



Abstract

Effect of the Laryngectomy Method on the Burden of Caregivers of Patients with Laryngeal Cancer

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Objective: The aim of this study was to investigate the stress status of the caregivers of patients who have undergone total and partial laryngectomy.

Methods: Sixty patients who underwent total and partial laryngectomy and 60 caregivers of these patients were included in the study. The patients and their caregivers filled the sociodemographic data forms. Caregivers filled in Beck Depression Scale, Zarit Caregiver Burden Scale, Stress Coping Styles Scale, Caregivers Stress Index, Caregivers Reaction Diagnostics Scale, and Stress Symptoms Scale.

Results: Thirty caregivers each were enrolled in the total and partial laryngectomy groups, respectively. The median Zarit caregiver burden scale score was 40.80±14.26 in the total and 19±10.42 in the partial laryngectomy groups. The Zarit Caregiver Burden score was statistically higher in the total laryngectomy group ($p<0.05$).

Conclusion: Caregivers in the partial laryngectomy group were able to cope better under stress when the stress coping style subscales of both groups were compared.

Keywords: Laryngectomy, caregiver, stress

Introduction

The incidence of laryngeal carcinoma has significantly increased in the last 10 years. This condition includes approximately 2% to 5% of all annually malignancies diagnosed. Cigarette is the most important known factor in the etiology of laryngeal cancer. Furthermore, the prevalence of cigarette consumption has set apart laryngeal cancers apart in terms of importance. In early stage laryngeal cancers, phonation and larynx functions are preserved, morbidity is decreased, and the quality of a patient's social life is improved by radiotherapy and partial laryngectomy. Unfortunately, laryngeal cancer patients usually consult during advanced stages. Therefore, these patients lose their chances of partial surgery or radiotherapy. In that case, by abiding to the principles of oncologic surgery, the functions of the larynx become of secondary importance for treating the disease and increasing the survival time of patients. As a result, patients undergo radical surgeries such as total laryngectomy (1).

The staging of laryngeal cancers is mandatory prior to treatment to plan the correct treatment and compare the results of treatment options. With advancing technology, the widespread use of high-resolution computed tomography along with other imaging methods and endoscopes allows preoperative tumor staging and the decision of treatment option to be performed much more effectively. Thus, the most appropriate treatment method is performed in a way that will least disrupt a patient's quality of life (1).

While many factors are responsible in the etiology of laryngeal cancer including heredity, asbestos, wood dust, coal, various metals, hormones, air pollution, viral infections, and diet, the most important factor proven to be carcinogenic is cigarettes. Cigarettes contain more than 30 known carcinogens. The duration of cigarette consumption is equally important as the amount of cigarette consumption. In a case-control study, the frequency of observing laryngeal cancer in individuals who smoke more than 2 packs of cigarettes is reported to be 10.4 times more than that in non-smokers. The risk level of a non-smoker is achieved 15 years after quitting cigarettes. It is known that laryngopharyngeal reflux is another etiological factor, especially in laryngeal cancer observed in non-smokers. Moreover, reflux is commonly observed in postcricoid region cancers. Another important etiological factor is alcohol, and the synergistic effect of alcohol with tobacco is demonstrated. Plummer–Vinson syndrome and sulfuric acid are also considered to be risk factors (1).

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Laryngeal cancer includes 2% to 5% of all body malignancies. Laryngeal cancer is most commonly seen between the 5th and 7th decades of life, and the male/female ratio is 10/1. Even though it is more commonly observed in males, the difference is reducing with an increase in the number of females who smoke and work at the same jobs as males, and there are recent studies stating that the ratios have changed to 5-6/1. The prevalence of the disease in people younger than 30 years is 1%. The rate of the occurrence of more than one simultaneous carcinoma in a laryngeal cancer patient is approximately 1%. The likelihood of a metachronous primary tumor is 5%–10%. The tumor that can most commonly accompany another tumor is laryngeal cancer (1).

The notion of the burden of caregivers was first suggested by Zarit et al. (2) in 1980 for the dementia patient group. This term expressed the physical, emotional, and economic costs of the duty of caregiving. After this, the investigation of the notion of the burden of caregivers did not remain limited to the dementia patient group, and it was tested on chronic diseases such as rheumatoid arthritis and heart failure; neurological diseases such as amyotrophic lateral sclerosis, brain tumor, paraplegias, multiple sclerosis, Parkinson's disease, and stroke; and eating disorders such as anorexia and bulimia nervosa (3-7). Even though many different scales have been created to measure the burden of caregiving and there are even scales specifically designed for some diseases, the Zarit Caregiver Burden Scale, developed by Zarit et al. (2) in 1985, is still one of the most frequently used scales.

Methods

Sixty patients who underwent total and partial laryngectomy and the caregivers of these patients were included in the study. Ethics committee approval and informed consent forms from patients and their caregivers were obtained for the study. The patients and their caregivers filled sociodemographic data forms. The caregivers were assessed using the Beck Depression Scale, Zarit Caregiver Burden Scale, Stress Coping Styles Scale, Caregiver Stress Index, Caregiver Reaction Assessment Scale, and Stress Symptoms Scale.

