ARAŞTIRMA YAZISI / RESEARCH ARTICLE

AKCİĞER, KOLOREKTAL VE BAŞ-BOYUN KANSERİ OLAN HASTALARDA ANKSİYETE, DEPRESYON VE İNTİHAR OLASILIĞI

ANXIETY, DEPRESSION AND SUICIDE POSSIBILITY IN PATIENTS WITH LUNG, COLORECTAL AND HEAD-NECK CANCER

Başak ÖZYILDIRIM KOÇ[1], Özkan GÜLER[2], Bengü YÜCENS[3]

[1]Van Eğitim Araştırma Hastanesi, Psikiyatri Kliniği
[2]Selçuk Üniversitesi Tıp Fakültesi, Psikiyatri Anabilim Dalı
[3]Pamukkale Üniversitesi Tıp Fakültesi, Psikiyatri Anabilim Dalı

ÖZ

AMAÇ: Anksiyete ve depresyon kanser hastalarında yaygın olan psikiyatrik belirtilerdir. Hem anksiyete bozuklukları ve depresyonda hem de kronik hastalıklarda intihar riski arttığından kanser hastalarında intihar olasılığının artacağı öngörülebilir. Bu çalışmada farklı kanser türleri ayrı ayrı ele alınarak akciğer, kolorektal ve baş-boyun kanserli hastalarda klinik özelliklerin, anksiyete ve depresyon prevalansının, intihar olasılığının değerlendirilmesi ayrıca bu psikolojik faktörlerin farklı kanser türlerinin birbiriyle ve sağlıklı kontrol grubu ile karşılaştırılması amaçlandı.

GEREÇ VE YÖNTEM: Kesitsel tasarımda planlanan bu çalışmaya onkoloji bölümünde yatarak veya ayaktan tedavi görmekte olan 82 akciğer, 99 kolorektal, 79 baş-boyun kanseri olan hasta grubu ve 98 sağlıklı bireyden oluşan kontrol grubu dahil edildi. Tüm katılımcılara psikiyatri doktoru tarafından sosyodemografik veri formu, hastalarda ağrı ve yorgunluk gibi klinik semptomları, kanser evresi ve psikiyatrik tedavi öyküsünü değerlendiren klinisyen tarafından oluşturulan bir anket formu, Hastane Anksiyete ve Depresyon Ölçeği (HADÖ) ve İntihar Olasılığı Ölçeği (İOÖ) uygulandı.

BULGULAR: Kanser hastalarında anksiyete belirtileri prevalansının % 29.2, depresyon belirtileri prevalansının ise % 52.7 olduğu saptandı. HADÖ anksiyete ve depresyon alt ölçekleri ve İOÖ ortalama puanları kanser hastalarında sağlıklı kontrollerden istatistiksel açıdan anlamlı olarak daha yüksek saptandı. Baş-boyun kanserli hastaların depresyon, anksiyete ve intihar olasılığı düzeylerinin sağlıklı kontrollerden anlamlı olarak daha yüksek olduğu; akciğer kanserli hastaların sadece depresyon düzeylerinin sağlıklı kontrollerden anlamlı olarak daha yüksek olduğu görüldü. Ek olarak, kanser hastalarında kadın cinsiyet, yorgunluk ve ağrı deneyimlerinin anksiyete ve depresyon sıklığını artıran faktörler olduğu; ileri evre hastalığın yalnızca depresyon sıklığını, psikiyatrik tedavi öyküsünün de yalnızca anksiyete sıklığını etkilediği saptandı.

SONUÇ: Farklı kanser türlerinde anksiyete, depresyon ve intihar gibi psikolojik faktörler de değişkenlik göstermektedir. Farklı belirtiler farklı tedavi yöntemleri gerektireceğinden kanser hastalarında psikiyatrik belirtilerin de kanser tipine göre farklılık gösterebileceği akılda tutulmalıdır. Bu belirtilerden şüphelenildiğinde psikiyatri konsültasyonu ile sağlanacak tanı ve tedavi süreci hastaların kemoterapi veya radyoterapi sürecine uyumunu ve yaşam kalitelerini artıracaktır.

