



Comparison of prevalence of depression in cancer patients treated with chemotherapy and radio chemotherapy in the hospital Tohid Sanandaj

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Background and purpose: Depression is the most common human diseases in the past 2500 years and more recently more attention to it. However, despite significant advances in cancer medicine remains as one of the most important disease is present. This study compared the prevalence of depression in cancer patients is hospitalized oncology patients with chemotherapy and radiotherapy, which has been done about them. **Methods:** This study is a cross-sectional study was performed on 200 patients, 102 patients in radiotherapy, chemotherapy, and 98 patients in the chemotherapy group. Samples were available for sampling using the Beck Depression Inventory was conducted, Data using SPSS statistical software and descriptive statistics and Chi-square and T-test analysis was performed. **Results:** The results showed that the average age of $49/3 \pm 1/3$ years. 88% of the participants were married. 73/5% of subjects had levels of depression. Prevalence of depression in radiotherapy and chemotherapy (44/47 %) than the chemotherapy group (29/03 %) were. Prevalence of depression at age 60 years and older (30/5%) was higher than other age groups. Between age, education level, place of residence and chemotherapy sessions with an average prevalence of depression in the two groups, there is a statistically significant relationship ($p < 0.05$) and Between sex, marital status, type of cancer, with a prevalence of depression in both groups there was no statistically significant relationship ($p > 0.05$). **Conclusion:** The high prevalence of depression in the group of patients need psychological counseling and psychiatric treatment will last more than and the diagnosis and treatment of depression in the early stages and can be a major help to these patients.

INTRODUCTION

Cancer is a life-threatening and feared diagnosis, is a sources of great distress in patients. A cancer diagnosis generates a higher sense of distress than non-neoplastic diseases with poorer prognoses (Hollist et al, 2007). High levels the mental distress for sustained periods of time in cancer patients may lead to anxiety, depression or both (Linden et al, 2012). This mixed symptomatology is very common, with two thirds of cancer patient by depression also expressing clinically significant levels of anxiety (Brintzenhofe et al, 2009). Depression leads to a poorer quality of life and compromises patients outcomes, with depression resulting in higher rate of mortality in cancer (Pinquart & Duberstein, 2010). A meta-analysis revealed that minor or major depression increases mortality rates by up to 39%, and that patients displaying even few depressive symptoms may be at a 25% increased risks of mortality (Satin et al, 2009). The impact of mood and mental wellbeing on cancer progression are considered important by doctors and patients, with >70% of oncologists and 85% of patients believing that mood affects progression of cancer (Demura & Sato, 2014). The rate of depression in cancer patients is thought to be up to three times higher than in the general population (Linden et al, 2012).

Depression is the most common human disease in the last 2500 years, and has recently been given a more serious consideration (Baghi et al, 2015; World Health Organization, 2016). The disease is characterized by a lack of pleasure, a lack of friendship with the family, a lack of motivation and intolerance of mild vegetative deficiency, including decreased sexual desire Low or high appetite and weight, decreased energy and early fatigue, sleep disorders (in 75% of cases), menstrual dysfunction, constipation, dry mouth and headache (Chen et al, 2010). On the other hand, despite remarkable medical advances, cancer remains one of the most important and current causes of death after cardiovascular disease, and currently has more than 7 million people worldwide. Cancer is dying, and the number of new cases is expected to reach 10 million to 15 million by 2020 (Hassanpour & Azari, 2006). In the meantime, the psychological problems of cancer patients affect their quality of life, the rate of suicide and successful suicide, the length of hospitalization and even their longevity (Palmen & Fish, 2006). Many studies indicate that cancer patients are prone to simultaneous psychiatric problems, including depression (Aass et al, 1997); so that cancer is usually synonymous with concepts such as death pain, suffering and psychological wisdom (Marroquin, 2011). Kaplan (2008) writes in Comprehensive that 13% of cancer patients are suffering from major depression. In some studies, it was also found that the prevalence of depression was 33%, 2 months after detection, 24% and with an increase in the duration of cancer, the prevalence was

