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Quality of life of Turkish patients with head and neck cancer

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ABSTRACT

In the past decade there has been a considerable increase of interest in quality of life (QoL) issues of oncology. This study was planned to investigate whether localization side and stage of cancer, treatment type and radiotherapy doses have effect on quality of life in head and neck (H&N) carcinoma Turkish patients. 102 H&N cancer patients (Mean age 58.6 years) were included in the study between May 2002 and August 2003. Demographic data, side of cancer, time of diagnosis, treatment type, and radiotherapy doses were determined with the patients' clinical files. QoL was assessed with Turkish Variation of EORTC QLQ-C30 and QLQ-H&N 35. Statistical analysis was performed with SPSS 10.0 programme. It was found that quality of life differs due to location of tumor, stage of cancer, treatment type and radiotherapy dose ($p<0.05$). Quality of life (QoL) was lower in patients with advanced (Stage III+IV) tumors and treated with radiotherapy plus surgical method. Main factors affecting quality of life were speech problems, taste loss, mouth dryness, swallowing difficulty and emotional disorders. The study showed that quality of life level is low in advanced periods after therapy in head and neck cancer patients. [Turk J Cancer 2007;37(4):129-136]

KEY WORDS: Quality of life, head&neck cancer, questionnaire, EORTC

INTRODUCTION

Head and neck (H&N) cancers constitute 5% of all cancers and this rate increases by 2% each year. The most frequent tumor type is squamous cell cancer and tumor locates at larynx, mouth cavity, pharynx and salivary glands (1-4).

Metastasis properties of cancer and side effects of therapy cause insufficiency in breathing, swallowing, speaking, masticating functions. There is a strong correlation between tumor's stage, area, treatment type, age and level of problems. Complications as pain, mucositis, mouth dryness, loss of taste and smell have negative effects on quality of life of patients due to extended radiotherapy's dose and volume (1-10).

Hanna and Shearman (9) found that quality of life is affected particularly with disorders in eating, breathing and speaking functions in patients with H&N cancers.

Clinical studies in this group focus on local control of tumor, evaluating survival and effectiveness of therapy methods. Factors affecting quality of life are equally important. Importance of quality of cancer patients resulted in development of specific quality of life questionnaires. One of those is EORTC Head-Neck Quality Of Life Questionnaire. The questionnaire that was developed by EORTC Quality of Life Study Group was used evaluate the quality of life in H&N cancer patients. Many studies evaluated the reliability and validity of the questionnaire in different languages (11-18).

Our aim was to evaluate the quality of life in treated H&N cancer patients in advanced stages.

MATERIALS AND METHODS

Study design and patients

This study was designed as a prospective descriptive study and was approved by the University Hospital Ethics Committee. Hundred and two H&N cancer patients referred to the outpatient Radiotherapy Department at Dokuz Eylül University were included in this study. Inclusion criteria used were: age up to 18, a duration of at least 4 months after radiotherapy cessation, and stage I-IV oral cavity, larynx and pharynx cancers. Patients with recurrent or second cancers, distant metastases and inability to understand the questionnaire due to cognitive and/or mental impairment were excluded.

Study measures

The following sociodemographic and clinical data were collected: gender, age, mental status, education, employment, side of tumor, date of diagnosis, treatment type, and radiotherapy doses.

QoL instruments

Patients completed the EORTC QLQ-C30 (Version 3.0), the EORTC QLQ-H&N 35 at regular follow-up visit, using face to face interviews.

Turkish variation was provided by EORTC QoL Study Group.

EORTC QLQ-C30 (version 3.0) is a widely used questionnaire incorporating extensive QoL issues relevant to a broad range of cancer patients (6, 16-20). It has been validated for many types of cancer including H&N cancer. It contains five functional scales (physical, role, cognitive, emotional, and social), three symptom scales (fatigue, pain, and nausea/vomiting), a global QoL scale, and six single items (dyspnea, insomnia, appetite loss, constipation, diarrhea, and financial difficulties). Version 30 (+3) contains two additional items on role functioning and one additional item on overall health. The EORTC QLQ-C30 (+ 3) is meant to be used in conjunction with a tumor-specific module.