ANAHTAR KELİMELER: Anksiyete, Depresyon, İntihar, Kanser, Psikoonkoloji

ABSTRACT

OBJECTIVE: Anxiety and depression are common psychiatric symptoms, and an increased risk of suicide is also seen in cancer patients. It was aimed to evaluate clinical features, anxiety and depression prevalence, and suicide probability in patients with lung, colorectal and head-neck cancer, also to compare these psychological factors with those with a healthy control group.

MATERIAL AND METHODS: The patients with 82 lung cancer, 99 colorectal cancer and 79 head-neck cancer and a control group of 98 healthy individuals were included in the study. Sociodemographic data form, Hospital Anxiety and Depression Scale (HADS) and Suicide Probability Scale (SPS) were administered to all the participants.

RESULTS: The prevalence of anxiety symptoms was 29.2% and depression was 52.7% in cancer patients. HADS anxiety and depression subscales and SPS mean scores were higher in cancer patients than healthy controls. The patients with head-neck cancer were more anxious, more depressed, and suicidal than the healthy controls. The patients with lung cancer were only more depressed than the healthy controls. Additionally, it was found that female gender, fatigue, and pain experience in cancer patients were seen as factors that increased the frequency of anxiety and depression; advanced stage disease was only related to the frequency of depression, and a history of psychiatric treatment affected only the frequency of anxiety.

CONCLUSIONS: Psychological factors varies in different types of cancer. The cancer patients should be evaluated in terms of psychiatric problems by the clinicians to determine the level of anxiety, depression, and suicidality.

KEYWORDS: Anxiety, Depression, Cancer, Psycho-Oncology, Suicide

INTRODUCTION

Although many cancer types can currently recover completely with early diagnosis or lifelong treatments thanks to developments in technology and medical facilities, cancer still entails a burden beyond the risk involved. While the treatment of an acutely developing disease may produce a positive or negative significant outcome, the result is often less pronounced in the treatment of a chronic developing disease, such as cancer. Therefore, cancer patients have a high rate of psychiatric comorbidity. Psychosocial complications are mostly adjustment disorders, depression, anxiety, decreased life satisfaction or loss of self-confidence (1).

Anxiety disorders are common mental disorders in cancer patients, with reported prevalence of 10% - 30% (2). In the diagnosis and treatment process, anxiety has been reported to increase other psychological symptoms such as depression, to have a negative effect on the life quality of cancer patients and to worsen compliance to treatment (3). In patients with cancer, depression is seen in a wide spectrum ranging from isolated depressive symptoms to major depressive disorder (4). Major depression is an important psychiatric disorder that has to be taken into consideration, as it affects the quality of life, self-care, and compliance with treatment, severity of cancer, progression and response to treatment (5). Atesci et al. (6) studied 150 cancer patients undergoing inpatient treatment and reported that 28.7% of patients had a DSM-IV axis I diagnosis, 14% had a depressive mood, and 11.3% had a major depressive disorder. A study of different types of cancer reported that oropharyngeal cancer (22-57%), pancreatic cancer (33-50%), breast cancer (1.5-46%) and lung cancer (11-44%) had a stronger relationship with depression, and lower rates of depression were reported in patients with other cancers such as colon cancer (13-25%), gynecological cancers (12-13%) and lymphoma (8-19%) (7). An increased risk of suicide is also seen in people diagnosed with cancer compared to healthy groups.

Cancer patients prefer this to a death that is unrelenting and painful and perceive suicide as a more peaceful form of death. High levels of hopelessness and additional critical events increasing the level of stress are factors that increase the risk of suicide with depression (8). Thoughts of suicide in cancer patients are associated with psychological factors such as hopelessness, lack of social support, socio-demographic factors as unemployment, low income, living alone, advanced age and female gender in addition to medical factors as delayed diagnosis of disease, childhood tumor, and cancer type (8,9).

The risk of suicide is higher in the presence of psychiatric disorders such as anxiety and depression (10). In addition, early diagnosis, cranial radiotherapy, impaired memory and cognitive functions, physical impairment, alcohol use, a history of attempted suicide, and advanced age (especially > 60 years) have been reported to be suicide-related factors in the first year following a cancer diagnosis (11,12). In a study conducted on 18,604,308 people diagnosed with cancer in the United States, it was determined that the highest suicide rates were seen in males (80 - 84 years) (22%), and suicide at the rate of 52.3% was reported in the elderly of both genders with lung, head-neck and stomach cancer (13).