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reduced, so that from the first to the fifth, the incidence of 48%, 25%, 23%, 22%, and 15% (Abedian et al, 2015). Levin et al., (1978) in a study of 100 psychiatric counseling on oncology patients admitted, about 50% of them were depressed. Also, in an interesting study by Mirinada et al in 2002, it was reported that depression had no significant difference before and after a chemotherapy period, but those who had a lower depression score had better response. Erol (2010), depression has been reported after a period of chemotherapy, especially in severe depression. In a study by Jensen et al., (2006), 124 cancer patients referred to the radiotherapy department had a prevalence of depression of 15%, of which 38% had mild depression, 32% had moderate depression and 10% had severe depression. Khobbin et al., (2014) has reported on psychiatric disorders in cancer, with approximately half of patients with cancer having an adjustment disorder, seen in 13% of the patients, and 8% of them suffer from delirium. With regard to therapeutic advances, cancer has become an unhealthy disease to a chronic and often curative condition (Zayd Jastaniah et al. 2017; Mehrdad Payandeh et al. 2018), therefore, the presence of cancer psychiatry and the response to its diagnosis and treatment have become increasingly important and although psychological problems in patients commonly diagnosed with cancer, it can often be successfully treated. Unfortunately, many of these problems are not recognized. Sustained and prolonged problems often occur in those who already have a psychological vulnerability or lack a supporting family. These problems are more common after mastectomy, amputation and radiotherapy (Teo et al, 2013).

Therefore, the timely diagnosis of depression in cancer patients for therapeutic and supportive care by a team of therapists including a psychiatrist seems to emphasize the requirements for comprehensive and complete planning to adapt to difficult conditions. Social support by supervisors, friends, colleagues and affiliates can reduce many of the symptoms of helplessness and psychology, such as depression and anxiety (Sarason & Sarason, 2009). Therefore, the purpose of this project is to compare the type of depression disorder in patients with cancer who have been admitted to the oncology department with patients who have undergone both chemo and radiotherapy at Sanandaj Tohid Hospital. In this realization, in addition to determining the prevalence of depression based on age, gender, marital status, cell education level, the number of chemotherapy sessions and the type of cancer can be divided into two groups treated with chemotherapy and cancer, as the type of treatment and duration of disease is usually different in these two groups, which can affect people's morale.

METHODOLOGY

This study is a cross sectional study. The statistical population of the study included patients with cancer who were admitted to the Oncology and Radiation Department of Sanandaj Tohid Medical Education and Therapy Center in 2012. The criteria for entering the study are: people with primary and higher education, cancer patients undergoing radiotherapy chemotherapy, people with cancer aged 17-70 years. Exit criteria include those with a history of drug abuse and those with a history of mental illness based on their own statements. The sample size was 200 patients during 2 months, 102 patients in the radiotherapy and chemotherapy group and 98 patients in the chemotherapy group. Sampling method is available for sampling.

This study was performed on patients who were admitted in Radiotherapy and Oncology Department of Tohid Hospital in Sanandaj city and confirmed at the Ethics Committee of Kurdistan University of medical science with the code of IR.KUMS.REC. 1396.1043. Patients

were divided into two groups: chemotherapy patients admitted to oncology and the second group of patients who were undergoing chemotherapy and radiotherapy and were admitted to radiotherapy. After receiving the consent of all patients, demographic information such as age, sex, marital status, educational level, place of residence, type of cancer, number of chemotherapy sessions and radiation therapy were questioned and recorded in the data collection form. Meanwhile, people who had a history of drug abuse and people with a history of psychiatric illness were excluded from the study while collecting information. The Beck depression questionnaire is then used to assess the severity of depression. The Beck Depression Inventory consists of 21 quadrant questions, each with 0 to 3 points. This questionnaire has been evaluated in a number of studies in Iran. Based on the scoring of this questionnaire, 0-9 without depression, 10-18 mild to moderate depression, 19-29 moderate to severe depression, 30-63 severe depression (Joormann & Gotlib, 2010). For this study, the cutting point was considered 17. Data were analyzed using SPSS software and descriptive statistics (absolute and relative frequency, mean and standard deviation), Chi-square and T-test. Chi-square test was used to compare the prevalence of depression in two groups: radiotherapy, chemotherapy and chemotherapy.

