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ORIGINAL ARTICLE

Assessment of Quality of Life in Patients of Chronic Rhinosinusitis

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ABSTRACT

Introduction: Chronic rhinosinusitis (CRS) is a global health problem affecting approximately 14% of the population of all age groups. CRS has a significant adverse impact on quality of life of the patients.

Objective: The aim of this study was to compare the quality of life of patients suffering from CRS with that of normal population and to assess the association between objective nasal endoscopic score, self-rated symptom score and quality of life (QoL) score.

Methodology: This was a prospective study conducted over a period of 12 months. A total of 110 cases of CRS and 50 normal subjects taken as controls were recruited from out patients department. Patients diagnosed as a case CRS were subjected to rhinosinusitis disability index (RSDI), subjective QoL questionnaires and self-rated symptom score in their vernacular language followed by diagnostic nasal endoscopy, using 0º rigid endoscope (4 mm).

Results: This study revealed that the mean ± SD total QoL score in the patients was 50.2 ± 14.9 (15-94) which was significantly affected as compared to control group where it was only 18.2 ± 9.15 (3-47). The mean ± SD of the functional, emotional and physical domains were 17.6 ± 5.46 (4-34), 16.5 ± 8.29 (5-88) and 16.5 ± 5.84 (2-35) respectively. There was no correlation between endoscopic score and the patient's self-rated symptom score or RSDI score. The correlation between the self-rated symptom score and total QoL score was significant (p = 0.02).

Conclusion: On comparing the QoL in the patients of CRS with the controls, it was observed that QoL was affected more in the patients of CRS in the physical, functional and emotional domain of their life. CRS has considerable adverse impact on QoL of patients and RSDI is a valuable tool in assessing the QoL in patients of CRS.

Keywords: Rhinosinusitis, Quality of life, Sinus surgery.

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INTRODUCTION

Chronic rhinosinusitis is defined as a group of disorders characterized by inflammation of nasal and paranasal sinuses mucosa for at least 12 consecutive weeks duration.[1] The presenting features consist of two or more symptoms one of which should be nasal blockage, nasal obstruction, nasal congestion or nasal discharge (anterior/posterior nasal drip) with or without facial pain/pressure with or without reduction or loss of smell for more than 12 weeks.[2] Quality of life (QoL) is a general term integrating several aspects of life, such as physical, psychological, social, economical, emotional and sexual dimensions. Rhinosinusitis disability index (RSDI) is a disease specific, health related QoL instrument to assess the QoL in patients of CRS. It was originally designed for use in patients with various sinonasal disorders.[3] The aims of this study was to compare the QoL of a group of patients suffering from CRS with that of controls and to assess the association between objective nasal endoscopic score, self-rated symptom score and QoL score.

MATERIALS AND METHODS

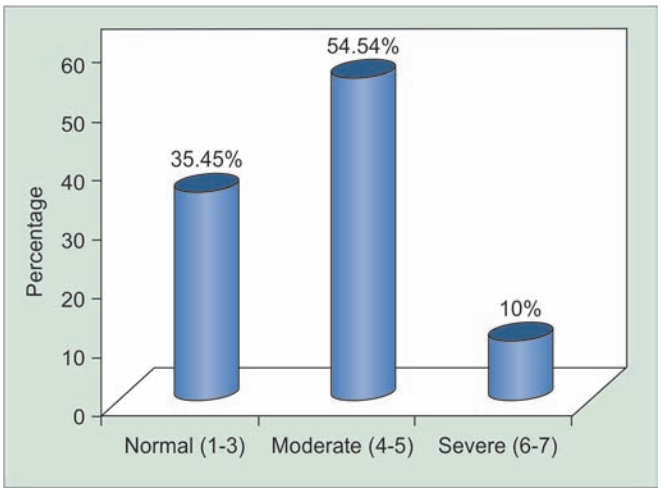
This study was conducted in the department of Otorhinolaryngology of a tertiary care teaching institute over a period of 12 months. A total of 110 cases of CRS and 50 normal subjects taken as controls were recruited from patients attending otorhinolaryngology department of the institute. The data were recorded as per proforma after taking written informed consent and prior permission from institutional ethics committee. Patients with age group below 12 years, history of nasal surgery, allergic rhinitis and any psychiatric disorder were excluded. Patients diagnosed as case of CRS were subjected to RSDI subjective QoL questionnaires and self-rated symptom score in their vernacular language followed by ENT examination including diagnostic nasal endoscopy, after application of vasoconstrictor, using 0º rigid endoscope

(4 mm). Fifty control patients selected from a group of patient attending the OPD for other complaints were also subjected to the questionnaire. All the patients were asked to complete a disease specific QoL questionnaire: RSDI. Thirty questions were asked and each was scored on a 0 to 4 scale (0 = never, 1 = almost never, 2 = sometimes, 3 = almost always, 4 = always). RSDI was divided into emotional, functional and physical subscales. The maximum score was 120 and the minimum score was 0. 0 indicates better QoL while 120 indicates worst QoL. At the end of the questionnaire, the subjects were asked to rate the severity of their sinusitis on a scale (self-rated symptom score) from 1 to 7 (1 indicating normal, 4 being moderate and 7 being severe). The RSDI was calculated both for a total score and for functional (questions 1-5, 13, 23, 28, 29), emotional (questions 12, 14-19, 21, 26, 27) and physical (questions 6-11, 20, 22, 24, 25, 30) domains. Lund Kennedy Endoscopic scoring system was used for signs of polyps, mucopurulent discharge primarily from middle meatus and/or edema/mucosal obstruction, scarring and crusting.[4] Interpretation and analysis of data was carried out using Spearman rank correlation test and independent t-test.

