



ORIGINAL RESEARCH PAPER

Otolaryngology

EVALUATION OF CORRELATION OF MANAGEMENT OF PATIENTS WITH SINONASAL SYMPTOMS USING SNOT-22 SCORE

KEY WORDS: rhinosinusitis, nasal polyposis, 22-item Sino-Nasal Outcome Test (SNOT-22), Diagnostic nasal endoscopy , computed tomography (CT)

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ABSTRACT

Background:Nasal obstruction is the most common nasal complaint and septal deviation is considered the predominant cause.The occurrence of nasal congestion in patients with rhinosinusitis is between 66–70%Health-related quality of life questionnaires are among the latest tools for assessing sinonasal symptoms. The SNOT-22 is a disease-specific, quality-of-life–related measure of sinonasal function..

Objective:Our primary objective was to analyze the SNOT-22 score in an OPD setup in all patients presenting with sinonasal symptoms and to find any correlation of SNOT-22 score grading & management required for these patients.

Setting: Tertiary referral centre and hospital.

Patients: This is a prospective study of 50 patients in the age group of 10 to 60 years with sinonasal symptoms over a span of 2 months.SNOT-22 questionnaire was used assess the nasal symptoms and was interpreted as Mild, moderate, severe based on the total score. management was correlated with the SNOT-22 Score.

Results:The chief presenting complaint was Nasal obstruction in 35 (70%) patients.It was found that 60.7 patients with a deviated nasal septum were advised surgery. However, none of these patients had a severe SNOT-22 score.

Conclusion:In our study, the patients requiring surgical management had a mild or moderate SNOT-22 score because only one of the symptoms were severe. grading of the SNOT-22 Score is not an indicator in deciding surgical management of the patients with sinonasal symptoms.

INTRODUCTION

Nasal obstruction is the most common nasal complaint in the ENT OPD, and septal deviation is considered the predominant cause. A 'blocked nose' is the symptom reported by 60% of patients with allergic rhinitis. The occurrence of nasal congestion in patients with rhinosinusitis is between 66–70% , and it is also the most predominant symptom seen in patients with nasal polyposis, which is between 2–4% of the general population , .

Several diagnostic tools have been used to study nasal obstruction, including computed tomography (CT), rhinomanometry, acoustic rhinometry, and quality of life questionnaires, but all these methods have a poor correlation between objective and subjective analysis , . Health-related quality of life questionnaires are among the latest tools for assessing sinonasal symptoms, the impact of symptoms on the quality of life and efficacy of treatment of sinonasal diseases. Of these, the 22-item Sino-Nasal Outcome Test (SNOT-22) has been extensively used in the clinical scenario and has proved to be the most suitable sinonasal outcome scoring system. The SNOT-22 is a disease-specific, quality-of-life–related measure of sinonasal function. The SNOT-20 was derived from the 31-item Rhinosinusitis Outcome Measure (RSOM-31) by removing 11 items believed to be unnecessary. The addition of two items (nasal obstruction and olfaction) gave rise to the SNOT-22 score, which has been considered to be reliable, valid, and responsive. , ,

Our primary objective was to analyze the SNOT-22 score in an OPD setup in all patients presenting with sinonasal symptoms and to find any correlation of SNOT-22 score grading & management required for these patients.

Materials & Methods

This is a prospective study of 50 consecutive patients presenting to the ENT OPD with sinonasal symptoms. Only patients between 10 to 60 years of age were considered for the study. Patients who have undergone previous nasal / septal surgery, known cases of Asthma, Immunocompromised patients, known cases of Diabetes Mellitus, known cases of Hypertension were excluded from the study..

The study was conducted in a tertiary care hospital in Pune. All patients presenting to the OPD with sinonasal symptoms were included in the study over a span of 2 months. Patients were asked

to fill the SNOT-22 score in their mother tongue (Marathi or Hindi). The SNOT-22 questionnaire rated 22 different symptoms from 0 (no problem) to 5 (problem as bad as it can be). The SNOT-22 score was interpreted as Mild (8-20) moderate (>20 - 50) severe (>50) based on the total score. (Figure 1)

Sino-Nasal Outcome Test-22 Questionnaire v4
Below you will find a list of symptoms and social/emotional consequences of your nasal disorder. We would like to know more about these problems and would appreciate you answering the following question to the best of your ability. There are no right or wrong answers, and only you can provide us with this information. Please rate your problems, as they have been over the past two weeks. Thank you for your participation.

