Allergic rhinitis – more than just a nuisance

RY Seedat, *MB ChB, MMed (ORL), FCORL(SA)*
Department of Otorhinolaryngology, University of the Free State and Universitas Academic Hospital, Bloemfontein, South Africa

ABSTRACT

Allergic rhinitis is often trivialised, but can affect patients' social life, school performance, and work productivity. It may be associated with other medical conditions such as asthma, conjunctivitis, sinusitis and otitis media with effusion. Allergic rhinitis may cause sleep disorders with resulting daytime somnolence and impaired concentration. Other associated disorders include chronic cough, dysphonia, hyposmia and malocclusion.

Allergic rhinitis (AR) is a common condition, affecting 10-40% of the population.[1,2] This is probably an underestimate, since many patients do not recognise rhinitis as a disease and the prevalence is increasing.[1,3] Although often trivialised and regarded as a nuisance rather than a serious condition, AR affects patients' social life, school performance, and work productivity.[2-5] There is also an association with other medical conditions such as asthma, conjunctivitis, sinusitis and otitis media with effusion (OME).[4]

The Allergic Rhinitis and its Impact on Asthma (ARIA) expert committee workshop classified allergic rhinitis into the categories of 'mild' and 'moderate-severe', based on the impact on the patient's quality of life, with mild allergic rhinitis not affecting the patient's quality of life, while moderate-severe allergic rhinitis affects the patient's quality of life by causing one or more of the following:

- sleep disturbance
- impairment of daily activities, leisure and/or sport
- impairment of school or work
- troublesome symptoms.[4]

Most patients with AR have moderate-severe disease.[2,6,7] Although it has been proposed that moderate and severe AR be differentiated, based on the number of affected items of sleep, daily activities or sport, work or school, and troublesome symptoms that are affected, with the condition being considered moderate if one to three items are affected and severe if four items are affected,[8,9] the revised ARIA guidelines proposed continuation of the classification of rhinitis severity as mild or moderate-severe.[3]

COMORBIDITIES

AR and asthma frequently coexist. Asthma occurs in 15-38% of patients with AR, while nasal symptoms are present in approximately 75% (6-85%) of patients with asthma.[2-4,6,7] The relationship between AR and asthma is discussed further by Obimbo and Levin in this issue.[10]

Conjunctivitis occurs commonly in patients with AR, with almost all patients with seasonal AR having conjunctivitis.[3,4] It is postulated that inhaled allergens in the nasal cavity contribute to the development of eye itching, redness, and tearing by means of the naso-ocular reflex.[11] Treatment with intranasal corticosteroids improves the ocular symptoms in patients with AR.[11]

The relationship between AR and sinus disease is not fully understood.[12] Epidemiological studies show that patients sensitised to inhalant allergens present more often with both acute and chronic sinusitis than the general population.[4,12] Proposed mechanisms include:

- allergic inflammation of the nasal mucosa giving rise to mucosal congestion at the ostiomeatal complex leading to impaired drainage of mucus
- deposition of inhaled allergens on the sinus mucosa initiating an allergic reaction inside the sinus cavity that leads to congestion of the sinus mucosa with impaired evacuation of mucus
- the cytokine milieu present in patients with AR facilitating bacterial infection
- induction of a systemic immune response by allergen inhalation.[12]

Although the mucosa of the nasopharyngeal orifice of the eustachian tube shows allergic inflammation in patients with AR and the presence of AR is associated with eustachian tube dysfunction, the relationship between AR and OME remains controversial.[4,13,14] While some studies have found an association between AR and OME or documented the presence of allergic inflammation in the middle ear of patients with OME, other studies have found no relationship between the presence of AR and OME.[14-17] While the aetiology of OME is multifactorial, atopy may be responsible for the recurrence and maintenance of middle ear disease in some patients with OME.[4]

The larynx may be considered part of the united airway, with many patients with AR having dysphonia when exposed to the inhalant allergen.[12,18,19] However, objective laryngeal findings are often lacking in these patients.[18,19]

A chronic dry cough is often found in patients with AR, arising either as a result of stimulation of receptors in the nasal mucosa or stimulation of bronchial cough receptors by systemically released allergic mediators.[12] Treatment with both intranasal corticosteroids and antihistamines has been shown to alleviate this cough in AR patients.[12]

A commonly overlooked symptom is hyposmia, which is frequently present.[20-22] Olfactory dysfunction can severely affect the quality of life of affected patients.[21] Treatment of AR may improve the olfactory function in affected patients.[22,23]