Table 1
Patient characteristics

Parameters	n=102	%
Male/female	72/30	70.6/29.4
Median age (years)	58.5	
Site		
Oral cavity	16	15.7
Larynx	64	62.7
Pharynx	22	21.6
AJCC stage		
I	29	28.4
II	24	23.5
III	29	28.4
IV	20	19.6
Previous treatment		
Radiotherapy (RT)	52	51.0
RT +chemotherapy	3	2.9
RT +surgery	46	45.1
RT+ chemotherapy +surgery	1	1.0
Therapy dose		
50 Gy	32	31.4
60 Gy	21	20.6
66 Gy	34	33.3
70 Gy	15	14.7
Surgery method		
Didn't have surgery	50	49.0
Primary tumor surgery	19	18.6
RND+ Primary tumor surgery	22	21.6
MND+ Primary tumor surgery	7	6.9
Other	4	3.9

RND: Radical neck dissection, MND: Modified neck dissection; Other surgery: Pectoralis major flap

Table 2
Differences of scales and single items of the QLQ-C30 and the QLQ-H&N 35 by site of tumor

EORTC QLQ-C30	Oral cavity	Larynx	Pharynx	P value
Physical functioning	54.72	51.42	49.39	0.858
Role functioning	57.38	51.64	46.82	0.478
Cognitive functioning	54.66	52.77	45.52	0.473
Emotional functioning	53.91	51.85	48.73	0.855
Social functioning	44.69	54.46	47.84	0.384
Global quality of life	31.33	34.72	36.51	0.263
Fatigue	54.66	49.34	55.50	0.617
Pain	51.16	49.03	58.93	0.368
Nausea and vomiting	37.96	35.71	32.91	0.643
Dyspnea	32.16	59.05	43.59	0.001*
Insomnia	48.00	50.86	55.91	0.621
Appetite loss	24.87	33.16	31.73	0.098
Constipation	56.81	50.07	57.83	0.584
Diarrhea	48.19	52.17	51.95	0.699
Financial problems	59.91	50.33	48.77	0.411
EORTC H&N 35				
Pain	67.56	50.26	51.72	0.035*
Swallowing	50.59	44.47	68.07	<0.001*
Social eating	74.94	48.34	43.64	0.002*
Social contact	42.09	35.74	33.12	0.041*
Speech	45.68	54.20	40.52	0.003*
Taste/smell	62.84	47.24	55.64	0.012*
Sexuality	66.69	58.68	63.95	0.193
Teeth	46.11	37.64	41.53	0.127
Trismus	68.25	45.67	56.27	0.002*
Dry mouth	55.41	46.35	56.36	0.161
Sticky saliva	43.72	50.00	61.52	0.119
Cough	53.16	51.41	50.57	0.958
Felt ill	55.50	52.07	46.93	0.583
Pain killer	51.81	52.61	48.05	0.766
Nutritional supplement	55.44	52.25	46.45	0.409
Feeding tube	51.50	51.50	51.50	1.000
Weight gain	59.440	50.67	48.14	0.154
Weight loss	42.0619.81	54.81	48.73	0.154

Table 3
Comparison of quality of life points according to stage of cancer

EORTC QLQ-C30	Stage I	Stage II	Stage III	Stage IV	P value
Physical functioning	76.81	69.83	36.71	14.25	<0.001*
Role functioning	48.25	45.13	33.81	31.09	0.197
Cognitive functioning	46.91	49.51	51.27	53.09	0.107
Emotional functioning	45.18	42.61	49.07	46.34	0.091
Social functioning	49.79	50.21	53.33	55.73	0.134
Global quality of life	50.08	47.83	43.25	40.37	0.083
Fatigue	28.81	35.31	51.79	74.42	<0.001*
Pain	41.94	44.52	46.31	48.07	0.248
Nausea and vomiting	33.27	34.82	36.60	35.28	0.531
Dyspnea	35.12	32.46	63.02	81.40	<0.001*
Insomnia	44.62	39.00	59.52	64.85	0.001*
Appetite loss	32.86	56.29	53.88	69.32	<0.001*
Constipation	23.07	22.18	24.61	19.83	0.337
Diarrhea	20.13	18.53	21.37	23.64	0.634
Financial problems	29.75	32.52	30.18	33.46	0.147
EORTC H&N 35					
Pain	30.25	33.46	35.91	36.62	0.214
Swallowing	37.07	55.27	51.68	59.03	0.001*
Social eating	29.67	33.42	35.63	37.91	0.078
Social contact	34.74	51.54	52.86	63.66	<0.001*
Speech	47.84	49.65	53.93	57.90	0.067
Taste/smell	37.64	44.06	52.10	65.15	<0.001*
Sexuality	40.38	56.23	58.17	52.28	0.077
Teeth	43.60	54.19	53.55	56.75	0.317
Trismus	44.47	55.96	48.40	60.85	0.110
Dry mouth	41.08	44.19	46.63	48.22	0.072
Sticky saliva	53.93	50.90	50.74	49.80	0.955
Cough	52.00	55.08	44.47	56.67	0.374

EORTC: European Organization for Research and Treatment of Cancer; H&N 35: Head and Neck Cancer Module
*Kruskal Wallis, p<0.05

The EORTC QLQ-H&N 35 is meant to be used in conjunction with the QLQ-C30 in H&N cancer patients. It contains seven subscales (pain, swollen, taste/smell, speech, social eating, social contacts, and sexuality). There are 10 single items relating to problems with teeth, dry mouth, and cough, opening the mouth wide, sticky saliva, weight loss, weight gain, use of nutritional supplements, feeding tubes and pain killers (6,16).

