The Effect of Anxiety and Depression on Quality of Life in Turkish Non Small Lung Cancer Patients

Türk Küçük Hücre Dışı Akciğer Kanser Hastalarında Anksiyete ve Depresyonun Yaşam Kalitesine Etkisi

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ABSTRACT

Objective: We investigated the levels of anxiety, depression and quality of life of non small cell lung cancer (NSCLC) patients receiving chemotherapy.

Material and Method: Forty three patients with NSCLC cancer receiving chemotherapy were included in this study. The series of forms including the questions regarding the demographic characteristics of the patients, Turkish version of the Beck Depression Inventory (BDI), the Turkish version of the State-Trait Anxiety Inventory (STAI) and EORTC- QLQ-C30 (version 3) were completed during face-to-face interviews by trained interviewers to determine the psychological status and quality of life of the patients.

Results: The mean Beck depression scores were 18±10.1 (range 0-40) and the mean STAI scores were 46.2±6.6 (range 33-60). 46.5% of the patients (20 patients) (Beck Depression scores ≥17 points) were determined as depressive. The STAI and EORTC-QLQ C30 symptom scales scores (excluding the dyspnea, diarrhea, constipation, appetite loss and financial problems) of the depressive patients (BDI≥17) were significantly higher than that of the non depressive patients (BDI<17). On the other hand, the EORTC-QLQ C30 function scales (physical, role, cognitive, emotional and social function scales) and global quality of life scores of the depressive patients (BDI≥17) were significantly lower than that of the non depressive patients (BDI<17).

Conclusion: In our study, anxiety and depression levels were high in Turkish NSCLC cancer patients. We found that depression was strongly associated with the poor quality of life in Turkish NSCLC cancer patients. *(Tur Toraks Der 2012; 13: 50-5)*

Key words: Anxiety, depression, EORTC QLQ-C30, non small cell lung cancer

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ÖZET

Amaç: Kemoterapi alan küçük hücre dışı akciğer kanseri (KHDAK) hastalarında anksiyete, depresyon ve yaşam kalitesini araştırdık.

Gereç ve Yöntem: Kemoterapi alan 43 KHDAK hastası çalışmaya alındı. Hastalara, demografik özelliklerini içeren form ile birlikte, Beck depresyon ölçeğinin türkçe versiyonu, STAI anksiyete ölçeğinin türkçe versiyonu ve EORTC QLQ C-30 yaşam kalitesi ölçeği hastaların psikolojik ve yaşam kalitesi durumlarını tesbit etmek amacıyla yüz yüze görüşme metodu ile eğitimli mülakatçılar tarafından uygulandı.

Bulgular: Hastaların ortalama Beck Depresyon skoru 18±10.1 (0-40) ve ortalama STAI anksiyete skorları 46.2±6.6 (33-60) idi. Hastaların %46.5'i (20 hasta) (Beck Depression skoru (BDS) ≥17 puan) depresif olarak tanımlandı. Depresif hastaların (BDS≥17 puan) STAI ve EORTC-QLQ C30 semptom skala skorları (dispne, diyare, konstipasyon, iştah kaybı ve finansal problemler dışında) depresif olmayan hastalardan (BDS<17) anlamlı olarak yüksek bulunmuştur. Öte yandan depresif hastaların (BDS≥17 puan) EORTC-QLQ C30 fonksiyon skalaları (fiziksel, rol, kognitif, emosyonel ve sosyal fonksiyon) ve genel yaşam kalite skoru depresif olmayan hastalardan (BDS<17) anlamlı olarak daha düşük bulunmuştur.

