ORIGINAL ARTICLE
Iran J Allergy Asthma Immunol
December 2012; 11(4): 324-328

Quality of Life in the Iranian Adults with Allergic Rhinitis

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Received: 21 August 2011; Received in revised form: 20 February 2012; Accepted: 14 September 2012

ABSTRACT

Allergic Rhinitis (AR) is a common global health problem with approximately one quarter of the world population affected. The Quality of Life (QOL) of sufferers with AR is significantly affected. The aim of this study was to evaluate the QOL of adults with AR. This study was designed for adults with AR above 18 years old. The study was conducted using a valid Rhinitis Quality of Life Questionnaires (RQLQ) which was completed for each patient during clinic visit and analyzed by applying statistical methods. One-hundred and ten AR patients participated in this study. Mean age of these patients was 32 years old and 62% were female.

The correlation between severity of AR and QOL impairment was significant. Frequencies of mild persistent, moderate-severe persistent, mild intermittent and moderate-severe intermittent types of AR were 18%, 34.5%, 9% and 38%, respectively. Completed RQLQ indicated that about 55% of the cases were suffering from severe disturbances in their QOL. Furthermore, congestion (88%) was the most common symptom. The correlation between congestion and QOL reduction was significant. The correlation between congestion and sleep impairment was significant. AR was more common in young as well as female patients and their QOL was affected more than the others. The results showed a good relevancy between severity of symptoms and QOL scores.

Consisting with ARIA classification, it was found that reduction in the quality of life is higher in patients with moderate-severe intermittent and persistent asthma. Nasal congestion was a bothersome and prevalent symptom in AR that was responsible for sleep problems. Therefore, nasal congestion was associated with sleep-disordered breathing, nocturnal sleep impairment, day time fatigue and somnolence which finally lead to QOL impairment.

Keywords: Adult; Allergic Rhinitis; Iran; Quality of life

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INTRODUCTION

Allergic rhinitis (AR) is a common global health problem. About one fourth of the world population

Published by Tehran University of Medical Sciences (http://ijaai.tums.ac.ir)

suffers from AR.[1] The term rhinitis refers to a heterogenous group of nasal disorders characterized by one or more of the following symptom: Sneezing, itching, nasal congestion and rhinorrhea. Rhinitis can be caused by allergic, non-allergic, infectious, hormonal, occupational and the other factors. AR is the most common chronic rhinitis and the prevalence of AR continues to increase. Severe AR has been associated with diminished quality of life (QOL), disordered sleep, obstructive sleep apnea and impairment in work performance.[2] Based on Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines,[3] one of the factors that reclassifies the severity of AR from mild to moderate-severe is abnormal sleep. In moderate to severe AR, there are abnormal sleep (insomnia and nocturnal awakening), work productivity deterioration and QOL disorder. Quality of life signifies wellbeing and satisfaction of life; Health Related Quality of life (HRQOL)[4] refers to part of QOL associated with health. Since measuring quality of life requires proper instrument, in recent decades such means have been developed in forms of specific validated questionnaires.

These questionnaires used for determining the severity of disease as well as assessing treatment effects of various drugs on diseases.[5-7] The Rhinoconjunctivitis Quality of life Questionnaire (RQLQ) about the quality of life of the patients suffering from Rhinocojunctivitis was first prepared by Juniper and Guyatt in 1991.[8] Various studies were performed to assess QOL of AR patients. For example, Valero (2009) in spain[9] found out that QOL of patients who suffered from persistent AR was more troublesome. According to Another comprehensive study conducted in US,[10] the incidence of AR, sleep disorder and their impacts on daily activities of both groups of adults and infants was significant. In Iran, various studies have been conducted on AR in children and adults. However, no study on QOL of AR patients has been implemented.

The aim of this study was to evaluate quality of life in Iranian adults affected by AR. The present study through surveying QOL in adults suffering from allergic rhinitis tried to recognize the problems that adults with AR experience in their day to day lives. The study used a valid RQLQ[8] and assessed AR symptoms adverse effects on nocturnal sleep, daily practice and finally QOL in the AR patients.