Items 1 to 30 are scored on four-point likart-type categorical scales (“not at all”, “ a little”, “quite a bit”, “very much”). Items 31 to 35 have a “no/yes” response format.

All scales and items of the EORTC QLQ-C30 and QLQ-H&N 35 range in score from 0 to 100. A high score for a functioning or global QoL scale represents a high level of functioning or global QoL, whereas a high score for a symptoms scale or item represents a high level of symptoms or problems (17,18).

Table 4
Comparison of quality of life points according to treatment type

EORTC QLQ-C30	RT	RT+Chemotherapy	RT+Surgery	P value
Physical functioning	46.27	32.17	32.78	0.029*
Role functioning	47.04	27.20	32.33	0.004*
Cognitive functioning	45.63	42.36	39.73	0.133
Emotional functioning	48.38	53.33	28.72	<0.001*
Social functioning	48.10	48.33	39.44	0.187
Global quality of life	47.24	36.67	31.35	0.009*
Fatigue	30.86	31.83	49.50	0.001*
Pain	34.81	31.33	36.10	0.328
Nausea and vomiting	39.86	31.00	39.82	0.654
Dyspnea	32.03	29.61	46.83	0.001*
Insomnia	32.06	40.83	47.44	0.004*
Appetite loss	38.28	25.00	42.03	0.324
Constipation	40.35	30.50	39.33	0.611
Diarrhea	38.50	34.50	41.00	0.568
Financial problems	41.08	44.13	42.61	0.376
EORTC H&N 35				
Pain	34.81	21.33	46.10	0.028*
Swallowing	29.87	27.63	38.51	0.034*
Social eating	51.03	30.00	52.34	0.359
Social contact	27.66	30.37	37.64	0.021*
Speech	30.28	28.14	43.24	0.003*
Taste/smell	43.90	50.17	58.42	0.091
Sexuality	45.20	59.17	55.72	0.248
Teeth	49.44	44.33	53.20	0.723
Trismus	53.10	32.50	49.84	0.354
Dry mouth	53.42	71.33	46.28	0.071
Sticky saliva	53.31	53.50	48.23	0.655
Cough	51.74	39.67	50.90	0.750
Felt ill	50.82	44.00	51.66	0.882
Pain killer	49.39	45.83	53.15	0.714
Nutritional supplement	50.65	55.83	51.08	0.921
Feeding tube	51.00	51.00	51.00	1.000
Weight gain	53.68	43.00	48.49	0.287
Weight loss	52.21	66.17	59.95	0.451

EORTC: European Organization for Research and Treatment of Cancer; RT: Radiotherapy; H&N 35: Head and Neck Cancer Module
*Kruskal Wallis, $p<0.05$

Statistical analysis

The data were analyzed using the statistical package SPSS for Windows (SPSS 10.0). Kruskal-Wallis variance analysis was used to compare the means of QoL score in the location of tumor, cancer stage, therapy method, surgical method and radiotherapy dose groups and multiple regression models to determine the effects of sociodemographic factors on quality of life.

RESULTS

Patients

Alltogether 102 patients were included in the study. Patients' characteristics for the whole study group are shown in table 1. There were 16 patients with oral cavity tumors, 64 patients with laryngeal cancer, and 22 patients with pharyngeal tumors (Table 1). Twenty-nine of the patients (28.4 %) had a stage I disease, 24 patients (23.5%) had a stage II disease, 29 (28.4%) had a stage III disease, and 20 (19.6 %) had a stage IV disease.

A total of 52 patients (51%) have been treated only with radiotherapy (RT), 3 patients (2.9%) have been treated with RT and chemotherapy, 46 patients (45.1%) have been treated with RT+surgery. Only one patient (1%) has been treated with RT+chemotherapy+surgery.

Fifty patients (49%) did not have any surgery, 19 patients (18.6%) have been treated with primary surgery; 22 patients (21.6%) have been treated with RND + primary surgery; 7 patients (6.9%) had modified neck dissection plus primary surgery and 4 patients (3.9%) had pectoralis major flap.

Total radiotherapy doses were 50 Gy in 32 patients (31.4%), 60 Gy in 21 patients (20.6%), 66 Gy in 34 patients (33.3%) and 70 Gy in 15 patients (14.7%).

