



Quality of life in patients with chronic rhinosinusitis in Kintamani, Bali

Sari Wulan Dwi Sutanegara, Luh Made Ratnawati, Putri Citra Laksmi Darsana

Department of Otorhinolaryngology Head and Neck Surgery, Faculty of Medicine Udayana University, Sanglah General Hospital, Denpasar, Indonesia

Abstract

Background: Although chronic rhinosinusitis (CRS) is not life-threatening condition, it impairs daily functioning and quality of life. Sino-Nasal Outcome Test- 22 (SNOT-22) is a specific questionnaire to measure the quality of life for CRS patients.

Purpose: The purpose of this research is to know the quality of life in CRS patients based on SNOT-22 in Kintamani, Bali.

Method: This research used descriptive method and cross sectional design. This study was conducted during social service in Kintamani on Sunday, September 15th 2019.

Result: A total 32 subjects were included in this study. The highest proportion of CRS patients is in the age group of 25-44 years (40.6%) with mean age was 32.22 with an SD value 16.737 and with the proportion of women 18 patient (56.3%). The SNOT-22 scores ranged from 10-39 with mean score was 26.06 (95% CI: 23.23-28.90). The five highest mean score was nasal blockage (3.06), sneezing (2.56), runny nose (2.50), post nasal discharge (2.22), fatigue (1.81) and reduced concentration (1.81).

Conclusion: In this research, the SNOT-22 scores ranged from 10-39 with mean score was 26.06 (95% CI: 23.23 – 28.90). The highest mean score of symptoms was rhinologic symptoms followed by psychological symptoms.

Keywords: chronic rhinosinusitis, quality of life, SNOT-22

Introduction

Rhinosinusitis is an inflammation of the nasal mucosa and paranasal sinuses. Acute rhinosinusitis that is not treated properly can lead to chronic rhinosinusitis. Chronic rhinosinusitis (CRS) is a common medical condition of a multi-factorial origin that can severely affect the quality of life [1].

CRS is one of the most common chronic diseases in the United States and Europe. CRS prevalence in the US is about 15% in the adult population. According to data from the Ministry of Health in 2003, nasal and sinus diseases are in the 25th order of the 50 main ranking disease patterns. In Indonesia, the prevalence of CRS in 2004 was reported at 12.6% with an estimated 30 million people suffering from CRS [2, 3, 4].

The term CRS encompasses all inflammatory process, infectious or not, affecting the nasal cavity mucosa producing symptoms lasting for over 12 weeks. The CRS diagnosis is essentially clinical and straight forward when following the criteria established by the American Academy of Otorhinolaryngology Head and Neck Surgery (AAO – HNS), by the presence of two major symptom or one major symptom with two minor symptom, lasting for more than 12 weeks, besides nasal endoscopy and/ or CT scan. The major symptoms, such as: facial pain/pressure, nasal obstruction, anterior or posterior rhinorrhea, hyposmia or anosmia and and fever in acute condition. Meanwhile, minor criteria include headache, fever, halitosis, fatigue, toothache, cough and pain or fullness in the ear. [2, 4, 6]

CRS is a multifactorial disease and has very significant impact on patient's quality of life. Comparing with patient without CRS, those with CRS report spending more days in bed, sleep disorders, look for medical care more often and psychological disorders such as depression, anxiety and weakness. The assessment of quality of life has become an essential element of healthcare evaluation, the burden and relief of symptoms as perceived by the patient play an essential role in the choice and evaluation of treatment by the clinician [2, 6, 7, 8].

Sinonasal Outcome Test – 22 (SNOT – 22) was introduced in 2003 by dr. Jay Piccirilo. SNOT - 22 is a specific questionnaire to assess the quality of life in patients with CRS. The SNOT 22 has four domains, there are rhinologic symptoms, ear and facial symptoms, sleep disturbance and psychological symptoms. The SNOT-22 questionnaire rated 22 different symptoms from 0 (no problem) to 5 (problem as bad as it can be). Recently, SNOT–22 were validated for Indonesian. Translation and validation of SNOT–22 in Indonesian allows more consistent assessment of the quality of life for these patients [1, 9, 10]. CRS has been shown to substantially reduce health-related quality of life, most health care burden relates to loss productivity, office visits and medical expenses. In Indonesia, especially in Bali, there is few data regarding the quality of life in patients with CRS. The aim of this study is to know the quality of life in patients with CRS based on SNOT-22 in Kintamani, Bali.

Methods

This was a cross sectional descriptive study with 32 subjects. The study was conducted during social service on September 2019 in Kintamani, Bali. Research subject were all people who came during social service that held in Kintamani on Sunday, September 15th 2019, who met the inclusion criteria. The subjects were chosen by consecutive sampling method. The inclusion criteria were all people who came during social service that held in Kintamani and who met the major and minor criteria according to AAO-HNS based on anamnesis and physical examination. The subjects were given informed consent and agreed to participate. The exclusion criteria were patients with head and neck malignancy and patient who were not cooperative.