FINDINGS

The results of this study showed that 106 (53%) of the subjects were male and 92 (47%) were female. The mean age of the subjects was 49.3 ± 1.37 years, at least 17 years and maximum 70 years. 88% (176 people) were married and 12% (24 people) were single. 112 people (56%) lived in the city and 88 (44%) were in the village. According to the Beck questionnaire, 114 (73.5%) patients had depression, and only 43 (26.5%) had no depression. The prevalence of depression in the radiotherapy and chemotherapy group (34.5%) was higher than the chemo group (22.5%). Table 1 shows that the prevalence of depression with age does not correlate with radiotherapy and chemotherapy, But in the chemotherapy group, the prevalence of depression with age is significant ($p < 0.05$). Table 2 shows that there is no significant relationship between of the prevalence of depression with sex in patients with cancer in both groups. Table 3 shows that there is no significant relationship between of the prevalence of depression with marital status in patients with cancer in both groups. Table 4 shows that in terms of educational level, in the two groups, elementary level the highest frequency of depression. Also, there is a significant relationship between the chemotherapy-educated group ($p < 0.05$). Table 5 shows that there is significant relationship between of the prevalence of depression with place of residence in patients with cancer in both groups ($p < 0.05$). The results of Table 6 show that 15.5% of patients have mild depression, 28.5% in medium depression, 10% in ontense depression, and 3% in very intense depression. Table 7 shows a significant relationship between mean depression and chemotherapy sessions ($p < 0.001$). Table 8 shows that there is no significant relationship between of the prevalence of depression with type of cancer. Table 9 shows a significant relationship between depression and cancer treatment in two study groups ($p < 0.001$).

DISCUSSION AND CONCLUSION

Based on the results of this study, 22.5% of subjects had mild to moderate depression, 36% had moderate to severe depression, and 15% had severe depression. This finding was found in Carol et al (2004), on screening for depression among cancer patients Admitted in the oncology department, in which 58% of patients had mild depression,

Table 1 Distribution of the prevalence of depression among patients with age related cancer in two study groups

Depression		Have	Don't Have	X ²	DF	P
Group		Frequency (%)	Frequency (%)			
Radiation therapy and Chemotherapy	17 - 29 years	5 (7.2%)	4 (13.8%)	9.4	4	0.052
	30 - 39 years	7 (10.1%)	6 (20.7%)			
	40 - 49 years	12 (17.4%)	9 (31%)			
	50 - 59 years	20 (29%)	7 (24.1%)			
	60 Years and Above	25 (36.2%)	3 (10.3%)			
	Total	69 (100%)	29 (100%)			
Chemotherapy	17 - 29 years	10 (22.2%)	6 (10.5%)	14.2	4	0.007
	30 - 39 years	5 (11.1%)	0 (0%)			
	40 - 49 years	12 (26.7%)	12 (21.1%)			
	50 - 59 years	10 (22.2%)	14 (24.6%)			
	60 Years and Above	8 (17.8%)	25 (43.9%)			
	Total	45 (100%)	57 (100%)			

Table 2 Distribution of the prevalence of depression among patients with sex related cancer in two study groups

Depression		Have	Don't Have	X ²	DF	P
Group		Frequency (%)	Frequency (%)			
Radiation therapy and Chemotherapy	Man	33 (47.8%)	15 (51.7%)	0.12	1	0.72
	Female	36 (52.2%)	14 (48.3%)			
	Total	69 (100%)	29 (100%)			
Chemotherapy	Man	21 (46.7%)	37 (64.9%)	3.41	1	0.06
	Female	24 (53.3%)	20 (35.1%)			
	Total	45 (100%)	57 (100%)			

Table 3 Distribution of the prevalence of depression among patients with marital status related cancer in two study groups

Depression		Have	Don't Have	X ²	DF	P
Group		Frequency (%)	Frequency (%)			
Radiation therapy and Chemotherapy	Married	62 (89.9%)	25 (86.2%)	0.27	1	0.60
	Single	7 (10.1%)	4 (13.8%)			
	Total	69 (100%)	29 (100%)			
Chemotherapy	Married	38 (84.4%)	51 (89.5%)	0.57	1	0.44
	Single	7 (15.6%)	6 (10%)			
	Total	45 (100%)	57 (100%)			

Table 4 Distribution of the prevalence of depression among patients with educational level related cancer in two study groups