MATERIALS AND METHODS

The study is based on cross-sectional surveys on AR (in everyday medical practice in Iran). Patients older than 18 years characterized by at least one or more symptoms of AR such as nasal itching, rhinorrhea, frequent sneezing and nasal congestion were selected and based on ARIA classification[3] were categorized as follows: those suffering from rhinitis for less than 4 days a week or less than 4 consecutive weeks (intermittent rhinitis groups); and those suffering for more than 4 days a week and more than 4 consecutive weeks (persistent rhinitis group). The study was conducted on the patients referred to the Allergy Medical Center in Tehran during 2010. The Rhinitis Quality of life Questionnaire (RQLQ) developed by E. Juniper was selected for the study. The valid RQLQ was completed by a trained professional physician in English. Utilizing SPSS software, the collected data from the patients were analyzed. In addition to calculation of frequencies, the data were analyzed by statistical methods including Chi-square statistic tests (χ^2 tests). Mean scores of each individual based on the answers to the QOL questionnaire was calculated, the value of which was between 0-6 (the higher the number, the worse is QOL). Data of the questionnaires were calculated by using the Internal Consistency Test-Retest of Cronbach alpha Test. The Cronbach alpha of the RQLQ were above 0.8 (statistic number higher than 0.7 is normally reliable). All the patients were informed about the research objectives and they voluntarily participated in the study without any cost. The approval of the ethics board of Tehran University of Medical Sciences was taken.

RESULTS

In this study, 110 patients of both sexes participated. There were 42 male (38.2%) and 68 female patients (61.8%). The patients' mean age was 32 years. The youngest patient was 18 and the oldest one was 60 years old. The patients were classified according to ARIA criteria and the results were as follows: frequency of the mild persistent was 18.2%, moderate to severe persistent was 34.5%, mild intermittent was 9.1% and moderate to severe intermittent was 38.2%. In this study, four complaints of nasal congestion, rhinorrhea, frequent sneezing, eye itching and tearing were considered as AR symptoms;

frequency of nasal congestion was 88.2%, rhinorrhea 85.5%, frequent sneezing 70.9% and eye itching 55.9%. Reliability and validity analysis were performed using the SPSS 16 version statistical package. The internal consistency of the RQLQ was tested by Cronbach alpha scores. All correlation coefficients for RQLQ were above 0.8. Finally, the QOL of the patients to be studied based on the mean scores of the questionnaires received was classifies into two groups of mild (with mean value of the scores of QOL<3) and severe (with mean value of the scores of QOL≥3). According to the questionnaires mean scores recorded, about 55% of the patients had severe QOL impairment. The relation between quality of life and the study variables based on χ^2 tests can be observed in Table 1 which indicates that there is an inversely significant relation between age and dysfunctional severity in QOL (p=0.001). While a significant relation between nasal congestion and Quality of life (p =0.016) was found, there were no significant relation between the other AR symptoms and diminished quality of life. Furthermore, there was a significant positive relation from the statistical view-point between AR severity and QOL dysfunction (p=0.008).

Table 1. Relation between variables and quality of life scores

Variable		Quality of Life Scores		*P value*
		High (mean scores≥3)	Low (mean scores≤3)	
Age(year)	≤35	35 (32%)	43 (39%)	0.001
	>35	25 (23%)	7 (6%)	
Sex:	Female	40 (36%)	28 (25%)	0.171
	Male	20 (18%)	22 (20%)	
Congestion:	Yes	57 (52%)	40 (36%)	0.016
	No	3(3%)	10(9%)	

Table 2. Correlation coefficient between sleep problems, morning symptoms and quality of life scores

Variable	Correlation coefficient
Sleep problems	r=0.953 (0.0001)
Morning symptoms	r=0.88 (0.0001)

Table 2 presents that there was also a direct and significant correlation between QOL deterioration and sleep problems in AR patients who participated in the study (correlation coefficient "r" was +0.953 with p=0.001).

There was also a significant relation between sleep problems and nasal congestion (p=0.023).

DISCUSSION

In this study, average age of the patients was 32 years. AR frequency in less than 35-year-old age group was more than the other age groups which illustrates that the AR is more prevalent in the youth.[1] As can be seen in Table 1, there was also significant relation between QOL and the patients' age. It was observed that the effects of AR on the QOL of the youth are higher than those of the old. The prevalence of AR in women (62%) is more than men (38%) and the impact of AR on the QOL of women is higher than those in men; however, the relationship between QOL and sex was not significant.