Sonuç: Çalışmamızda, Türk KHDAK hastalarında anksiyete ve depresyon seviyeleri yüksek bulunmuştur. Ayrıca depresyonun düşük yaşam kalitesi ile kuvvetli ilişkisinin olduğu saptanmıştır. *(Tur Toraks Der 2012; 13: 50-5)*

Anahtar sözcükler: Anksiyete, depresyon, EORTC QLQ-C30, küçük hücreli dışı akciğer kanseri

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INTRODUCTION

Lung cancer ranks among the most common and most lethal malignancies worldwide. It is rapidly emerging as a major cause of mortality in the Middle East, Africa and Asia as well [1]. Fewer than 15% of patients diagnosed with lung cancer are alive 5 years later [2]. More than 70% of patients will be diagnosed with advanced disease that is not amenable to curative therapy [3]. Approximately 80% of lung cancer is Non Small Cell Lung Cancer (NSCLC). The cause of the large majority (80% to 90%) of lung cancers is cigarette smoking [4]. Other causes of lung cancer are prolonged and intense exposures to asbestos [5].

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Treatment of NSCLC involves surgery, radiotherapy and chemotherapy. Surgery has provided the best chance of cure for patients with resectable NSCLC. Whenever surgery has not been an option for patients with resectable cancers, radiotherapy has been used for the control of the primary tumor and regional lymphatics. In general, chemotherapy is rarely curative in lung cancer patients. Complete responses and prolonged survivals have occasionally been seen in patients with advanced locoregional disease, as well as metastatic disease [1].

The prevalence of psychological distress among a large sample of cancer patients was determined as 35.1% and was 43.6% in lung cancer patients [6]. Several studies have indicated that certain patient characteristics such as younger age and marital status and certain biomedical variables such as advanced disease stage, declining performance status and pain are associated with the degree of psychologic distress [7]. Depression and anxiety are generally considered to be the most important psychopathological comorbidities of cancer patients [8].

Quality of life (QoL) is a multidimensional property that includes, but is not limited to, the patient's health status, psychological well-being, social and cognitive functioning and the impact of illness and treatment on the patient's experience of life [9]. The survival in lung cancer patients is poor, quality of life is considered to be an important outcome in patients who develop the lung cancer [10].

The specific objectives in the present study were to assess the levels of anxiety, depression and quality of life of NSCLC patients receiving chemotherapy with Beck depression, STAI and EORTC QLQ-C30 scoring system and to investigate variations in quality of life as a function of depression and anxiety of NSCLC patients.

MATERIALS and METHODS

The patients with non small lung cancer (NCSLC) receiving chemotherapy were enrolled in this study.

Eligibility criteria included diagnosis of NSCLC, ability to speak Turkish, no physical or psychological disabilities that would prevent participating in the interventions. All participants were given information about the study and agreed to participate in the research. The data were collected using a series of forms completed during face-to-face interviews by trained interviewers to determine the psychological status and quality of life of the patients. After obtaining the written informed consent, two of the co-authors carried out the interwiews.

The first form consisted of the questions regarding the demographic characteristics of the patient.

The second form was the Turkish version of the Beck Depression Inventory (BDI). The Beck Depression Inventory (BDI) was developed in 1961 by Beck. It is composed of 21 questions or items, each with four possible responses. Each response is assigned a score ranging from zero to three, indicating the severity of the symptom. Individual questions of the BDI assess mood, pessimism, sense of failure, self-dissatisfaction, guilt, punishment, self-dislike, self-accusation, suicidal ideas, crying, irritability, social withdrawal, body image, work difficulties, insomnia, fatigue, appetite, weight loss, bodily preoccupation, and loss of libido. Items 1 to 13 assess symptoms that are psychological in nature, while items 14 to 21 assess more physical symptoms [11]. It was translated into Turkish and its reliability was recalculated by Tegin and Hisli [12,13]. For the Turkish population, a score of 17 or over represents depression by Hisli. We used these cut-off scores to determine the levels of depression.