In studies on anxiety, depression and suicide in cancer patients, the publications investigating the differences between the types of cancer are not sufficient. The hypothesis of this study was that the prevalence of anxiety, depression symptoms and suicide probability was higher in cancer patients than in healthy individuals and these psychological factors differ according to the clinical conditions and types of cancer. It was aimed to evaluate anxiety and depression prevalence, suicide probability and some clinical features in patients with lung, colorectal and head-neck cancer, and to compare these psychological factors with those with a healthy control group.

MATERIAL AND METHODS

The study included a total of 260 patients (82 lung cancer, 99 colorectal cancer, 79 head-neck cancer) who agree to answer surveys by having signed voluntary consent forms and were hospitalized or treated as outpatients in the Department of Medical Oncology, and a control group formed of 98 healthy individuals. Socio-

demographic data form, The Hospital Anxiety and Depression Scale (HADS) and Suicide Probability Scale (SPS) were administered to all the participants.

Patients who were diagnosed lung, colorectal or head-neck cancer; are over age 18 and volunteer to participate in the study; have no physical (hearing, speech impairment) or mental disability (psychotic disorder, mental retardation, etc.) that might affect the application of scales and participation in sessions were included in the study. The healthy control group consisted of individuals over 18 years of age with no history of psychiatric disease, and no history of cancer in the patient and their first-degree relatives.

MEASURES

Hospital Anxiety and Depression Scale (HADS)

This is a self-reported scale developed to measure the severity of anxiety and depression in patients with physical disease. The validity and reliability study of the Turkish version was performed by Aydemir et al. (14) and Cronbach alfa coefficient for anxiety and depression subscales was found respectively, 0.85 and 0.77. The scale includes 14 items in two subscales of Anxiety (HAD-A) and Depression (HAD-D). The cut-off point was defined as 10 for the HAD-A subscale, and 7 for the HAD-D subscale.

Suicide Probability Scale (SPS)

This scale evaluates the risk of suicide in adolescents and adults and includes 36 items with responses on a 4-point Likert-type scale. High scores on the scale indicate a high probability of suicide. Turkish validity and reliability study was conducted by Atli et al. (15).

ETHICS COMMITTEE

The study protocol received an institutional review board approval (approval code 2014/15 and date 09.09.2014) from Selcuk University Faculty of Medicine and that all participants provided informed consent in the format required by the relevant board.

STATISTICAL ANALYSIS

Data obtained in the study were analyzed using PASW/SPSS 16.0 software. Sociodemographic characteristics were stated as mean ± standard deviation, minimum and maximum values for continuous variables, and as number and percentage for categorical variables. The Kolmogorov-Smirnov test was used to assess the conformity to normal distribution of continuous variables belonging to two independent groups. The Mann-Whitney U test was applied in the comparisons of mean values of continuous variables in two independent groups, and the Kruskal-Wallis test for more than two groups.

Spearman correlation analysis was applied to determine correlations of continuous variables and the Chi-square test was used for categorical variables in two independent groups and more than two groups. In all analyses, a value of $p < 0.05$ was considered statistically significant.

RESULTS

The study included 141 (54.2%) males and 119 (45.8%) females with a mean age of 55.7 ± 11.6 years. The control group was formed of 98 healthy individuals comprising 51 (52%) males and 47 (48%) females with a mean age of 56.31 ± 11.34 years.

Early-stage disease was diagnosed in 41.9% (n = 109) of the patients and advanced stage in 58.1% (n = 151), 92.3% of the patients (n = 240) were aware of the diagnosis. Fatigue was determined in 61.5% (n=160) of the patients, pain during the previous month in 56.5% (n = 147), a history of psychiatric treatment in 16.9% (n = 44), and a family history of psychiatric disorder in 13.4% (n = 35). The diagnoses were lung cancer in 32% (n =8 2), colorectal cancer in 38% (n = 99) and head-neck cancer in 30% (n = 79) of the patients. The mean age of the patients with lung cancer was 56.88 ± 9.98 years, colorectal cancer was 56.38 ± 11.43 years and head-neck cancer was 53.20 ± 13.60 years.