Considering how severe the problem is when you experience it and how frequently it happens, please rate each item below on how 'bad' it is by circling the number that corresponds with how you feel using this scale →	No problem	Very mild problem	Mild or slight problem	Moderate problem	Severe problem	Problem as bad as it can be
1. Need to blow nose	0	1	2	3	4	5
2. Sneezing	0	1	2	3	4	5
3. Runny nose	0	1	2	3	4	5
4. Cough	0	1	2	3	4	5
5. Post nasal discharge (coming at the back of your nose)	0	1	2	3	4	5
6. Thick nasal discharge	0	1	2	3	4	5
7. Ear fullness	0	1	2	3	4	5
8. Dizziness	0	1	2	3	4	5
9. Ear pain/pressure	0	1	2	3	4	5
10. Facial pain/pressure	0	1	2	3	4	5
11. Difficulty falling asleep	0	1	2	3	4	5
12. Waking up at night	0	1	2	3	4	5
13. Lack of a good night's sleep	0	1	2	3	4	5
14. Waking up tired	0	1	2	3	4	5
15. Fatigue during the day	0	1	2	3	4	5
16. Reduced productivity	0	1	2	3	4	5
17. Reduced concentration	0	1	2	3	4	5
18. Frustrated/irritable	0	1	2	3	4	5
19. Sad	0	1	2	3	4	5
20. Embarrassed	0	1	2	3	4	5
21. Sense of taste/smell	0	1	2	3	4	5
22. Blockage/congestion of nose	0	1	2	3	4	5

TOTAL: _____ GRAND TOTAL: _____

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Patient No.:	d.o.b.:	Date:
M F	Aims of Treatment:	
Today's treatment:		L-M score:

Figure 1 Sino-Nasal Outcome Test-22 (SNOT-22).

The patients were then subjected to a detailed ear, nose & throat examination. The anterior rhinoscopy findings were recorded. These were then compared with the snot-22 score.

Results Presenting complaint

It was found that the chief presenting complaint was Nasal obstruction in 35 (70%) patients. Most commonly it was found to be bilateral & alternating between the 2 sides, 7 patients

complained of unilateral nasal obstruction. Nasal discharge was the second most common complaint with 32 (62%) patients who presented with discharge as the chief complaint. The average duration of discharge was 6-7 months. 27 (57%) patients presented with sneezing as the chief complaint. This was typically in bouts, more in the morning just after waking up. 2 (4%) patients presented with Headache as the chief complaint & 4 (8%) presented with a mass in the nasal cavity.

SNOT-22 score

Table SNOT-22 questions

SNOT-22 score questions	Number of patients with Very Mild Score	Number of patients with Mild or Slight Score	Number of patients with Moderate Score	Number of patients with Severe Score	Number of patients with Problem as bad as it can be
need to blow the nose	18	10	4	3	3
sneezing	15	17	7	2	0
runny nose	10	14	10	10	4
cough	14	15	10	2	1
post nasal drip	6	14	10	8	0
thick nasal discharge	13	4	4	14	2
ear fullness	6	11	5	3	4
dizziness	7	3	0	0	0
ear pain/pressure	4	5	5	2	2
facial pain/pressure	0	3	5	1	2
difficulty falling asleep	11	1	2	3	0
waking up at night	2	5	2	3	0
lack of a good nights sleep	4	1	0	3	1
waking up tired	6	1	0	0	0
fatigue during the day	4	1	1	0	0
reduced productivity	0	0	0	2	0
reduced concentration	2	0	0	0	0
frustrated/restless/irritable	5	1	3	1	1
sad	2	0	0	0	0
embarrassed	0	3	1	0	0
sense of smell/taste	2	0	0	0	0
blockage/congestion of nose	0	4	2	2	9

Based on the SNOT-22 score findings, a total of 48 (96%) patients said they suffered from a runny nose, 42 (84%) patients had cough, 41 (82%) patients had sneezing, 38 (76%) felt the need to blow the nose, 38 experienced a post nasal drip, 37 (74%) had thick nasal discharge & 29 (58%) patients suffered from intermittent earache.