Depression		Have	Don't Have	X ²	DF	P
Group		Frequency (%)	Frequency (%)			
Radiation therapy and Chemotherapy	Elementary level	38 (55.1%)	11 (37.9%)	9.1	4	0.058
	Middle level	14 (20.3%)	10 (34.5%)			
	High school	0 (0%)	2 (6.9%)			
	Diploma	13 (18.8%)	3 (10.3%)			
	Associate and higher	4 (5.8%)	3 (10.3%)			
	Total	69 (100%)	29 (100%)			
Chemotherapy	Elementary level	21 (46.7%)	27 (47.4%)	11.6	4	0.021
	Middle level	4 (8.9%)	17 (29.8%)			
	High school	6 (6.7%)	1 (1.8%)			
	Diploma	8 (17.8%)	9 (15.8%)			
	Associate and higher	9 (20%)	3 (5.3%)			
	Total	45 (100%)	57 (100%)			

Table 5 Distribution of the prevalence of depression among patients with place of residence related cancer in two study groups

Depression / Group		Have	Don't Have	χ^2	DF	P
		Frequency (%)	Frequency (%)			
Radiation therapy and Chemotherapy	City	48 (69.6%)	13 (44.8%)	5.3	1	0.021
	Village	21 (30.4%)	16 (55.2%)			
	Total	69 (100%)	29 (100%)			
Chemotherapy	City	28 (62.2%)	23 (40.4%)	4.8	1	0.028
	Village	17 (37.8%)	34 (59.6%)			
	Total	45 (100%)	57 (100%)			

Table 6 Depression rate in patients under study

Variable	Type of depression	Frequency (%)	Total
Depression	Normal	86 (43%)	114 (53%)
	Mild	31 (15.5%)	
	Medium	57 (28.5%)	
	Intense	20 (10%)	
	Very intense	6 (3%)	

Table 7 Comparison of prevalence of depression with the average chemotherapy sessions of patients with cancer

		Frequency	Mean	SD	T	P
Depression	Have	114	13.42	± 10.49	3.64	0.001
	Don't Have	86	8.6	± 7.5		

Table 8 Distribution of the relationship of prevalence of depression in cancer patients with type of cancer

Depression / Type of cancer		Have	Don't Have	χ^2	DF	P
		Frequency (%)	Frequency (%)			
Gastric cancer		49 (58.3%)	35 (41.7%)	10.53	6	0.104
Leukemia cancer		3 (35.4%)	11 (64.6%)			
Lymphoma cancer		18 (64.3%)	10 (35.7%)			
Skin cancer		9 (56%)	6 (44%)			
Reproductive system cancer		26 (54%)	18 (46%)			
Respiratory system cancer		6 (50%)	6 (50%)			
Others		0 (0%)	6 (100%)			
Total		109 (100%)	91 (100%)			

Table 9 The relationship between depression and cancer treatment in two study groups

Depression / Type of cancer		Have	Don't Have	χ^2	DF	P
		Frequency (%)	Frequency (%)			
Radiation therapy and Chemotherapy		69 (60.5%)	29 (33.7%)	14.09	1	0.001
Chemotherapy		45 (39.5%)	57 (66.3%)			
Total		114 (100%)	86 (100%)			

32% had moderate depression and 10% had severe depression. A study by William et al., (2009) that investigates depression in patients with head-on-line cancer, with an incidence of depression in oncology patients ranging from 15% to 50%, is harmony and consistent.

The mean age of the subjects was 49.3 ± 1.37 years, and the highest prevalence of depression among the subjects was 30.5% and more than 60 years old, which was the result of study by Melkian et al., (2007) in Isfahan with the aim of investigating Depression and anxiety were

reported in patients with cancer, with a higher prevalence of depression in the age group of 50 to 65 years old. Also, with the study of Moemenei et al., (2009), the mean age of patients was 48.6 ± 1.07 years old, and depression aged 55 years and over, it is harmony and consistent.

In this study, there is a statistically significant relationship between age and prevalence of depression in two groups of radiotherapy, chemotherapy and chemotherapy ($p < 0.007$), which is consistent with the results of study by Rajebizade et al., (2006).