Statistical analysis

Before proceeding to the testing phase of whether or not there is a statistically significant difference between the medians of two different groups (caregivers of patients with total and partial laryngectomies), the test of whether or not the variances are equal, which is known as Levene's test in literature, was performed. According to the findings obtained after Levene's test, the variances of the two groups were found to be significantly different ($p=0.033<0.05$). Therefore, values belonging to the second row of Table 1 were considered while evaluating the results of the t-test. When these values were examined, a statistically significant difference was observed between the two groups as a result of the t-test ($p=0.00<0.05$).

Results

Fourteen caregivers (23.3%) were males, and 46 (76.7%) were females. The ages of the caregivers varied between 19 and 66 years, and the median age was 46.35 ± 11.57 years. When the educational backgrounds of caregivers were examined, it was observed that 26.7% were uneducated, 50% were primary school graduates, 11.7% were middle school graduates, 10% were high school gradu-

Table 1. Comparison of the burden of caregiver using t-test

		Levene's test			T test	
		F	p	t	df	p
Zarit caregiver burden	Equal variance assumption	4.792	0.033	6.77	58	0.000
	Unequal variance assumption			6.77	53.203	0.000

ates, and 1.7% were university graduates. When the kinship of the caregivers to the patient was examined, it was observed that 48.3% were the spouses of the patients, 48.3% were the children of the patients, and 2% were other relatives. Caregiver depression scores varied between 0 and 19, and the median was 10.85 ± 5.49 . The Zarit Caregiver Burden scores varied between 0 and 59, and the median was 29 ± 16.5 .

The caregivers of 30 total laryngectomy patients and 30 partial laryngectomy patients were included in our study. When the caregivers of these patients were compared, the median Zarit Caregiver Burden score of the caregivers of total laryngectomy patients was found to be 40.80 ± 14.26 , and the median Zarit Caregiver Burden score of the caregivers of partial laryngectomy patients was found to be 19 ± 10.42 . When these two groups were compared, the caregiver burden of total laryngectomy patients was detected to be significantly higher ($p<0.05$).

The median time of caregiving was 2.88 ± 1.31 years. Table 2 is achieved by testing, without grouping caregivers, whether or not there is a significant relationship between care time of caregivers and Zarit Caregiver Burdens. Findings in Table 2 include the results of the Pearson correlation test. According to Table 2, a statistically significant relationship was not found between the years of care and caregiver burden ($p=0.25>0.05$). This result may be due to our sample size being limited. Similarly, a statistically significant relationship was not found between caregiving time and depression scores when investigated with the Pearson correlation test ($p=0.46>0.05$).

When the Stress Coping Styles subscales were evaluated and the groups were taken into account, a significant difference was not found between the medians of the caregivers of total and partial laryngectomy patients with resignation subscale scores ($p=0.175>0.05$). Similarly, a significant difference was not found between the medians of groups in the seeking social support approach ($p=0.23>0.05$). A significant difference was found between the medians of groups with helpless subscale of the same scale ($p=0.000<0.05$). In other words, the caregivers of total and partial laryngectomy patients were found to be statistically different in terms of the helpless approach subscale. When we look at the median scores of the caregivers of total and partial laryngectomy patients, the helpless subscale scores were 1.39 and 0.86, respectively. When the confident approach subscale was evaluated, the median scores of the caregivers of total and partial laryngectomy patients were statistically significantly different ($p=0.015<0.05$). Other subscale results displayed similar characteristics (Table 3).

Table 2. The relationship between the duration of caregiving and caregiver burden

		Zarit caregiver burden	Duration of caregiving
Zarit caregiver burden	Pearson Correlation	1	-0.15
	p		0.25
	n	60	60
Duration of caregiving	Pearson Correlation	-0.15	1
	p		0.25
	n	60	60

Table 3. Intergroup evaluation of stress coping style subscales*

	t-test	p
Self-confident approach	-2.5	0.015
Optimistic approach	-2.6	0.012
Resigned approach	1.4	0.175
Seeking for social support	1.2	0.235
Helpless approach	4.3	0.000

*: df=58

Discussion

When the subscales regarding the Stress Coping Styles were compared among the caregivers of total and partial laryngectomy patients, it is observed that the caregivers of partial laryngectomy patients generally coped with stress much better and that they were prone to the confident, optimistic, and social support seeking approaches. On the other hand, the caregivers of total and partial laryngectomy patients were shown to be not different regarding the helpless and resigning approaches. As a result, the care burdens of the caregivers of total and partial laryngectomy patients were high. When various features of the caregiver, patient, disease, and caregiving period were examined, it can be stated that some caregivers constituted a more risky group in terms of caregiving burden. In that case, it is important that caregivers should be informed on the potential problems beforehand and that they develop coping strategies. Research in this area continues to become more important, and provided information will be instructive to patients and their relatives for developing correct approaches. Sharing the burden of care with family members can reduce the burden of caregivers. It is recommended that planned and system-

atic attempts are made directed at factors affecting the caregiving burden that their results are evaluated and that strategies are developed directed at the family burden.

Conclusion

When the subscales regarding the Stress Coping Styles were compared among the caregivers of total and partial laryngectomy patients, it was observed that the caregivers of partial laryngectomy patients generally cope with stress much better and that they are prone to the confident, optimistic, and social support seeking approaches.

Ethics Committee Approval: Ethics committee approval was received for this study.

Informed Consent: Written informed consent was obtained from patients who participated in this study.

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