWORDS: Allergic Rhinitis, Quality of Life.

INTRODUCTION

The signs of a common chronic inflammatory condition called allergic rhinitis that affects the nasal passages and nasal cavity and is brought on by an IgE-mediated type 1 hypersensitivity

reaction to a particular allergen, are not limited to nasal congestion, sneezing, rhinorrhoea, and itching. Their academic or professional aspirations, social relationships, emotional well-being, and physical health are all greatly impacted by this medical condition, it significantly affects their general quality of life as well.[1] It is commonly referred to as weariness and headaches.[5]

AR has been shown to have a detrimental effect on people's quality of life (QOL), to a degree that is even equivalent to other serious respiratory illnesses.[6]

Both seasonal allergic rhinitis (SAR) and perennial allergic rhinitis (PAR) can be brought on by dust, mold, animal dander, and cockroach droppings.[7]

The signs and symptoms of the AR include:

- Mouth breathing
- snoring
- sneezing
- itching
- Postnasal drip (PND)
- wet eyes
- loss of taste and smell

As AR symptoms can be so uncomfortable, they can negatively impact daily activities, including working, performing well on exams, enjoying life, and maintaining psychological well-being. Moreover, the symptoms of the patients cause decreased productivity when they attend work, an extremely serious problem called "presenteeism." Research on the socioeconomic cost of lost production has revealed that depression and anxiety are among the most common reasons people miss work, especially in the spring.[8]

According to a number of studies, moderate-to-severe forms of AR are associated with a higher risk of exhaustion, obstructive sleep apnea, memory impairment, and sleep disorders (nocturnal awakening and insomnia).[9]

Prevelance

Over 400 million individuals globally suffer from allergic rhinitis, and industrialized countries, particularly nations where people speak English, have high rates of the

condition.[10] Allergy rhinitis affects 10% to 30% of adults and up to 40% of children. Allergy rhinitis is a common health problem that impacts 10–25% of people globally. According to a study done in India, 30 % of people have allergic rhinitis. According to reports, between 10 and 13 percent of people in Delhi, India, have allergic rhinitis. In India, 80% of adults with asthma and 75% of children reported having rhinitis symptoms.[11]

Diagnosis: The foundation for diagnosing allergic rhinitis is a history and physical examination. To confirm that underlying allergens are the source of the rhinitis, allergy testing is also crucial. Nasal congestion, nasal itching, rhinorrhoea, and sneezing are the characteristic symptoms of allergic rhinitis that patients have frequently reported throughout history. Redness, tearing, and stinging of the eyes are common symptoms of allergic conjunctivitis, which is also commonly linked to allergic rhinitis. Allergic conjunctivitis is an inflammation of the membrane that covers the white portion of the eye.

To identify possible causes of allergic rhinitis, an assessment of the patient's home and workplace/school settings is advised. The environmental history should primarily focus on common and potentially relevant allergens, such as pollens, furry animals, textile carpeting and upholstery, smoking, humidity levels at home, and other potentially harmful substances that the individual with the condition might be exposed to at work or home. The patient should also be questioned about any family history of atopic disease, how symptoms affect their quality of life, and whether they coexist with any conditions like asthma, mouth breathing, snoring, sleep apnea, sinus involvement, otitis media (middle ear inflammation), or nasal polyps. It's crucial to record the frequency and length of "colds" since patients may mistake chronic nasal symptoms for a "constant cold".[12]

Diagnostic procedures such as nasal endoscopy and radiographic investigation play a crucial role in evaluating sinus ventilation, detecting any polyp formations that are blocking the osteomata complex, and helping to determine the optimal treatment regimen. Patients with difficult-to-treat allergic diseases may require specific immunoglobulin E (IgE) antibodies, which can be confirmed by skin testing or in vitro radioallergosorbent (RAST) testing to which a person has been sensitized.[13]

Methacholine-induced airway hypersensitivity tests showed a significant increase after allergen exposure, as well as sputum eosinophil and monocyte count that were much higher.