Almost worldwide and in all countries and cultures, the prevalence of depression in women is more than men (Kaplan, 2008). The prevalence of depression among women was more than that of men (35.1%), and women with moderate to severe depression. These results were found by Melkian et al., (2007), which showed anxiety and depression in women more than the men mentioned were consistent. In a study by Carol et al., (2004), which focused on screening depression among cancer patients admitted to the radiotherapy department, in which women surveyed more depression than men, were consistent. Hormonal differences, birth effects, differences in psychosocial stresses of women and men, and behavior patterns associated with learned helplessness are among the reasons that can be added to the chronic disease of the individual and the reason for this difference. In our study, there was no statistically significant relationship between the prevalence of depression and sex in the two groups (radiotherapy and chemotherapy - chemotherapy), which the study of Melkian et al., (2007) and Melkian et al., (2007), is harmony and consistent.

In our study, the prevalence of depression among married people (79%) and single (75%) was almost the same, and there was no significant relationship between the prevalence of depression and marital status, which is consistent with the findings of the study by Rajebizade et al., (2006) Who found significant statistical correlations between depression and marital status, and Kaplan (2008), who introduced being single-parent one as a risk factor for depression. Given that cancer patients have other problems, such as losing social status, financial problems in the management of life and marital conflicts, or lack of emotional support from the spouse, they can play a significant role in psychosocial balance. One has to have the same incidence of depression in this study.

Depression in non-university students is more common than academic graduates (Kaplan, 2008). Our findings also showed that the prevalence of depression among those who have primary education (83.5%) is higher than other levels of education. Also, there was a significant relationship between education level and prevalence of depression in the two groups of radiotherapy and chemotherapy ($p < 0.05$), and in the chemotherapy group ($p < 0.02$). With the increase in education, the prevalence of depression decreases. This finding, with Rajebizade et al., (2006), found a statistically significant association between illiteracy and depression risk factors and the study of Remezanehi (2009), which included the prevalence of depression and academic status, there was a significant statistical relationship coordinated and consistent.

Kaplan (2008) believes that there is no relationship between the socioeconomic status of people and the underlying depression disorder. Our findings showed that the prevalence of depression among urban people was higher than rural ones and there was a significant relationship between prevalence of depression and place of residence in two groups ($p < 0.05$); this finding was found by Rajebizade et al., (2006), which was conducted in Kerman, which can be attributed to the difference in climate between regions and different cultural levels in the face of stress.

In our study, there is a significant relationship between the mean chemotherapy sessions with the prevalence of depression ($p < 0.001$), which means that the number of chemotherapy sessions is higher, the prevalence of depression is also higher, as found by Rajebizade et al., (2006) that there was a significant statistical relationship between severity of depression and the number of chemotherapy sessions greater than or equal to 6 sessions. However, due to limited studies, the number

of chemotherapy and depression sessions related to severity with the duration of cancer, which itself requires further studies in this regard.

One of the chronic diseases that increases the risk of depression in a person is a type of cancer (Mardani & Shahraky, 2009). In our study, the highest prevalence of depression among gastrointestinal cancers (58.3%) was observed and there was no significant relationship between the prevalence of depression in patients with type-related cancer. However, in various studies, the risk of developing various cancers is a major contributor to depression (Imanipour, 2009; William, 2009; Staneva et al, 2015); however, most studies have highlighted the prevalence of depression in cancer patients with Reproductive system and Respiratory system Which is consistent with the study.

In the present study, there is a significant relationship between depression and the studied groups ($p < 0.001$); in the radiotherapy group, chemotherapy was more prevalent than depression (60.5% versus 39.5%), with the difference It may be due to the type of treatment, the duration of hospitalization, the duration of the illness and the severity of the disease in the radiotherapy group, the chemotherapy as compared to the chemotherapy group, or the level of existing stress, reduction of consensual activity and disability in this group (Imanipour, 2009).

The high levels of depression among cancer patients necessitate the need for psychological counseling and psychiatric treatment in these patients, diagnosis of depression in the early stages of the disease and the treatment of patients can be a major contributor to these patients. On the other hand, these problems affect not only the psychological state of the family but also the quality of life of patients, the rate of suicide and suicide, the length of hospitalization and even the patient's longevity (Palmen & Fisch, 2005).

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