The participants of this study underwent anamnesis as well as ear, nose, and throat examination. After that, the subjects complete SNOT-22 questionnaire. SNOT-22 is a 22-item outcome measure applicable to sinonasal condition with score range 0 – 110. Higher total score on the SNOT-22 imply greater impact of CRS on quality of life and suggesting significantly poorer quality of life. All examinations were documented and the data was analyzed using SPSS version 24, then the results were presented in text and tables [1, 12].

Result

In this research, a total 32 subjects were included in this study. The samples consisted of 18 female (56.3%) and 14 male (43.7%).

The subjects were divided into five groups according to their age, revealing the highest subject of age group 25 - 44 years old as many as 13 subjects (40.6%) with mean age was 32.22 and with an SD value 16.737. Distribution of gender and age is shown in Table 1.

Table 1: Characteristics of subjects

Characteristic	N	%
Gender		
Male	14	43.7
Female	18	56.3
Age		
Mean ± SD	32,22 ± 16.737	
0 – 14	8	25
15 – 24	3	9.4
25 – 44	13	40.6
45 – 64	6	18.8
> 65	2	6.2

The SNOT-22 scores ranged from 10 to 39 with a mean score of 26.06 (95% CI: 23.23 – 28.90). The five highest mean score of symptom of SNOT-22 was nasal blockage (3.06), sneezing (2.56), runny nose (2.50), post nasal discharge (2.22), fatigue (1.81) and reduced concentration (1.81). Table 2 shown the SNOT-22 mean score of each symptom.

Table 2: SNOT-22 mean score for each symptom

Items	Mean score
Need to blow nose	0.91
Nasal blockage	3.06
Sneezing	2.56
Runny nose	2.50
Cough	0.50
Post-nasal discharge	2.22
Thick nasal discharge	1.28
Ear fullness	0.31
Dizziness	1.38
Ear pain	0.53
Facial pain/ pressure	1.41
Decreased sense of smell/ taste	0.22
Difficulty falling asleep	0.38
Wake up at night	0.31
Lack of a good night's sleep	1.03
Wake up tired	1.47
Fatigue	1.81
Reduced productivity	1.66
Reduced concentration	1.81
Frustrated/ restless/irritable	0.34
Sad	0.28
Embarrassed	0.13

Discussion

In this study, more female had CRS compare to male. Fokken et al³ found the prevalence of CRS without nasal polyps was higher in women than men with ratio of 6:4. Barros et al [13] found the prevalence range of CRS was around 3.4% in men and 5.7% in women. Ference et al [14] reviewed six studies on gender differences in self-reported quality of life among CRS patients. They concluded that the influence of gender on quality of life seems to be restricted primarily to the general aspects of quality of life, whereas the disease-specific health-related quality of life is not different between genders.

The highest subject of age group is 25-44 years old as many as 13 subjects (40.6%) with mean age was 32.22 and with an SD value 16.737. Maramba et al [2] found the mean age of their research was 40.7. Johnson et al [16] found the mean age of their subjects was 48. According to Fokken et al [3] found that prevalence increases with age with an average of 2.7% and 6.6% in the age group 20-29 years old and 50-59 years old.

The SNOT-22 scores ranged from 10 to 39 with a mean score of 26.06 (95% CI: 23.23 – 28.90). According to Nyaiteera et al¹¹ both the SNOT-22 and domain mean scores were higher in patients with CRS and signifying poorer quality of life among these patients, compared to those without CRS. The mean SNOT-22 score of CRS patients was 31.4 (95% CI 25.26–37.44) while the patients without CRS was 4.10 (95% CI 2.35–5.86). Maramba et al [2] found that from the SNOT-22 questionnaire show worse quality of life scores from patients with CRS without previous surgery referred to clinical treatment when compared to

the group without sinonasal disease. Research conducted by Toma S et al ^[10] propose a statistically validated definition for stratification of the SNOT-22, with mild being defined on the SNOT-22 score as 8 – 20, moderate as > 20 – 50 and severe >50. This classification will facilitate the use of the SNOT-22 in conjunction with treatment algorithms described by EPOS, where patient pathways are determined by disease severity into mild moderate and severe. This will reduce the need for both measures to be recorded. It also facilitates classification of patients for research purposes. Research conducted by Juanda et al ^[9] the Indonesian version of the SNOT-22 is a valid instrument with good internal consistency and validity for assessing quality of life in patients with CRS.