The percentage of patients with HAD-A > 10 was 29.2% in the patient group and 11.2% in the healthy control group, and the difference between the groups was statistically significant ($p < 0.001$, $X^2 = 12.54$). The percentage of patients with HAD-D > 7 was 52.7% in the patient group, and 24.5% in the healthy group and the difference between the groups was statistical-

ly significant (p < 0.001, X^2 = 22.87). A significant difference was found between the patient group and the control group in terms of HAD-A, HAD-D and SPS mean scores. The comparison of HAD-A, HAD-D and SPS mean scores between patient and control groups are shown in **(Table 1)**.

Table 1: Comparisons of the mean scores of anxiety, depression and suicide probability in the cancer patient group and the control group

	Patient group (n=260)	Control group (n=98)	p*	Z
HAD-A (mean ± SD)	7.37 ± 5.15	5.65 ± 3.71	**0.012**	-2.515
HAD-D (mean ± SD)	8,11 ± 5.04	5.66 ± 3.62	**< 0.001**	-4.269
SPS (mean ± SD)	65.37 ± 15.26	61.19 ± 14.02	**0.018**	-2.375

*Mann-Whitney U test

HAD-A: Hospital Anxiety and Depression Scale-Anxiety subscale HAD-D: Hospital Anxiety and Depression Scale-Depression subscale, SD: Standard Deviation, SPS: Suicide Probability Scale

In the cancer patients, anxiety symptoms were determined more frequent in females (37%) than in males (22.7%) (p = 0.014, X^2 = 6.361), in those with fatigue complaints (38.1%) than in those without fatigue (15%) (p < 0.001, X^2 = 15.568), in those having pain in the previous month (39.5%) than in those not having pain (15.9%) (p < 0.001, X^2 = 17.094), and in those with a history of psychiatric treatment (43.2%) than in those who had never received treatment (26.4%) (p = 0.030, X^2 = 4.983). Early/advanced stage (p = 0.214, X^2 = 1.805), diagnosis knowledge/lack of knowledge (p = 0.448, X^2 = 0.892), and a family history of psychiatric disorder (p = 0.402, X^2 = 2.267) were not determined to have any significant effect on the frequency of anxiety symptoms.

Depressive symptoms in the cancer patients were determined to be more frequent in females (64.7%) than in males (42.6%) (p < 0.001, X^2 = 12.705), in those with fatigue complaints (65%) than in those without fatigue (33.3%) (p < 0.001, X^2 = 24.614), in patients with advanced disease (60.9%) than in those in the early stage (41.3%) (p = 0.002, X^2 = 9.798), and in those having pain in the previous month (66.7%) than in those not having pain (34.5%) (p < 0.001, X^2 = 26.497). A family history of psychiatric disorder (p = 0.858, X^2 = 0.041), a history of psychiatric treatment (p = 0.068, X^2 = 6.361), and knowledge of the diagnosis (p = 0.254, X^2 = 1.400) were not found to have a significant effect on the frequency of depressive symptoms.

A significant positive correlation was determined between HAD-A mean scores and HAD-D mean scores (r = 0.65, p < 0.001), and SPS mean scores (r = 0.54, p < 0.001), also between HAD-D and SPS mean scores (r = 0.51, p < 0.001).

HAD-A, HAD-D and SPS mean scores according to the type of cancer and the statistical differences between these scores and those of the control group are shown in **(Table 2)**.

Table 2: Comparisons of mean scores of anxiety, depression and suicide probability in the different types of cancer patients and control groups

	Lung Ca (n=82)	Liver Ca (n=99)	Head-Neck Ca (n=79)	Control (n=98)	p*
HAD-A (mean ± SD)	7.45 ± 4.94	6.66 ± 4.80	8.18 ± 5.70	5.65 ± 3.71	**0.025**†
HAD-D (mean ± SD)	8.43 ± 4.90	7.60 ± 5.00	8.42 ± 5.24	5.66 ± 3.62	**< 0.001**‡
SPS (mean ± SD)	65.61 ± 14.40	62.41 ± 13.42	68.82 ± 17.56	61.19 ± 14.02	**0.012**§

*Kruskal-Wallis test

†Mann-Whitney U test; (Head and Neck ca x Control, p = 0.005)

‡Mann-Whitney U test; (Lung ca x Control, p<0.001; Head and Neck ca x Control, p < 0.001)

§Mann-Whitney U test; (Head and Neck ca x Control, p = 0.004)

HAD-A: Hospital Anxiety and Depression Scale-Anxiety subscale HAD-D: Hospital Anxiety and Depression Scale-Depression subscale, SPS: Suicide Probability Scale, SD: Standard Deviation,