Sociodemographic data

At the time of the evaluation 71 (69.6%) of the patients were on leave of absence and 11 (10.8%) were unemployed and 20 patients (19.6%) were retired. 94 patients (92.1%) had compulsory school education, 8 (7.8%) had a university education. Most of them were married (86 of the patients, 84.3%), and 16 of the patients (15.7%) were single.

EORTC QLQ- C30 and H&N 35

The scales and single items of both questionnaires were compared according to sites of tumor, stage of cancer, type of treatment method.

When the scores from EORTC QLQ-C30 were compared among cancer sites, only the patients with laryngeal cancer scored worse for dyspnea ($p=0.001$) (Table 2).

For the QLQ-H&N 35, there were statistically significant differences for pain, swallowing, social eating, social contact, speech, taste/smell, and trismus. Patients with oral cavity cancer had the worst values for pain, social eating, taste loss, opening mouth, and trismus ($p=0.035$ for pain; $p=0.002$ for social eating, opening mouth and trismus; $p=0.012$ for taste loss). Patients with pharyngeal cancer scored worst for swallowing ($p=0.001$), whereas patients with laryngeal cancer had worse score for speech ($p=0.003$) (Table 2).

Both the QLQ-C30 and the QLQ-H&N 35 had significant differences between the stages of the disease (Table 3). Patients with small tumors (stage I+II) scored better than those with large tumors (stage III+IV). Patients with large tumors (stage III+IV) scored higher on fatigue, dyspnea, insomnia, loss of appetite, swallowing difficulties, social contact, loss of taste/smell ($p<0.05$). Patients with small tumors also scored better for physical functioning ($p<0.001$).

When the scores were compared between the types of treatment, the patients who were treated with only radiotherapy had better scores for physical functioning, role functioning, emotional functioning, and global quality of life ($p=0.029$ for physical functioning, $p=0.004$ for role functioning, $p<0.001$ for emotional functioning, and $p=0.009$ for global quality of life) (Table 4).

Multiple regression model showed that lower socioeconomic level and being single have negative effects on quality of life (B: 0.398; p: 0.012 and B: 1.938; p: 0.048, respectively).

DISCUSSION

Negative effects on quality of life and physical functions continue for months or years after the therapy is

completed in head-neck cancers. Together with these disorders, emotional and psychosocial status affects the quality of life (4-8).

Studies showed that pain, dental problems, mouth dryness, sensorial problems in oral cavity cancer, swallowing difficulty, throat pain, sticky saliva in pharynx cancer and speech problem, dyspnea in larynx cancer have high symptom points (15, 19-26)

In our study, quality of life was evaluated with EORTC head and neck quality of life questionnaire. According to questionnaire results, in oral cavity cancers pain, difficulty in opening the mouth, taste loss, dental problems, difficulty in eating in social environment subscales, in pharynx cancers swallowing and social communication difficulties subscales and in larynx cancer speech problems and dyspnea subscales had significantly high points. Our data paralleled the findings from the literature.

Studies showed that disease stage and quality of life had a high negative correlation (4,8). Hammerlid et al. (8) found that dental problems, sticky saliva excretion, taste loss, swallowing difficulty, feeling sick scale points were significantly high in stage III and IV head and neck cancers when compared with stage I and II.

In Campbell et al.'s study (15) patients with advanced cancer, swallowing difficulty, speech problems, physical activity difficulty points were significantly high. Investigations supporting these studies showed that symptom scale points are high and quality of life is low in patients with advanced stages.

Serious and long-term side effects of therapy, physical and functional differences due to surgery and psychosocial status of the patient have negative effects in patients with advanced cancer. In some manuscripts it was stated that therapy methods comprising of many modalities cause more and serious complications (5, 22-29).

In our study, according to QoL results only in radiotherapy group physical functions, functions of role, emotional functions, global health status and quality of life points were significantly high. Fatigue, pain, insomnia, weakness, speech and swallowing problems, dyspnea, social communication difficulty subscale points were significantly high in radiotherapy+surgery group.

Surgical methods are directed to remove the cancer totally and to prevent the breathing, swallowing and voice functions (27-31). In some studies it was shown that surgery increase the survival but permanent functional and physical changes negatively affect the QoL and performance level (11,30).

In our study, according to surgical method, swallowing and speech problems, insomnia, dyspnea, sensorial problems, social communication problem subscale points were significantly high in radical surgery group. Ninety-two percent of radical neck dissections was total laryngectomy in our study. Pulmonary complications and speech problems negatively affect the general health status and QoL.

CONCLUSION

We evaluated the QoL of the cases in the late period after the therapy but not the reasons and time of the factors those have negative effects on therapy. To determine the time and concentration of therapy side effects and to find the therapy modalities for these complications longitudinal studies evaluating the QoL before and at several time points after the therapy are required.

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