AR is a significant risk factor for the development of malocclusion because of the mouth breathing that results from the chronic nasal obstruction.[24] Craniofacial and dentofacial abnormalities that have been associated with nasal obstruction are usually characterised by an elongated face, open-mouth posture, protrusive maxillary incisors, narrow maxillary arch, high-arched palate, and Angle's class II malocclusion.[25]

Sleep disorders and the subsequent effects on disease-specific and general quality of life measures occur commonly in patients with AR with more than half of all patients reporting that their AR had some impact on their sleep patterns.[6,7,26] Patients suffer from insomnia,

Correspondence: RY Seedat, seedatry@ufs.ac.za.

snoring, and obstructive sleep apnoea syndrome, which result in daytime somnolence, fatigue, irritability, depression, reduced productivity and memory and learning deficits.[2,5,7,27,28] There is a strong correlation between the severity of the rhinitis symptoms, particularly nasal obstruction, and sleep impairment.[7,27] Treatment of AR results in better sleep, reduced daytime somnolence, and improved quality of life.[27]

Most patients who are symptomatic on awakening are affected psychologically by their symptoms, with feelings of fatigue, irritability, frustration, and self-consciousness, with less energy, motivation, alertness, and ability to concentrate.[2,6,7] Patients are often embarrassed by their symptoms.[6] Patients with AR have higher rates of depression and anxiety than the rest of the population.[7,29] Irritability is frequently reported by patients during the allergy season.[2] AR results in reduced work productivity and lifestyle limitations,[2,6,7] and has a significant negative impact on sexual function.[28]

HEALTHCARE COSTS

There is a considerable healthcare cost associated with treatment of AR, both in terms of doctor's consultations and drugs. It is therefore essential that AR and its comorbidities be correctly diagnosed and appropriately treated with the most cost-effective drugs. The costs of treating patients with AR are often aggravated by the use of inappropriate drugs.[30]

CONCLUSIONS

Although often trivialised, AR is associated with significant adverse effects on patients' quality of life and comorbidities. Treatment of AR can result in an improvement in affected patients' quality of life as well as the comorbidities.

Declaration of conflict of interest

Prof Seedat has been sponsored by Aspen Pharmacare to attend international congresses and has given talks for MSD.