The five highest mean score of symptom of SNOT-22 was nasal blockage (3.06), sneezing (2.56), runny nose (2.50), post nasal discharge (2.22) fatigue (1.81) and reduced concentration (1.81). Abdalla et al ^[15] also found that in CRS group without nasal polyps, nasal blockage was the most symptom. Johnson et al ^[16] found that the highest score of each symptom of SNOT-22 was nasal blockage followed by need to blow the nose, reduced sense of smell/ taste, woke up tired and fatigue during the day.

Because CRS has been shown to substantially reduce quality of life, most health care burden relates to loss of productivity and medical expenses. By understanding quality of life in patients with CRS, clinician can target their evaluation to problem and identify patient factors that will maximize treatment response. The SNOT-22 also can measure the effectiveness of treatment including surgery and clinical treatment.

In conclusion, the SNOT-22 scores in this research ranged from 10-39 with mean score was 26.06 (95% CI: 23.23 - 28.90). The highest mean score of symptoms was rhinologic symptoms followed by psychological symptoms.

Acknowledgment

The authors would like to thank ORL-HNS Department of Sanglah General Hospital for the support.

References

- Yeolekar AM, Dasgupta KS, Khode S, Joshi D, Gosrani N. A Study of SNOT-22 Scores in Adults with no Sinonasal Disease. *Journal of Rhinology-Otology*,2013;1:6-10.
- Maramba PP, Lima MG, Santos KP, Gomes AM, Sousa MM, Marques ME. Evaluation of the Quality of Life of Patients with Chronic Rhinosinusitis by Means of The SNOT-22 Questionnaire. *Brazilian Journal of Otorhinolaryngology*,2013;79(1):54-58.
- Fokkens W, Lund Vm, Bachert C, Clement P, Hellings P, Holmstrom M, Jones N et al. European Position Paper on Rhinosinusitis and Nasal Polyps 2012. *Rhinology*,2012;50(23):45:1-305.
- Rudmik L, Smith TL. Quality of Life in Patients with Chronic Rhinosinusitis. *Curr Allergy Asthma Rep*,2011;11:247-52.
- DeConde AS, Mace JC, Alt JA, Soler ZM, Orlandi RR, Smith TL. Investigation of Change In Cardinal Symptoms Of Chronic Rhinosinusitis After Surgical Or Ongoing Medical Management. *International Forum of Allergy and Rhinology*, 2014, 1-10.
- Blackwell DL, Lucas JW, Clarke TC. Summary Health Statistics for U.S. Adults: National Health Interview Survey. *Vital Health Stat* 10,2014;(260):1-61.
- Van Oene CM, van Reij EJJ, Sprangers MAG, Fokkens WJ. Quality Assessment of Disease-Specific Quality of Life Questionnaires for Rhinitis and Rhinosinusitis: A Systematic Review. *Allergy*. 2007; 62: 1359-1371. *Clinical Otolaryngology*,2015;41:127-30.
- Lange B, Thilising T, Baelum J, Kjeldsen AD. The Sinonasal Outcome Test 22 Score in Persons without Chronic Rhinosinusitis, 2016.
- Juanda IJ, Madiadipoera Teti, Ratunanda SS. Adaptasi Budaya, Alih Bahasa Indonesia, dan Validasi Sino- Nasal Outcome Test (SNOT) – 22. *MKB*,2017;49(4):267-73.
- Toma S, Hopkins C. Stratification of SNOT-22 Scores into Mild, Moderate or Severe and Relationship with other Subjective Instruments. *Rhinology*,2015;54:129-33.
- Nyaiteera V, Nakku D, Nakasagga E, Liovet E, Kakande E, Nakalema G et al. The Burden of Chronic Rhinosinusitis and its effect on Quality of Life of Life among Patients Re-attending an Otolaryngology Clinic in South Western Uganda. *BMC Ear Nose and Throat Disorders*, 2018, 1-9.
- Eccles R. Mechanism of The Symptoms of Rhinosinusitis. *Rhinology*,2011;49(2):131-8.
- Barros E, Silva A, Sousa Vieira A. Prevalence and Characteristic of Rhinosinusitis at Primary Health Care In Portugal. *Rev Port ORL*,2012;50(2):5-12.
- Ference EH, Tan BK, Hulse KE, Chandra RK, Smith SB, Kern RC et al. Commentary On Gender Differences In Prevalence, Treatment, And Quality Of Life Of Patients With Chronic Rhinosinusitis. *Allergy & Rhinology*,2015;6(2):e82.
- Abdalla S, Alfirefy H, Hopkins C. Prevalence of Sinonasal Outcome Test (SNOT-22) Symptoms in Patients Undergoing Surgery for Chronic Rhinosinusitis in The England And Wales National Prospective Audit. *Clin. Otolaryngol*,2012;37:276-82.
- Johnson PS, Ohlsson B, Buchwald C, Jannert M, Elmqvist MA. A Multi- Centre Study on Quality of Life And Absenteeism in Patients with CRS Referred for Endoscopic Surgery. *Rhinology*,2011;49:420-28.