The third form was the Turkish version of the State-Trait Anxiety Inventory (STAI). The STAI provides a reliable measure of anxiety and is a self-administered questionnaire. It was first developed by Spielberger in the 1970s. The STAI consists of two subscales: state anxiety and trait anxiety. The first subscales (20 items) measure state anxiety by asking subjects how they feel "right now." The second subscales (20 items) measure trait anxiety by asking subjects how they "generally" feel. The each response is assigned a score ranging from one to four, indicating the severity of the symptom. The state and trait anxieties are scored separately. Both scores range from 20 to 80, with higher scores indicating a greater level of anxiety [14]. It was translated and validated in the Turkish language by Oner [15]. We used trait anxiety subscales in this study.

The fourth form was the Turkish version of the European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaire C30 version 3 (QLQ-C30). EORTC- QLQ-C30 (version 3) was translated and validated in the Turkish language by Hoopman [16]. It has been developed for patient self assesment. It is a '30 item cancer specific questionnaire' designed for patient self-completion. It is organised into functional scales (physical function, role function, cognitive function, emotional function, social function), symptom scales (fatigue, pain, dyspnea, loss of appetite, insomnia, diarrhea, constipation, nausea-vomiting and financial difficulties) and global health status. It also includes a single item assessing overall quality of life. The scale scores are transformed into a 0 to 100 scale. Therefore, a high score on the functional scale represents a high level of functioning, a high score for a symptom scale represents a high severity level of symptoms [17].

Statistical Analysis

All data were analyzed by using SPSS for Windows version 10.0. Descriptive statistics were summarized as frequencies and percentages for categorical, mean and standard deviation for continuous variables. Independent

samples Mann-Whitney U tests were used to compare continuous variables, Beck Depression, Trait Anxiety and EORTC QLQ C-30 score between groups. A value of $p<0.05$ was considered as significant.

RESULTS

The characteristics of the 43 NSLC patients in the study are shown in Table 1. A total of 39 patients with NSLC (90.7%) were male. The mean age was 58 years (SD=9.5, range 40-76). The ECOG performance status of all patients was 0 or 1. The majority of patients were married (95.3%, 41 patients). 46.5% (20 patients) of the patients were high school graduates. Of the patients, 53.5% (23 patients) had advanced stage disease and 14% (6 patients) had relapsed disease. The patients were treated with chemotherapy [48.8% (21 patients)], or a combination of chemotherapy and radiotherapy [51.2% (22 patients)].

The mean scores for Beck depression, STAI and EORTC-QLQ C30 variables were shown in Table 2. The mean Beck depression scores were 18±10.1 (range 0-40) and the mean STAI scores were 46.2±6.6 (range 33-60). 46.5% of the patients (20 patients) (Beck Depression scores ≥17 points) were determined as depressive.

The patients were compared with each other in terms of Beck Depression; STAI scores and EORTC-QLQ C30 all scales (Table 3). When both groups (Beck depression score<17 and beck depression score≥17) were compared, it was determined that the STAI and EORTC-QLQ C30 symptom scales scores (excluding of the dyspnea, diarrhea, constipation, appetite loss and financial problems) of the depressive patients (BDI≥17) were significantly higher than that of the non depressive patients (BDI<17). On the other hand, the EORTC-QLQ C30 function scales (physical, role, cognitive, emotional and social function scales) and global quality of life scores of the depressive patients (BDI≥17) were significantly lower than that of the non depressive patients (BDI<17). There were clinical differences between EORTC subscale scores of two groups as 10-35 points.

When the groups were compared according to disease stage (Table 4), there is no significant difference between two groups in age and gender, while BDI and STAI scores of patients with advanced stage disease had significantly higher than patients with local advanced stage disease. EORTC-QLQ C30 function scales scores of the patients with advanced stage disease were significantly lower than patients with local advanced stage disease. There is no significant difference between two groups in the global quality of life scores. EORTC-QLQ C30 symptom scales scores (excluding of the diarrhea, constipation, appetite loss, nausea and womiting) of the patients with advanced disease were significantly higher than patients with local advanced disease.

