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Quality of Life of Laryngeal Carcinoma Patients after Total Laryngectomy

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Abstract

Background: Management of laryngeal carcinoma has been widely developed, either by surgery, radiotherapy, and/or chemotherapy. The treatment has a major impact on physical, social, and psychological health that can change the quality of life of patients.

Objective: The purpose of this study to determine the quality of life of laryngeal carcinoma patients after total laryngectomy at Hasan Sadikin General Hospital, Bandung.

Methods: We are using descriptive research methods. Research data is primary data taken through interviewed using Short Form 36 (SF-36) Study Questionnaire and the European Organization for Research and Treatment of Cancer Head and Neck Cancer Quality of Life Questionnaire (EORTC QLQ-H and N35) to patients post total laryngectomy that came to the Ear, Nose, Throat, Head and Neck Surgery Division at Hasan Sadikin General Hospital, Bandung.

Result: This study was taken form 23 subjects with a total of 19 men (82.61%) and 4 women (17,39%), patients are generally 56-65 year old as many as 15 subjects (65.22%) and the most recent high school education as many as 16 subjects (69, 57%). The average value of the quality of life of SF-36 physical components was 87.55 ± 2.35 and mental components were 85.35 ± 3.92. The highest average quality of life of EORTC QLQ-H and N35 on the speech problem scale was 51.69 ± 6.36 and the lowest on the feeding hose scale was 0.00 ± 0.00.

Conclusion: The quality of life of laryngeal carcinoma patients after total laryngectomy on the SF-36 questionnaire is generally good and EORTC QLQ-H and N35 has problems with speech.

Keywords: EORTC QLQ-H and N35; Laryngeal carcinoma; SF-36; Total laryngectomy; Quality of life

Introduction

Laryngeal carcinoma is malignancy in the larynx which can affect the supraglotic, glottic, and subglotic regions. The therapeutic modalities of laryngeal carcinoma have developed, for example by surgery or by radiation, chemotherapy, or combination.

In patients who perform total laryngectomy procedure, the ability of the larynx to produce sound will disappear so adaptation is needed; there are also changes in the process of breathing and swallowing. This treatment has a major impact on physical, social, and physiological health that changes the quality of life [1]. Quality of life is one of the main concerns in the world of head and neck cancer [2]. It is important to evaluate the quality of life in patients who have total laryngectomy.

In this study, we used a combination of the two questionnaires to assess the quality of life of post-laringectomy patients. The SF-36 questionnaire was used as a measurement tool to assess the quality of life of patients in general and the EORTC QLQ-H and N35 questionnaire was a specific questionnaire used to assess aspects of quality of life in patients with head and neck cancer. The use of this questionnaire simultaneously is expected can describe the quality of life of post-laringectomy patients more thoroughly and includes all aspects related to laryngeal function in patients with laryngeal carcinoma.

Methods

We are using descriptive research methods. Research data is primary data taken through interviews and questionnaires so that data on quality of life in patients with postcalaringectomy were obtained. The inclusion criteria in this study were patients with laryngeal carcinoma performed for total laryngectomy within 3 months or more after radiotherapy without any other complications and comorbidities. The research instrument used was the SF-36 and EORTC QLQ-H and N35 questionnaires.

The collected data will then be processed with a scoring system and analyzed through the Statistical Package for Social Sciences (SPSS) program version 23.0, with descriptive statistical analysis performed on each variable. Data will be presented in the form of descriptive narratives with tables and/or graphs.

Result

The research subjects obtained were 23 people with the following characteristics (Table I).

On the SF-36 questionnaire, a score of 0 indicates the low health level and a score of 100 indicates the healthiest level. The two components on the SF-36 questionnaire showed good results, that is 87.55 for physical components and 85.35 for mental components (Table II).

Scoring on the EORTC QLQ-H and N35 questionnaire has a range of values from 0 to 100. Each scale has a score range of 0 to 100. The higher results explain that the increasing number of health problems and decreases the quality of life of patients. The highest scoring value lies in the scale of the speech problem and the lowest is obtained at the scale of the use of nasogastric tube (Table III).

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Table I: Characteristics of research subjects.

Variable	Amount (n=23)	Percentage (%)
Stage		
Stage I	0	0
Stage II	0	0
Stage III	9	39,13
Stage IV	14	60,86
Age		
≤ 45 years	1	4,35
46-55 years	3	13,04
56-65 years	15	65,22
≥ 66 years	4	17,39
Gender		
Male	19	82,61
Female	4	17,39
Last Education		
Elementary School	1	4,35
Junior High School	4	17,39
Senior High School	16	69,57
University	2	8,70

Table II: Mean values of SF-36 components in patients with laryngeal carcinoma post total laryngectomy.

Component	Mean ± Standard Deviation
Physical component	87,55 ± 2,35
Mental component	85,35 ± 3,92

Table III: Mean values of EORTC QLQ-H and N35 in patients with laryngeal carcinoma after total laryngectomy.