In the sputum of BAC+ patients with and without atopy, significant increases were also found in eosinophils, monocytes, and ECP, but not in BAC-patients' sputum.[14]

Pathophysiology

An inflammatory reaction in the nasal lining is brought on by exposure to allergens such as dust mites, animal dander, and pollens in cases of allergic rhinitis. The area is invaded by mast cells, T cells, B cells, macrophages, and eosinophils. Cytokines released by T helper 2 (Th2) cells encourage plasma cells to produce IgE. When IgE attaches itself to mast cells, histamine and leukotrienes are released, which results in symptoms including mucus secretion, itching, and rhinorrhoea. A late-phase inflammatory response follows this initial response, resulting in repeated symptoms, primarily congestion of the nose.[12]

Management

The goal of treating allergic rhinitis is to make patients' symptoms better and their quality of life greater. The British Society for Allergy and Clinical Immunology has created management guidelines for allergic rhinitis. Numerous approaches vary when avoiding allergens. Avoiding irritants like smoke and traffic pollution is advised since they might exacerbate allergic rhinitis. It is advisable to avoid pets if a patient is stimulated by them. Other recommendations include keeping your home clean overall, washing stuff at a higher temperature, and keeping pets out of the bedroom. Both active and passive exposure to second hand smoke can have a particularly negative impact on children and adolescents, increasing their chance of developing allergic disorders like food allergies, allergic dermatitis, and allergic rhinitis.[15]

Non-pharmacological treatment includes:

- Immunotherapy targeted at allergens
- Immunotherapy administered sublingually or subcutaneously
- Nasal irrigation with saline
- Techniques for environmental management
- Managing companion animals
- Surgery on the nasal turbinate.[6]

Experts from the WHO advise that individuals with chronic allergic rhinitis should be checked for bronchial asthma. Achieving and maintaining disease control, eradicating

symptoms, lowering the risk of consequences, and enhancing patients' quality of life are the primary goals of treating allergic rhinitis.[16]

Pharmacological treatment

The management of allergic rhinitis necessitates an integrated strategy, with consideration given to the course, severity, and individual social and psychological features of the patient, as well as any concurrent pathology.

Numerous pharmacological therapies exist, including:

- Oral decongestants
- Intranasal corticosteroids
- Antihistamines

Leukotrienes significantly block the nasal passages. Seasonal allergic rhinitis patients had fewer symptoms and a higher quality of life after using leukotriene receptor antagonists. Comparable to antileukotrienes, nasal corticosteroids seem to be more effective.

Leukotriene and histamine antagonist combination therapy improves both quality of life and symptomatology.[16]

The kind and severity of each patient's symptoms must determine the course of medication for allergic rhinitis, which should relieve doctor preferences as well as nasal inflammation, sneezing, and rhinorrhoea both during the day and at night. Antihistamines can be used to treat allergy-induced symptoms, including sneezing and pruritus, because they stop the nasal mucosa from releasing histamines, which are triggered by mast cell release.[17]

Decongestants, intranasal corticosteroids, leukotriene receptor antagonists, and oral/intranasal H1-antihistaminics are the mainstays of AR therapy.

Second-generation antihistamines have gained popularity since they are just as effective and cause fewer side effects than their first-generation counterparts.

The effective second-generation histamine (H1) receptor antagonist levocetirizine combats persistent AR, enhancing quality of life while lowering comorbidities and societal expenses. A selective, nonsedative second-generation H1 receptor antagonist that also influences inflammatory mediators is fexofenadine.

Montelukast is a leukotriene D4 type I receptor antagonist that is extremely selective. The bronchodilator and anti-inflammatory qualities of leukotriene modifiers are combined.