As per the results of the SNOT-22 score, for the question, do you experience fatigue during the day, 4 (8%) patients believed it was a Very mild problem, 1 (2%) patients felt it was a mild problem, 1 (2%) patients felt it was a moderate problem. For the question, do you experience reduced productivity 2 (4%) patients

experienced severe problem because of it. For the question, do you experience reduced concentration 2 (4%) patients believed it was a Very mild problem. For the question, do you feel frustrated/restless/irritable, 5 (10%) patients believed it was a Very mild problem, 1 (2%) patients felt it was a mild problem, 3 (6%) patients felt it was a moderate problem, 1 (2%) patients experienced severe problem because of it & 1 (2%) patients felt it was as bad as it could be. For the question, do you feel sad 2 (4%) patients believed it was a Very mild problem. For the question, does it make you feel embarrassed 3 patients felt it was a mild problem & 1 (2%) patients felt it was a moderate problem. For the question, do you experience an altered sense of smell/ taste 2 (4%) patients believed it was a Very mild problem. For the question, do you experience blockage/congestion of nose 4 (8%) patients felt it was a mild problem, 2 (4%) patients felt it was a moderate problem, 2 (4%) patients felt it was a severe problem & 9 (18%) patients felt it could be as bad as it could be.

DISCUSSION

Table 2 Correlation between SNOT-22 score & advice for surgery

Clinical findings	SNOT-22 score							Advised surgery
	Mild score	Moderate score	Severe score					
	Total patients	No. of patients with a mild score	% of patients with a mild score	No. of patients with a moderate score	% of patients with a moderate score	No. of patients with a severe score	% of patients with a severe score	
Deviated Nasal Septum	28	18	64.3	10	35.7	0	0	17 (60.7%)
Septal spur	12	10	83.3	2	16.6	0	0	
Nasal Polyposis	4	2	50.0	2	50.0	0	0	
Pale Nasal Mucosa	6	4	66.7	2	33.3	0	0	
Polypoidal Middle Turbinate	4	0	0.0	4	100.0	0	0	1 (25%)

In our study, it was found that 60.7 patients with a deviated nasal septum were advised surgery (ie. septoplasty), however, none of these patients had a severe SNOT-22 score. This is probably owing to the fact that nasal blockage is only one of the questions in the SNOT-22 score & that patients with a deviated nasal septum did not suffer from symptoms like fatigue, ear pain, dizziness etc. which are mentioned in the SNOT-22 score.

Soler et al.12 reported that a low score of the questionnaire was the only factor that was related to the decision to undergo surgery and concluded that questionnaires to assess quality of life should be incorporated into clinical practice.

Smith et al.13 conducted a prospective study that showed that patients with worse scores benefit more from surgery. Moreover, patients with clinical monitoring and worse quality of life scores could switch to the surgical group, which led to a significant improvement of the scores.

Birch et al.14 suggest that patients who are waiting for surgery should have worse endoscopic scores, more Chronic Rhinosinusitis symptoms and worse QOL scores.

Rudmik et al.15 conclude that the patient with a SNOT-22 score above 30 points have a 75% chance of significantly changing their clinical condition with surgery. These same patients improved their quality of life by 45%. On the other hand, patients with SNOT-22

scores under 20 did not show significant improvements after surgery.

Hopkins et al.,¹⁶ who validated the SNOT-22 for the first time in the United Kingdom, applied the questionnaire to 2077 surgical patients and obtained a preoperative score of 41.7, which is lower than the score found in the present study. This difference between the Brazilian studies and UK study suggests that the different lifestyles and cultures of the nations may influence the concept of quality of life. However, the UK sample of surgical patients consisted of subjects from several centres. Such a diverse criteria suggests that the sample included patients with few symptoms or a milder form of disease, which would be an error and may lead to over-referrals of surgical treatment.

Gillett et al.¹⁷ conducted a study and used the SNOT-22 on 116 patients without sinonasal disease in the United Kingdom to know the score of the questionnaire among patients without sinonasal disease. The justification was that many patients who underwent surgery in other studies obtained a relatively low SNOT-22 score, which suggests that the referral may have been inappropriate. Patients with low scores may have oligosymptomatic Chronic Rhinosinusitis or may have been overdiagnosed.

Conclusion

In our study, the patients requiring surgical management had a mild or moderate SNOT-22 score because only one of the symptoms were severe. Grading of the SNOT-22 Score is not an indicator in deciding surgical management of the patients with sinonasal symptoms.

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