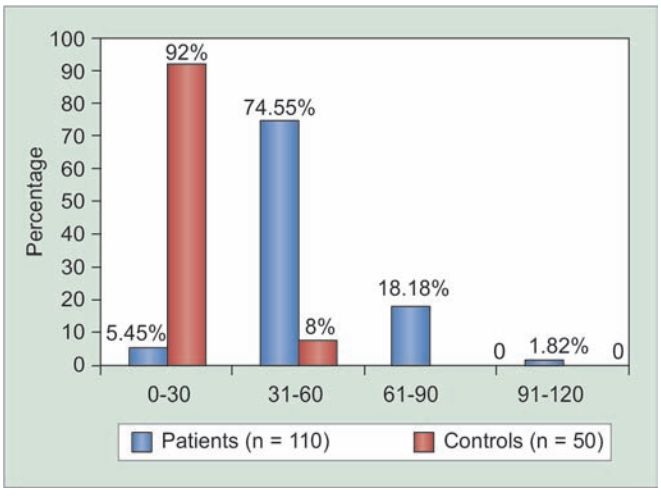
RESULTS

In the present study, it was observed that the age distribution of the patients ranged from 14 to 60 years (mean ± SD, 31.79 ± 10.66). Age group between 15 and 30 years was the commonest to be involved with 57 (51.82%) patients followed by age group between 31 and 45 years with 39 (35.46%) patients. Males patients were 81 (73.64%) and females were 29 (26.36%) with a male to female ratio of 2.7:1. Most common presenting symptoms in the patients of CRS was nasal obstruction and headache observed in 93 (84.54%) and 92 (83.63%) patients respectively and 68 (73.10%) patients presented to the hospital within 1 to 3 years of onset of symptoms. In the present study, the mean ± SD endoscopic score for both the nasal cavities in CRS patients was 3.34 ± 1.6 with a range of 0 to 8. Most of the patients 106 (96.36%) had endoscopic scoring between 0 to 5, followed by 6 to 10 with 4 (3.64%) patients. In the present study, the severity of the sinusitis (self-rated symptom score) the overall mean ± SD rating of sinusitis was 3.95 ± 1.16 with a range of 1 to 6, which fell into the moderate category (Graph 1).

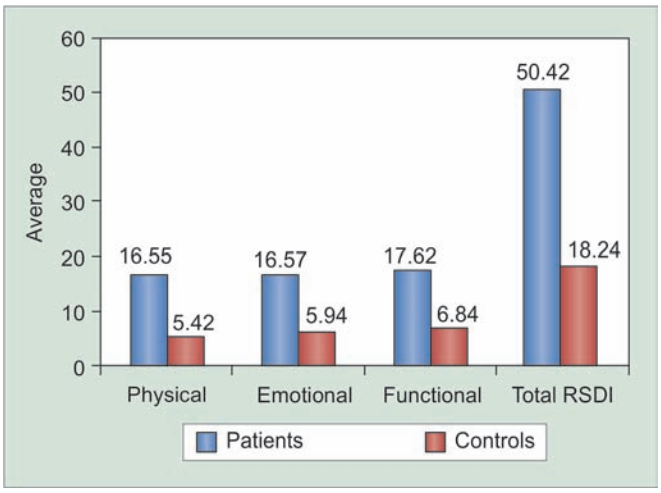
In the present study, the mean ± SD, total QoL score in CRS patients was 50.2 ± 14.9 with a range of 15 to 94. On dividing the QoL score in CRS patients into three domains: the mean ± SD score of functional, emotional and physical component was 17.6 ± 5.46 (4-34), 16.5 ± 8.29 (5-88), and 16.5 ± 5.84 (2-35) respectively. Most of the patients 82 (74.55%) were in the range of 31 to 60 RSDI score (Graph 2). In the present study, 50 normal controls (without documented CRS) were taken. The mean ± SD total QoL score in control group was 18.2 ± 9.15 with a range of 3 to 47. On dividing the QoL score in the control group into three subscales: the mean ± SD score of functional, emotional and physical component was 6.84 ± 3.54 (0-16), 5.94 ± 3.46 (0-18) and 5.42 ± 3.64 (0-21) respectively. Most of the controls subjects 46 (92%) were in the range of 0 to 30 RSDI score (Graph 2). The comparison between the total QoL scores (total RSDI) and emotional, functional and physical subscales for control and CRS patients is shown in Graph 3. Independent t-test was used and it was observed that, difference between CRS patients and controls was statistically significant with $p < 0.05$. To find out the correlation between self-rated symptom score, endoscopic score and RSDI score in CRS patients Spearman rank correlation test was used and it was observed that no significant correlation was seen either between self-rated and symptom score ($r = 0.122$, $p = 0.203$) or between RSDI score and endoscopic