The results of this study were comparable with those done in Iran and other countries. In the study of Valero et al in Spain,[9] the percentage of women suffering from AR was somewhat higher than that of the men and the QOL scores of the former was higher than the latter. In Mohamadi's study on Children in Tehran, the AR was more prevalent in boys compared to girls,[13] however, our study on adults revealed that AR in females was more prevalent. According to the ARIA classification, this study showed that about 73% of the patients were categorized in two groups of moderate to severe intermittent and moderate to severe persistent, and these two groups include most of AR patients who refer to the allergist. It is worth to mention that in the study of Mohamadi et al on children, severity of the disease in most of patients was in the classification of moderate to severe AR (59%).[11]

The results of our study on QOL of AR patients indicated that 55% of the patients were in the group of severe disorder (mean scores of QOL≥ 3) and 45% of them were in the group of mild disorder (mean scores of QOL<3). There was also a significant relationship between disease severity and QOL disorder (p=0/008). The patients with moderate to severe persistent AR showed worse impacts on QOL compared with other kinds of AR, as disease severity increased, QOL decreased. The other studies on this case confirm this subject. The study conducted in Spain (2009) confirmed that the worst QOL was in the persistent group.[9] In 2010, the study conducted by LUD in China

indicated that the moderate to severe persistent AR showed worse impacts on QOL compared with moderate to severe intermittent AR.[12]

Based on the frequency of AR symptoms, we found that the most prevalent symptom in patients was nasal congestion and then with a little difference, rhinorrhea was reported. According to the study conducted by Meltzer et al, in the United States of America in 2009, the most prevalent symptom reported in American patients was nasal congestion.[10] As indicated in Table 1, in our study, there was also a significant relation between QOL disorder and nasal congestion. Our findings on nasal congestion and severity of the symptoms were in conformity with the study results performed in Japan (Shiomori T, et al, 2007). Japanese study revealed that nasal congestion and severity of the symptoms were also significantly correlated with the decrease of QOL; however, nasal congestion was more severe in the persistent group.[13]

The results of our study also indicated that there was a significant relation between nasal congestion and quality of sleep. In some studies, it was observed that nasal congestion showed profound impacts on quality of sleep of both children and adults. Klossek M et al. showed that almost more than 57% of the adults and 88% of the children who suffered from such diseases had sleep disorder.[14] In another study in US, it was observed that Nasal Congestion was one of the most prevalent symptom of AR (90%) and most closely associated with rhinitis-related sleep problems.[15] In Lunn and Criag (2011) study, it was indicated that 75% of the patients with rhinitis showed nasal congestion and 92% expressed that nasal congestion is the most troublesome symptom of their rhinitis.[16] Furthermore, the research done by Canova CR, et al on 4927 persons revealed that patients with nasal congestion due to AR showed 1.8 times more moderate to severe sleep disorder compared to those lacking it and that the treatment of patients with nasal congestion improved the sleep quality.[17] Another study conducted by Lavie et al. indicated that the adults suffering from AR, experience sleep disorder and frequent awakening during severity of AR symptoms 10 times more than the other periods.[18] Forty percent of the parents whose children suffered from AR (compared with 7% of the parents whose children were healthy) revealed that AR caused sleep disorder in their children.[10] In 2008, another study was conducted by Criag et al, in America on sleep disorder in patients with AR, rhino-sinusitis, and nasal polyposis which indicated nasal congestion was one of the most prevalent symptoms of such diseases that caused breathing disorder during sleep-time and such sleep disorder was effective on quality of life.[19] The study in Brazil (Ines cristina camelo-Nunes, 2009) revealed that Quality of life is often impaired in AR patients due to the classic symptoms of the disease. Nasal obstruction, the most prominent symptom, was associated with sleep disorders which can have a profound effect on mental health and learning.[20]

CONCLUSION

In our study, it was found that very high correlation between sleep disorder and QOL impairment existed which was supported by previous studies in Iran and in other countries. This finding revealed that the existence of allergic symptoms in sleep time and lack of good sleep will cause daily fatigue, concentration disorder, and quality of life disturbances. The most prevalent and troublesome symptom in such patients is nasal congestion and rhinorrhea which results in nasal obstruction during night accompanied by the other mechanisms at night (for example, nasal inflammation, and position of the patient's head in sleeping) which cause frequent awakening, sleep obstruction apnea, snoring, and sleep quality decrease. Such sleep quality decrease causes daily fatigue and daily drowsiness. Besides, AR symptoms during the day cause pitifully troublesome condition for the patient which result in severe QOL impairment.

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