REFERENCES

1. Zar HJ, Ehrlich RI, Workman L, Weinberg EG. The changing prevalence of asthma, allergic rhinitis and atopic eczema in African adolescents from 1995 to 2002. Pediatr Allergy Immunol 2007;18(7):560-565.
2. Meltzer EO, Blaiss MS, Naclerio RM, et al. Burden of allergic rhinitis: allergies in America, Latin America, and Asia-Pacific adult surveys. Allergy Asthma Proc 2012;33(Suppl 1):S113-141.
3. Bousquet J, Khaltaev N, Cruz AA, et al. Allergic Rhinitis and its Impact on Asthma (ARIA) 2008 update (in collaboration with the World Health Organization, GA(2)LEN and AllerGen). Allergy 2008;63 Suppl 8:8-160.
4. Bousquet J, van Cauwenberge P, Khaltaev N. Allergic rhinitis and its impact on asthma. J Allergy Clin Immunol 2001;108(5 Suppl):S147-334.
5. South African Allergic Rhinitis Working Group. Allergic rhinitis in South Africa – diagnosis and management. S Afr Med J 1996;86(10 Pt 2):1315-1328.
6. Schatz M. A survey of the burden of allergic rhinitis in the USA. Allergy 2007;62 Suppl 8:9-16.
7. Canonica GW, Bousquet J, Mullol J, Scadding GK, Virchow JC. A survey of the burden of allergic rhinitis in Europe. Allergy 2007;62 Suppl 8:17-25.
8. Valero A, Ferrer M, Sastre J, et al. A new criterion by which to discriminate between patients with moderate allergic rhinitis and patients with severe allergic rhinitis based on the Allergic Rhinitis and its Impact on Asthma severity items. J Allergy Clin Immunol 2007;120(2):359-365.
9. Montoro J, Del Cuvillo A, Mullol J, et al. Validation of the modified allergic rhinitis and its impact on asthma (ARIA) severity classification in allergic rhinitis children: the PEDRIAL study. Allergy 2012;67(11):1437-1442.
10. Obimbo EM, Levin ME. Allergic rhinitis and asthma – evidence for an association. Current Allergy & Clinical Immunology 2013;26:4-7
11. 11. Bielory L. Intranasal corticosteroids and the eye: from negative ocular effects to clinical efficacy as a class effect. American College of Allergy, Asthma & Immunology. Ann Allergy Asthma Immunol 2008;100(5):506-508.
12. Hellings PW, Fokkens WJ. Allergic rhinitis and its impact on otorhinolaryngology. Allergy 2006;61(6):656-664.
13. Lazo-Sáenz JG, Galván-Aguilera AA, Martínez-Ordaz VA, Velasco-Rodríguez VM, Nieves-Rentería A, Rincón-Castañeda C. Eustachian tube dysfunction in allergic rhinitis. Otolaryngol Head Neck Surg 2005;132(4):626-629.
14. Nguyen LHP, Manoukian JJ, Sobol SE, et al. Similar allergic inflammation in the middle ear and the upper airway: evidence linking otitis media with effusion to the united airways concept. J Allergy Clin Immunol 2004;114(5):1110-1115.
15. Yeo SG, Park DC, Eun YG, Cha C Il. The role of allergic rhinitis in the development of otitis media with effusion: effect on eustachian tube function. Am J Otolaryngol 2007;28(3):148-152.
16. Skoner AR, Skoner KR, Skoner DP. Allergic rhinitis, histamine, and otitis media. Allergy Asthma Proc 2009;30(5):470-481.
17. Kwon C, Lee HY, Kim MG, Boo SH, Yeo SG. Allergic diseases in children with otitis media with effusion. Int J Pediatr Otorhinolaryngol 2013;77(2):158-161.
18. Verguts MML, Eggermont A, Decoster W, De Jong FICRS, Hellings PW. Laryngeal effects of nasal allergen provocation in singers with allergic rhinitis. Eur Arch Otorhinolaryngol 2011;268(3):419-427.
19. Turley R, Cohen SM, Becker A, Ebert CS. Role of rhinitis in laryngitis: another dimension of the unified airway. Ann Otol Rhinol Laryngol 2011;120(8):505-510.
20. Guilemany JM, García-Piñero A, Alobid I, et al. Persistent allergic rhinitis has a moderate impact on the sense of smell, depending on both nasal congestion and inflammation. Laryngoscope 2009 Feb;119(2):233-238.
21. Passàli GC, Ralli M, Galli J, Calò L, Paludetti G. How relevant is the impairment of smell for the quality of life in allergic rhinitis? Curr Opin Allergy Clin Immunol 2008;8(3):238-242.
22. Rydzewski B, Pruszewicz A, Sulkowski WJ. Assessment of smell and taste in patients with allergic rhinitis. Acta Otolaryngol 2000;120(2):323-326.
23. Stuck BA, Blum A, Hagner AE, Hummel T, Klimek L, Hörmann K. Mometasone furoate nasal spray improves olfactory performance in seasonal allergic rhinitis. Allergy 2003;58(11):1195.
24. Luzzi V, Lerardo G, Viscogliosi A, et al. Allergic rhinitis as a possible risk factor for malocclusion: a case-control study in children. Int J Paediatr Dent 2012;22:1–5.
25. Harari D, Redlich M, Miri S, Hamud T, Gross M. The effect of mouth breathing versus nasal breathing on dentofacial and craniofacial development in orthodontic patients. Laryngoscope 2010;120(10):2089-2093.
26. Green RJ, Davis G, Price D. Concerns of patients with allergic rhinitis: the Allergic Rhinitis Care Programme in South Africa. Prim Care Respir J 2007;16(5):299-303.
27. González-Núñez V, Valero AL, Mullol J. Impact of sleep as a specific marker of quality of life in allergic rhinitis. Curr Allergy Asthma Rep 2012; Dec 18(Epub ahead of print).
28. Benninger MS, Benninger RM. The impact of allergic rhinitis on sexual activity, sleep, and fatigue. Allergy Asthma Proc 2009;30(4):358-366.
29. Erkul E, Cingi C, Özçelik Korkmaz M, et al. Effects of escitalopram on symptoms and quality of life in patients with allergic rhinitis. Am J Rhinol Allergy 2012;26(5):e142-146.
30. Friedman R. Allergic rhinitis prescription – where to now in South Africa? Current Allergy & Clinical Immunology 2006;19(4):180-185.