DISCUSSION

The results of this study showed that the prevalence of anxiety symptoms was 29.2% and depression symptoms was 52.7% in patients with lung, colorectal and head-neck cancer which were higher than those of the healthy control group in terms of the hypothesis, also the probability of suicide was higher in cancer patients. In addition, female gender, fatigue, and pain experience in cancer patients were seen to be factors that increased the frequency of anxiety and depression; advanced stage disease was only related to the frequency of depression, and a history of psychiatric treatment only affected the frequency of anxiety. In line with the second hypothesis of the study, that cancer type would have an effect on anxiety, depression and suicide probability levels, the study results demonstrated that patients with head-neck cancer were more anxious, more depressed, and suicidal, and patients with lung cancer were more depressed than the healthy control group. The only result that was not compatible with the hypothesis was that these psychological factors in patients with colorectal cancer did not differ from those of the healthy individuals.

Anxiety disorders in patients with cancer have been less studied than depression but are

thought to be relatively common. Similarly, in a study using HADS, anxiety was found in 44%, and depression symptoms were found in 37% of 216 cancer patients (16). The prevalence of anxiety and depression in cancer patients is also associated with some sociodemographic and clinical features. The current study found that anxiety and depression were significantly higher in female cancer patients than in male patients as in the previous studies (17). The difference between genders can be explained by the fact that women's biological structures, spiritual characteristics, coping styles, and sociocultural positions cause them to be more susceptible to anxiety and depression. Since the stage of cancer disease has an effect on life expectancy, it can be predicted that it can differentiate the symptoms of anxiety and depression. Despite the most frequent is adjustment disorder in patients with advanced cancer, depressive disorder is another common condition (18). Montezari et al. (19) found that the stage of cancer was an impact on the depressive symptoms of patients, so the patients with advanced stage cancer had more depressive symptoms than patients with early-stage cancer. Mystakidou (20) reported prevalence rates of 24.2% anxiety and 25.8% depression in advanced stage cancer patients. In the current study, the frequency of depression was higher in patients with advanced stage cancer compared to patients with early-stage cancer and the frequency of anxiety was similar. The decrease in hope associated with depression in the advanced stage and the deterioration of the general medical condition may lead to an increase in the frequency of depression and may not affect the frequency of anxiety.

In a study investigating the relationship between knowing the diagnosis and the level of anxiety in patients with lung cancer, the level of state anxiety was found to be significantly higher in the participants who knew the diagnosis of cancer, while the level of trait anxiety was found to be significantly lower (21). In another study investigating the relationship between anxiety and depression levels with knowing the diagnosis in gastrointestinal cancer patients, anxiety and depression levels were found to be higher in the patients who knew the diagnosis

(22), however, Ozer et al. (23) found no significant difference in the severity of depressive symptoms between those cancer patients who knew the diagnosis and did not know . Patients well informed are less exposed to psychological problems and able to adapt better, a positive result caused by the informing treatment team may have emerged in this study as well.

Fatigue is one of the major symptoms reported by cancer patients with a prevalence of approximately 80% in some types of tumors (24) and a significant relationship between fatigue and anxiety and depression has been reported in cancer patients (25). Romito et al. (26) reported that there was a significant relationship between depression, anxiety, and hemoglobin levels with fatigue, and the association between fatigue and anxiety-depression was more prominent than hemoglobin levels. Additionally, pain is known to be one of the most important factors affecting the quality of life in patients with cancer and decreases life satisfaction and increases psychiatric comorbidity.

Yalvac & Sahiner (27) found that anxiety symptoms were approximately 2.5 times higher in the group suffering from pain. As in the results of this study, it can be thought that fatigue and pain may cause an anhedonic mood by causing a decrease in social activities and may trigger concurrent anxiety symptoms. The history of psychiatric treatment and family history of psychiatric disorder are the predictors of many psychiatric disorders. In the present study, anxiety symptoms were more frequent than those who had not been treated in the past, but depressive symptoms were similar. Psychological morbidity risk was found to be higher after the initial treatment of breast cancer in patients with a history of psychiatric treatment (28).