The literature search confirms that there is an extra advantage to taking an antihistamine with montelukast. Effective symptom reduction is achieved by the combined therapy of montelukast and antihistamine, which has complementary and enhancing effects. When levocetirizine and montelukast are used together, AR sufferers experience better results in terms of their quality of life and symptoms than when levocetirizine is taken alone. When controlling AR symptoms, fexofenadine plus montelukast works better than antihistaminic drugs alone. Comparing concurrent levocetirizine and montelukast with monotherapy or placebo, as well as concurrent fexofenadine and montelukast with monotherapy or placebo, has been done in the literature. On the other hand, there is a dearth of information comparing concurrent montelukast-levocetirizine and montelukast-fexofenadine. Thus, our objective was to assess these combinations' efficacy, safety, and cost-effectiveness in AR patients.[18]

Impact of Allergic Rhinitis On QOL

An increasing amount of research indicates a connection between mental disorders and allergic rhinitis.

Compared to the control group, there is a significantly greater chance of depression and suicidal thoughts in the AR group. Sick behaviors, including lethargy, anhedonia, appetite loss, social disengagement, and loss of interest in social activities, are caused by an inflammatory process.[19]

According to parents' or guardians' perceptions, AR has a detrimental worldwide impact on children, teens, and adults' HRQL, primarily modifying physical function and negatively affecting the family group.[20]

❖ **Impact on sleep**

Insufficient amounts of sleep can negatively impact one's quality of life by causing weariness, irritability, memory loss, and excessive daytime sleepiness. Quality of life is frequently compromised in patients with AR not only by the disease's common symptoms, including as pruritus, nasal obstruction, sneezing, and rhinorrhea, but also by the activity of the mediators involved in its pathogenesis, which can interfere with sleep.

The nasal symptoms that affect sleep most severely are rhinorrhea and obstruction of the nose.

❖ **Impact on learning and social life**

Due to daytime exhaustion brought on by both direct interference from symptoms and poor sleep quality, allergic rhinitis (AR) can negatively impact memory and learning. Concentration, memory, and executive functioning issues follow from this. For these cognitive effects to be avoided and intellectual performance to be enhanced, effective symptom management and proper sleep hygiene are essential.

People suffering from AR can make it difficult for them to participate in family activities like camping, picnics, and pet play, frequently experience feelings of isolation at home. Their entire family life is impacted by this isolation, which can even cause them to feel excluded by their families. AR affects how patients interact with others outside of their families in settings such as workplaces, colleges, and schools. Patients with AR frequently find it difficult to completely integrate with peers because to emotional difficulties and activity restrictions from avoiding allergens, which can cause emotional disruptions.

❖ **Impact of treatment**

Patients' quality of life is improved by therapies that reduce symptoms associated with AR, particularly nasal blockage. Although it is preferred to avoid allergies, this is frequently not feasible or adequate. As a result, medication, especially intranasal corticosteroids and antihistamines, is usually the first line of treatment. When it comes to managing nasal blockage caused by AR, intranasal corticosteroids are very efficient. They also considerably enhance sleep quality by lowering nasal congestion. Subjective reports and objective assessments of sleep quality have demonstrated that these medicines reduce sleep problems and accompanying daytime sleepiness, as demonstrated by clinical studies.[4]

CONCLUSION

All age groups are affected by the chronic illness known as allergic rhinitis (AR). The main cause of the condition's severe quality-of-life impairment is nasal blockage, which interferes with sleep. Inadequate sleep has negative consequences on adults' mood and productivity, patients' emotional problems, and daily weariness, cognitive decline, and decreased professional performance. Healthcare professionals frequently ignore AR-related sleep disturbances despite their seriousness. Effective treatment involves managing the

environment and administering the appropriate drugs to reduce inflammation and enhance patients' quality of life.[4]

The diagnosis is made with a thorough medical history and physical examination. It is typically necessary to perform additional diagnostic testing, such as IgE tests specific to allergens or skin-prick tests, to determine that underlying allergies are the source of the rhinitis. For allergic rhinitis, the various treatment choices are usually safe, well-tolerated, and effective in treating symptoms. The key elements of treatment for the condition are intranasal corticosteroids and second-generation oral antihistamines. In certain situations, allergen immunotherapy and additional drugs, including decongestants and oral corticosteroids, may be helpful.[12]

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