Graph 1: Self-rated symptom score for severity of sinusitis (n = 110)



Graph 2: RSDI score for CRS patients and controls



Graph 3: Comparison of total quality of life score and subscales between CRS patients and controls

score (r = 0.21, p = 0.028). However, there was a highly significant moderately positive correlation between RSDI score and self-rated symptom score (r = 0.51, p = 0.001) (Table 1) was seen.

DISCUSSION

In the present study, the mean ± SD endoscopic score for both the nasal cavities was 3.34 ± 1.6 with a range of 0 to 8. Most of the patients 106 (96.36%) had endoscopic scoring between 0 and 5, followed by 6 to 10 in 4 (3.64%) patients. This result was similar to a study done by Birch DS et al who also reported the mean ± SD endoscopic score as 3 ± 2.5 (0-9).[5] In the present study, the mean ± SD overall self-rating of sinusitis was 3.95 ± 1.6 (1-6) falling in the category of moderate severity with 60 (54.54%) patients in moderate category and 11 (10%) patients in severe category. This was in concordance to a study which rated the severity of sinusitis as 5 ± 1 (1 to 7).[5] In a similar study, visual analogue scale was used to classify the perception of QoL as mild, moderate and severe where 30.3, 79.6 and 97.4 patients were in the mild, moderate and severe category respectively.[6] In this study, the mean ± SD total QoL score was 50.2 ± 14.9, which was similar to another study where the mean ± SD total QoL score was 42 ± 17 (5-69). The results of the functional, emotional and physical domains were also comparable to our study. In a study by Benninger BA et al RSDI was used to assess the disability in the patients of sinusitis, scores were highest in the physical subscales (1.64) followed by the functional subscale (1.59) and lowest for the emotional subscale.[7] This was in contrast to our study where scores were highest in functional domain. In the present study, 50 controls were taken who were the subjects without documented CRS. The RSDI score of most of the CRS patients, 82 (74.55%) fell into the range of 31 to 60 while, in case of control group, majority of the subjects, 46 (92%) fell in the range of 0 to

Table 1: Correlation between self-rated symptom score, endoscopic score and RSDI score in CRS patients

	Correlation coefficient (r)	*p-value*
SRS and endoscopic score	0.122	0.203
RSDI and endoscopic score	0.210	0.028
SRS and RSDI score	0.51*	0.001

*Moderately positive correlation

30. This indicates an overall less effect of the disease on QoL of the control group when compared with the CRS group which was in accordance with the previous studies done by Birch DS et al and Stavem K et al.[5,8] The mean ± SD total QoL score for control was 18.2 ± 9.15 in contrast to CRS group where it was 50.2 ± 14.9. Similar trend was observed in all the individual domain of RSDI score. In the present study, it was observed that no correlation was seen between self-rated and endoscopic score (r = 0.12, p = 0.203) and between RSDI and endoscopic score (r = 0.21, p = 0.028) while partial correlation was seen between RSDI and self-rated symptom score (r = 0.51, p = 0.001). It was similar to the study done by Birch DS et al where there was no correlation was found between endoscopic score and either the patient's self-rated symptom score or RSDI score, while the correlation between the self-rated symptom score and total QoL score was significant (p = 0.02).[5] Deepthi NV et al in their study found positive correlation between subjective symptom severity and objective endoscopic and radiologic finding.[9] In a study by Chen H et al computed tomography scoring and nasal endoscopy scoring correlated poorly with symptom severity score and QoL score (p < 0.001).[10] In a study by Moghadasi H et al good association was found between the overall severity of the patients symptoms and CT findings.[11] Naidoo Y et al in his study demonstrated that the Adelaide Disease severity score correlated well with the sino-nasal outcome test 22 results and with the Lund Mackay CT score and Lund Kennedy endoscopy score. Our findings were not in accordance with most of the studies, which can be explained on the basis that most of the patients have overrated their severity of their symptoms on subjective scoring and the influence of CRS symptoms on QoL cannot be predicted from endoscopic score alone.[12]

CONCLUSION

There was no statistically significant correlation between endoscopic score and self-rated symptom score and between endoscopic score and total QoL score. There was partial correlation between self-rated symptom score and total QoL score. Thus, our study concludes that patients of CRS overrate their symptoms on subjective scoring which does not correlate with the objective nasal endo-

scopy. On comparing, the QoL in the patients of CRS with the controls, it was observed that QoL was affected more in the patients of CRS in the physical, functional and emotional domain of their life. Hence, it can be concluded that CRS has considerable adverse impact on QoL of patients and RSDI is a valuable tool in assessing the QoL in patients of CRS.

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