There are many studies showing that the prevalence of anxiety and depression varies according to the type of cancer. The prevalence of anxiety and depression in patients with head-neck cancer has been reported to vary between 22-57% (29,30). Treatment of head-neck cancers requires a multidisciplinary approach, and many patients are exposed to intensive treatment combinations such as surgery, radiotherapy, and chemotherapy. Therapeutic toxi-

city can often cause severe physical, functional, and psychosocial side-effects. The disease itself and treatments often cause changes in appearance, which affect the patient's perception of body image (31). In addition, head-neck cancer can affect vital functions such as eating, breathing, and speaking. Similar clinical manifestations cause fear of exclusion and communication in social and personal relationships of the patients, resulting in dissatisfaction with life (32).

In a study conducted on 14 different types of cancer patients, the prevalence of psychological disorders was found to be the highest in patients with lung cancer at the rate of 43.4% (33).

Besides Linden et al. revealed that anxiety and depression are more common in patients with lung cancer (17) Also in patients with colorectal cancer, stoma opening poses both physical and psychological threats (34). Karadag (35) reported that stoma, causing leakage and odor, entailing the patient to stay away from other people, due to the fear of being able to feel safe socially, and lack of confidence could result in social isolation. In a study investigating the prevalence of mixed anxiety and depression symptoms according to cancer types, mixed anxiety/depression symptoms were observed in patients with stomach, pancreas, head-neck and lung cancer and this rate was lower in colon cancer (36).

Similar to these findings in literature, patients with head-neck cancer the current study experienced psychosocial problems more severely and these results were thought to be related to the disruption of body image and impaired life quality and social relations by causing difficulties in meeting basic vital needs. A higher level of anxiety and similar levels of depression and suicide probability in patients with lung cancer which was found in the current study may be due to the association of dyspnea symptoms with anxiety in these patients.

Suicidal thoughts are a serious problem in cancer patients and are usually seen in the presence of major depression (37). Depression and anxiety have also been reported to increase suicidal behaviour (9). Kim & Lee (38) reported a history of suicide attempts in 16.4% of patients and suicidal thoughts in 47.3% of the patients in a study of 138 patients. Likewise, in the current study, suicide probability was higher in cancer patients and associated with higher levels of anxiety and depression. In studies investigating the relationship between cancer types and suicide, suicide probability has been found to be higher in prostate, lung, pancreatic and head-neck cancers (39). Similar to the literature, in the current study suicide probability was higher in patients with head-neck cancer, but similar in lung and colorectal cancer types. Since suicide probability is associated with anxiety and depression levels, suicide probability is higher in patients with head and neck cancer, where both anxiety and depression are more severe however, the probability of suicide is not higher in patients with colorectal cancer.

Limitations of this study can be considered to be the use of self-reported scales to evaluate depression/anxiety symptoms and no structured clinical interview. However, psychiatric interview was done to exclude psychotic disorders and mental retardation. The second limitation of the study was that fatigue and pain were evaluated with questions and answers as existent/nonexistent instead of valid scales. The third limitation of the study was that nonparametric tests were used because normal distribution was not provided. Since nonparametric tests were used, the mediating effect of depression in the probability of suicide could not be analyzed. Since the probability of suicide was evaluated with scale and the study was conducted in cross-sectional design, the cause-effect relationship related to suicide cannot be established. Another limitation of this study was the failure to consider the response to cancer treatment and the effects of chemotherapeutics on depression/anxiety symptoms. Despite these limitations, the high number of participants, especially in Turkey, where few studies exist on psychopathology according to the type of cancer, is a positive feature of the study.

Given the fact that having a chronic and disabling disease is associated with poor mental health, the study has important implications in understanding the psychological needs of patients with cancer. Following the findings of the present study, clinicians would recognize the

psychological factors and physical symptoms and thus contribute to patients' coping or recovery process.

In conclusion, it can be recommended that cancer patients should be evaluated in terms of psychiatric problems by the clinician, with periodic application of valid and reliable scales to determine the level of anxiety and depression, and the risk of suicide, not only in cases where the picture is aggravated or treatment is refused, but also in patients at advanced stages, with pain, fatigue symptoms and past psychiatric treatment, so that those at risk can be identified and referred to the Psychiatry Department.

Thus, even with a very short interview, high-risk patients can be identified, psychosocial adaptations can be provided by psychiatrists or mental health nurses and their compliance to treatment can be increased.

REFERENCES

1. Ulutin HC. Psycologic problems in the cancer patient. Turkish Journal of Physical Medicine and Rehabilitation 2006; 9 (1): 39-41.