DISCUSSION

In the present study, we investigated the levels of anxiety, depression and quality of life of NSCLC patients receiving chemotherapy and the interrelationships between demographic characteristics and anxiety, depression and quality of life in NSCLC patients in Turkey.

Table 1. Demographic characteristics of NSCLC patients

Socio-demographic Characteristics	Patient (n=43)
Age (mean±SS) (min-max)	58.1±9.5 (40-76)
Gender	
Male	39 (90.7%)
Female	4 (9.3%)
Marital Status	
Married	41 (95.3%)
Single (widow, divorced, not married)	3 (4.7%)
Education	
Primary Education	15 (35%)
High School	20 (46.5%)
University	8 (18.5%)
Disease Stage	
Local Advanced Disease	20 (46.5%)
Advanced Stage Disease	23 (53.5%)
Disease Relapse	
Yes	6 (14%)
No	37 (86%)
Treatment	
Chemotherapy	21 (48.8%)
Chemotherapy and radiotherapy	22 (51.2%)

Table 2. The mean scores of Beck depression. STAI and EORTC_QLQ-C30 of NSCLC patients

	Mean±SD
Beck Depression	18±10.1 (range 0-40)
STAI	46.2±6.6 (range 33-60)
Physical functioning**	50.1±25.7
Role functioning**	62.2±36.9
Cognitive functioning**	72.3±28.3
Emotional functioning**	66.3±21.6
Social functioning**	57.8±33.2
Global quality of life**	55.3±29.1
Fatigue**	59.3±25.2
Pain**	43.5±32.5
Nausea and vomiting**	25.8±32.5
Dyspnea**	33.1±38
Insomnia**	49.3±33
Appetite loss**	43.9±36
Constipation**	33.9±38
Diarrhea**	9.2±20.7
Financial problems**	36.2±36.8

** EORTC-QLQ C30 subscales

Table 3. The comparison of the STAI scores and EORTC-QLQ C30 of the NCSLC patients according to Beck Depression scores

	Beck Depression≥17 n=23	Beck Depression=17 n=20	*p
STAI	43.3±4.8	49.5±6.9	0.002
Physical functioning	67.7±16.8	29.9±18.2	<0.0001
Role functioning	76.6±32.5	45.6±35.3	0.004
Cognitive functioning	88.5±14.7	53.8±30.1	<0.0001
Emotional functionina	75.6±16.5	55.6±22.3	<0.0001
Social functioning	74.3±19.4	38.9±36	0.001
Global quality of life	66.6±23.3	42.3±30.1	0.007
Fatigue	45±22	75.7±17.7	<0.0001
Pain	31.6±29.6	57.2±30.8	0.008
Nausea and vomiting	15±23.2	38.4±37.5	0.032
Dyspnea	23±25.7	44.8±39.3	0.07
Insomnia	33.1±36.1	68±31.5	0.003
Appetite loss	36±34.5	53±36.4	0.12
Constipation	28.7±33.6	39.8±42.6	0.46
Diarrhea	7.1±17.1	11.5±24.5	0.71
Financial problems	25.8±26.2	48.2±43.8	0.1

*p Mann-Whitney U test

Table 4. The comparison of the Beck Depression, STAI scores and EORTC-QLQ C30 of the NSCLC patients according to disease stage

	Local Advanced Disease n=20	Advanced Stage Disease n=23	*p
BDl	12±6.3	23.2±9.9	<0.0001
STAI	43.1±5.2	48.9±6.7	0.004
Physical functioning	67.5±15.5	35±23.2	<0.0001
Role functioning	83.9±20.7	43.3±37.7	<0.0001
Cognitive functioning	85.2±19.6	61.2±31.2	0.008
Emotional functioning	74.2±14.7	59.5±24.5	0.016
Social functioning	72.2±23.8	45.3±35.5	0.013
Global quality of life	62.2±24.7	49.3±31.8	0.15
Fatigue	42.9±17.8	73.5±22.0	<0.0001
Pain	27.2±26	57.6±31.3	0.002
Nausea and vomiting	18.9±26.3	31.9±36.6	0.26
Dyspnea	18.1±19.9	46.1±38.5	0.014
Insomnia	33.1±32.3	63.5±37.5	0.009
Appetite loss	36.4±32.1	50.4±38.7	0.22
Constipation	23.1±32.4	43.3±40.7	0.08
Diarrhea	6.6±17.2	11.4±23.5	0.53
Financial problems	19.8±22.5	50.5±41.2	0.014