Scale	Mean	Standard Deviation
Pain	5,43	9,27
Swallowing problems	3,99	7,48
Sensory problems	2,17	5,74
Speech problems	51,69	6,36
Eating problem	4,71	7,46
Social interaction	9,28	11,50
Sexual problems	0,72	3,48
Dental problems	2,90	9,60
Mouth opening problems	7,25	14,06
Dry mouth	2,90	9,60
Thick spit	7,25	14,06
Cough	26,09	14,06
Feeling sick	10,14	15,68
Use of pain killer	26,09	44,90
Use of nutritional supplements	34,78	48,70
Use of nasogastric tube	0,00	0,00
Weight loss	8,70	28,81
Weight gain	47,83	51,08
Skor Total	13,99	15,72

Discussion

In this study, it was found that patients undergoing total laryngectomy were stage III and IV laryngeal cancer patients. The reason that explains the stage is that patients come with severe condition, most patients are in stages III and IV, and Dr. Hasan Sadikin Hospital is a level III referral hospital so that patients who come are mostly at an advanced stage. These results are in accordance with the American Joint Committee on Cancer (AJCC) which states that advanced stages of laryngeal cancer are stage III and IV. Definitive therapy for advanced cancer is in the form of surgery with radiotherapy or chemoradiotherapy. The surgical options that can be done are transoral resection using a laser, partial laryngectomy, and total laryngectomy. But for advanced stages, the only option most likely is total laryngectomy. Total laryngectomy is the gold standard for the treatment of advanced laryngeal cancer with large cartilage destruction, extra laryngeal extension, and treatment of recurrent laryngeal cancer after primary non-surgical treatment [3]. In the study sample, the number of men was more than women, according to the research conducted by Rossi et al. showed that of the total 30 patients with laryngeal carcinoma involved in the study, 28 men and 2 women were found [4]. Factors which cause men to be more susceptible to laryngeal carcinoma associated with higher smoking habits and alcohol consumption than women [5]. Smoking is the biggest risk factor (99%) occurrence of laryngeal carcinoma [6]. Smoking components, especially nitrosamines and polycyclic aromatic hydrocarbons act as carcinogens in the laryngeal epithelium, these components specifically cause mutations in DNA and interfere with the normal cell division and proliferation process that triggers the mechanism of carcinogenesis [7]. In addition to cigarettes, alcohol is also an important risk factor in the pathogenesis of laryngeal cancer. Chronic inflammation of the laryngeal layer of ethanol can cause a series of mutations at the gene level that interfere with cell proliferation and increase carcinogenesis [7].

In this study, patients were generally in the range 56-65. These results are in accordance with the research conducted by Rahmaeni et al. Found that the age of patients with laryngeal carcinoma is in the age range 50-59 years [8]. The high number of malignancies in the elderly is caused by mutations that accumulate in the body resulting in less efficient deoxyribonucleic acid repair and reduced immune system that decreases defense against cancer cells. In the elderly there is also the accumulation of cells undergoing the aging process and supporting the microenvironment of the development of cancer cells [9].

The education level of the research subjects varied from elementary school to university with the highest level of education being senior high school. The level of education can be used as an indicator of the patient's socio-economic status. The Markou et al. study shows that the majority of patients with laryngeal cancer are unemployed or unskilled workers. People with low socioeconomic levels tend to be more smoking and alcohol consumption, poor diet, lack of prevention strategies and poor sanitation and support high rates of laryngeal cancer in this population [10,11].

Quality of life is one of the main concerns in the world of head and neck oncology. Quality of life can be measured using 2 instruments, namely general instruments, for example with the SF-36 questionnaire and special instruments with the EORTC QLQ-H and N35 questionnaire for certain diseases [12,13]. The combination of the two questionnaires is expected to better illustrate the quality of life in patients with head and neck cancer, especially can add more specific components of quality of life that are not found in the general questionnaire.

The SF-36 questionnaire consists of 36 questions containing two major components, namely the physical component and the mental component. In addition, this questionnaire can also be divided into eight dimensions, such as physical health, limitation of activity due to physical health, body pain, perceptions of general health, vitality, social functioning, limitation of activity due to emotional problems, and mental health [13]. In this study, based on the SF-36 questionnaire, the quality of life of patients with laryngeal cancer who had undergone total laryngectomy was generally good with an average value of the physical and mental components of 87.55 and 85.35. The results of this study are supported by the results of a study conducted by Rossi et al in 30 patients with laryngeal carcinoma with different therapeutic modalities and showed the results of the SF-36 quality of life scores which were generally good on all scales (>60.5).

Apart from general questionnaires, assessment of quality of life in head and neck cancer patients also requires a special questionnaire for example by using the EORTC QLQ-H and N3 questionnaire. This questionnaire can be used as the basis for assessing voice changes, changes in function in swallowing, speech functions, also including issues of physical appearance [14]. This study shows the results of good quality of life seen from the average EORTC QLQ-H and N35 questionnaire of 13.99. In this questionnaire the smaller the score obtained shows the better quality of life for patients.

In this study, the largest average value was found on the scale of speech problems represented by three questions, such as hoarseness, whether there were difficulties in talking to other people, and whether there were difficulties in talking on the telephone. The results of this study are in line with the research conducted by Akil et al. and Dinescu et al. [15,16]. This is caused by a significant change in voice after total laryngectomy, patients will experience difficulties in speech problems because the laryngeal function of speech is completely lost.

Larynx plays a role in the process of swallowing so that the total laryngectomy procedure performed in patients with laryngeal carcinoma can also affect the ability to swallow. The radiation effect as adjuvant therapy can also contribute to the occurrence of dysphagia, dry mouth, and thick saliva. In this study, there were not many problems with swallowing, eating problems, problems opening wide mouths, dry mouth, and thick saliva. There are only 6 respondents who sometimes have a swallowing problem of solid food. This is also in line with the scale of using a feeding hose that no patient uses a feeding hose at all which shows the ability to swallow is still good so it is estimated that food intake through mouth is maintained well and no weight loss occurs. This result was also offset by an increase in body weight felt by some patients. This result is in line with the research conducted by Akil et al. [15-17].

Conclusion

Quality of life in patients with laryngeal carcinoma after total laryngectomy in RSUP Dr. Hasan Sadikin Bandung which was assessed using the SF-36 generic questionnaire and a specific questionnaire for head and neck cancer, namely EORTC QLQ-H and N35, showed good quality of life.

Conflict of Interest

Authors have no conflict of interest to disclose.

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