2. Roy-Byrne PP, Davidson KW, Kessler RC, Asmundson GJG, Goodwin RD, et al. Anxiety disorders and comorbid medical illness. General Hospital Psychiatry 2008; 30 (3): 208–25.

3. Seven M, Akyuz A, Sever N, Dincer S. Studying the Physical and Psychological Symptoms of Patients With Cancer. TAF Preventive Medicine Bulletin 2013; 12 (3): 219.

4. Nelson CJ, Cho C, Berk AR, Holland J, Roth AJ. Are gold standard depression measures appropriate for use in geriatric cancer patients? A systematic evaluation of self-report depression instruments used with geriatric, cancer, and geriatric cancer samples. Journal of Clinical Oncology 2010; 28 (2): 348–56.

5. Siegel RL, Miller KD, Jemal A. Cancer statistics. CA: A Cancer Journal for Clinicians 2019; 69 (1): 7–34.

6. Atesci FC, Oguzhanoglu NK, Baltalarli B, Karadag F, Ozdel O, Karagoz N. Psychiatric disorders in cancer patients and associated factors. Turkish Journal of Psychiatry 2003; 14 (2): 145–52.

7. Massie MJ. Prevalence of Depression in Patients With Cancer. Journal of the National Cancer Institute Monographs 2004; (32): 57–71.

8. Polidoro Lima M, Osório FL. Indicators of psychiatric disorders in different oncology specialties: a prevalence study. Journal of Oncology 2014; 350262.

9. Diaz-Frutos D, Baca-Garcia E, Mahillo-Fernandez I, Garcia-Foncillas J, Lopez-Castroman J. Suicide ideation among oncologic patients in a Spanish ward. Psychology & Health &Medicine 2016; 21 (3): 261–71.

10. Yousaf U, Christensen M-L, Engholm G, Storm HH. Suicides among Danish cancer patients 1971-1999. British Journal of Cancer 2005; 92 (6): 995–1000.

11. Dormer NRC, McCaul KA, Kristjanson LJ. Risk of suicide in cancer patients in Western Australia, 1981–2002. The Medical Journal of Australia 2008; 188 (3): 140–3.

12. Tsirigotis K, Gruszczynski W, Tsirigotis M. Gender differentiation in methods of suicide attempts. Medical Science Monitor 2011; 17 (8): PH65-70.

13. Misono S, Weiss NS, Fann JR, Redman M, Yueh B. Incidence of Suicide in Persons With Cancer. Journal of Clinical Oncology 2008; 26 (29): 4731–8.

14. Aydemir O, Guvenir T, Kuey L, Kultur S. Validity and Reliability of Turkish Version of Hospital Anxiety and Depression Scale. Turkish Journal of Psychiatry 1997; 8 (4): 280–7.

15. Atli Z, Eskin M, Dereboy C. The Validity and the Reliliability of Suicide Probability Scale (SPS) in Clinical Sample. J Clin Psy. 2009;(12):111–24.

16. Delgado-Guay M, Parsons HA, Li Z, Palmer JL, Bruera E. Symptom distress in advanced cancer patients with anxiety and depression in the palliative care setting. Support Care Cancer. 2009; 17 (5): 573–9.

17. Linden W, Vodermaier A, MacKenzie R, Greig D. Anxiety and depression after cancer diagnosis: Prevalence rates by cancer type, gender, and age. Journal of Affective Disorders 2012; 141 (2–3): 343–51.

18. Wilson KG, Chochinov HM, Graham Skirko M, Allard P, Chary S, et al. Depression and Anxiety Disorders in Palliative Cancer Care. Journal of Pain and Symptom Management 2007; 33 (2): 118–29.

19. Montazeri A, Harirchi I, Vahdani M, Khaleghi F, Jarvandi S, Ebrahimi M, et al. Anxiety and depression in Iranian breast cancer patients before and after diagnosis. European Journal of Cancer Care 2000; 9 (3): 151–7.

20. Mystakidou K, Tsilika E, Parpa E, Katsouda E, Galanos A, Vlahos L. Assessment of Anxiety and Depression in Advanced Cancer Patients and their Relationship with Quality of Life. Quality of Life Research 2005; 14 (8): 1825–33.