*p Mann-Whitney U test

Depression is common in cancer patients. The studies on depression after a diagnosis of lung cancer have revealed that 15% to 44% of patients experience some form of depression [18]. Hisli [13] defined the depression limit point in the Beck depression scale as 17 and above for the Turkish population. In the studies of Gözüm et al. [19], 53.2% of Turkish cancer patients receiving chemotherapy were reported as depressive. Pandey et al. [20] found that depression was present in 16.2% of cancer patients undergoing chemotherapy. Boncu et al. [21] reported that 26% of Turkish lung cancer patients were depressive. According to this value (Beck depression scale≥17), it was determined that 46.5% of our NSCLC patients were depressive. This might be due to the effect of chemotherapy agents on the physical status of the patients and the shorter survival of lung cancer patients.

The anxiety in cancer patients is above 50% and approximately 30% of the cancer patients suffer from chronic anxiety [22]. Montazeri et al. [23] reported that 10% of lung cancer patients had severe anxiety before diagnosis. Boncu et al. [21] found that 12% of Turkish lung cancer patients were anxious. In the present study, the STAI anxiety levels of the patients were 46.2±6.6 (range 33-60). This anxiety level was high. Balim et al. [24] reported that the mean STAI anxiety level for Turkish cancer patients (45.4±5.5) were higher than that for the normal population (40.0±2.5) in Turkey. Impacting the anxiety level of the patient, cancer diagnosis and therapies may cause deterioration in quality of life and in the adaptation of the patient to the treatment [25,26].

In our study, The STAI anxiety levels of depressive NSCLC patients were significantly higher than nondepressive NSCLC patients. The EORTC-QLQ C30 all function scales and global quality of life scores of the depressive NSCLC patients were significantly lower than that of nondepressive NSCLC patients. The symptoms scores of fatigue, pain, insomnia and nausea-vomiting were significantly higher in depressive patients than nondepressive patients. Pinquart et al. [27] reported that a lower level of depressive symptoms were associated with better qualtiy of life in cancer patients. Frick et al. [8] reported that anxiety and depression were significantly correlated with impaired quality of life. Bang et al. [28] reported that anxiety and depression were strongly associated with all variables of EORTC-QLQ C30 scales scores in solid cancer patients [29].

In this study, depression and anxiety levels of NSCLC patients with advanced stage disease were significantly higher than NSCLC patients with local advanced stage disease. EORTC-QLQ C30 function scales scores of the patients with advanced stage disease were significantly lower than patients with local advanced stage disease. There is no significant difference between two groups about global quality of life scores. The lower level of function scales in the patients with advanced stage disease may be explained by the adverse effect of the disease symptoms on the patients.

Limitations of our study were its cross-sectional nature and data collection method, which created difficulties in ascertaining causality. We used self reported data collected at one point in time. Other limitations to this study design were that the survey was carried out in a small number of NSCLC patients and that the results were obtained from a single instution.

Global quality of life is a strong prognostic factor for survival in patients with lung cancer [23,30]. In our study, depression and anxiety were high in NSCLC cancer patients. We found that depression was strongly associated with the poor quality of life in Turkish NSCLC cancer patients. Psychosocial support may improve the quality of life of lung cancer patients and adaptation of patients to the treatment.

Conflict of Interest

No conflict of interest was declared by the authors.

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