21. Esme H, Sezer M, Güler O. Akciğer Kanserli Hastalarda Tanıyı Bilme ile Anksiyete Düzeyi Arasindaki İlişki. Solunum. 2006; 8 (4): 163-7.

22. Tavoli A, Mohagheghi MA, Montazeri A, Roshan R, Tavoli Z, Omidvari S. Anxiety and depression in patients with gastrointestinal cancer: does knowledge of cancer diagnosis matter? BMC Gastroenterology 2007; 7 (1): 28.

23. Özer H, Çayköylü A, Kırpınar I. Kanserli hastalarda tanıyı bilmenin depresif belirtilere etkisi. Atatürk Üniversitesi Tıp Dergisi 1997; 29(3): 491-4.

24. Theobald DE. Cancer pain, fatigue, distress, and insomnia in cancer patients. Clinical Cornerstone 2004; 6 Suppl 1: 15-21.

25. Brown LF, Kroenke K. Cancer-related fatigue and its associations with depression and anxiety: a systematic review. Psychosomatics. 2009; 50 (5): 440–7.

26. Romito F, Montanaro R, Corvasce C, Di Bisceglie M, Mattioli V. Is cancer-related fatigue more strongly correlated to haematological or to psychological factors in cancer patients? Supportive Care in Cancer. 2008; 16 (8): 943–6.

27. Yalvaç HD, Şahiner İV. Kanserde Yorgunluk ve Ağrı. Türkiye Klinikleri Psikiyatri - Özel Konular 2014; 7 (4): 39–43.

28. Maunsell E, Brisson J, Deschênes L. Psychological distress after initial treatment of breast cancer. Assessment of potential risk factors. Cancer 1992; 70 (1): 120–5.

29. Duffy SA, Ronis DL, Valenstein M, Fowler KE, Lambert MT, Bishop C, et al. Depressive Symptoms, Smoking, Drinking, and Quality of Life Among Head and Neck Cancer Patients. Psychosomatics 2007; 48 (2): 142–8.

30. Lang H, France E, Williams B, Humphris G, Wells M. The psychological experience of living with head and neck cancer: a systematic review and meta-synthesis. Psycho-oncology 2013; 22 (12): 2648–63.

31. Katz MR, Irish JC, Devins GM, Rodin GM, Gullane PJ. Psychosocial adjustment in head and neck cancer: The impact of disfigurement, gender and social support. Head & Neck 2003; 25 (2): 103–12.

32. Van Cann EM, Dom M, Koole R, Merkx MAW, Stoelinga PJW. Health related quality of life after mandibular resection for oral and oropharyngeal squamous cell carcinoma. Oral Oncology 2005; 41 (7): 687–93.

33. Zabora J, BrintzenhofeSzoc K, Curbow B, Hooker C, Piantadosi S. The prevalence of psychological distress by cancer site. Psycho-oncology 2001; 10 (1): 19–28.

34. Simmons KL, Smith JA, Bobb K-A, Liles LLM. Adjustment to colostomy: stoma acceptance, stoma care self-efficacy and interpersonal relationships. Journal of Advanced Nursing 2007; 60 (6): 627–35.

35. Karadag A, Mentes BB, Uner A, Irkorucu O, Ayaz S, et al. Impact of stomatherapy on quality of life in patients with permanent colostomies or ileostomies. International Journal of Colorectal Disease 2003; 18 (3): 234–8.

36. Brintzenhofe-Szoc KM, Levin TT, Li Y, Kissane DW, Zabora JR. Mixed Anxiety/Depression Symptoms in a Large Cancer Cohort: Prevalence by Cancer Type. Psychosomatics 2009; 50 (4): 383–91.

37. Ell K, Sanchez K, Vourlekis B, Lee P-J, Dwight-Johnson M, Lagomasino I, et al. Depression, Correlates of Depression, and Receipt of Depression Care Among Low-Income Women With Breast or Gynecologic Cancer. Journal of Clinical Oncology 2005; 23 (13): 3052–60.

38. Kim YJ, Lee KJ. Relationship of Social Support and Meaning of Life to Suicidal Thoughts in Cancer Patients. Journal of Korean Academy of Nursing 2010; 40 (4): 524.

39. Anguiano L, Mayer DK, Piven ML, Rosenstein D. A Literature Review of Suicide in Cancer Patients. Cancer Nursing 2012; 35 (4): E14–26.