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Anxiety, Depression and their Risk Factors in Cancer Moroccan Patients Undergoing Radiation Therapy: A Cross-Sectional Study

ElKacemi H*, Aarab J, ElMajjaousi S, Kebdani T and Benjaafar N

Faculty of Medicine and Pharmacy, Mohammed V University of Rabat, Rabat, Morocco

Abstract

Purpose: To our knowledge, no study specifically assessed anxiety and depression in Moroccan cancer population undergoing radiotherapy. The objective of this study was to assess the prevalence of anxiety and depression in patients with cancer prior to the first session of radiotherapy and to identify predictor factors.

Material and methods: It is a cross-sectional single center study. An interview was conducted using the Hospital Anxiety and Depression Scale.

Results: 150 patients filled the study inclusion criteria. The mean age was 54.9 ± 12.8 years, 12% of patients were in current employment. 42% of the participants had a positive family history of cancer. Out of study participants, 58% scored abnormal on the anxiety scale and 52% on the depression scale. Statistically significant predictors of anxiety and depression were similar to those reported in published studies, such as the presence of family history of cancer, received radiotherapy in family, employment status and treatment intention.

Conclusions: The results of this study suggest that a large proportion of cancer patients have psychiatric comorbidities. There is an urgent need for psychosocial support programs and psychological screening for patients diagnosed with cancer and candidate for radiation therapy.

Keywords: Anxiety; Depression; Hospital anxiety and depression scale; Radiation therapy

Introduction

Many patients experience a multitude of physical, psychological and psychosomatic symptoms after being diagnosed with cancer. This often results in a deterioration of the physical and psychosocial condition of these patients [1]. Radiation therapy is an integral part of cancer management, 30 to 50% of all patients with cancer receive irradiation, either alone or in combination with surgery and chemotherapy [2]. In the literature it is expressed that radiotherapy is a stress factor among cancer treatment methods because it has a lot misunderstood concerning it.

Aim

In this present study, we have prospectively assessed anxiety and depression scores prior at the first radiotherapy session in patients with different tumor and also to identified predictor factors.

Material and Method

Subjects and setting

Patients aged 18 years or older with different type of cancer, who were receiving extern beam radiotherapy for the first time of their life in our department, between July and September 2017, had no cognitive dysfunction, able of hearing normal conversation, oriented to time and place, speaking Arabic. Provided consent were included in the study.

Study design and assessment

This study is a cross-sectional, single center study. Eligible participants who consented to participate in our study were interviewed alone by a doctor, unless they preferred to be accompanied by a family member. Assessments happened at the first session of radiotherapy. The Hospital Anxiety and Depression Scale (HADS) was the tool used to measure anxiety and depression disorder prior to the beginning of radiotherapy.

Questionnaires

Social, demographic and clinical characteristics: Patients provided demographic information, including gender, age, marital status (married *vs.* not married), educational level (low education *vs.* moderate or high educational level), financial status (low level *vs.* moderate or high level), employment status (working actually or no), living environment (urban *vs.* rural), children in charge (yes or no), family support (yes or no), cancer in the entourage (yes or no), family history of cancer while specifying if this member had received radiotherapy, idea about radiotherapy treatment (yes or no), having pain (yes or no), taking anxiolytics (yes or no).

Disease related characteristics: Physician provided data about patients disease and treatment characteristics, including months since diagnoses (<3 months or ≥ 3 months), localization, disease stage, treatment intention (curative or palliative), received treatments (surgery and chemotherapy), the use of thermoplastic mask (yes *vs.* no) and performance status as defined by the Eastern Cooperative Oncology Group (ECOG) (0=optimum performance status, 4=worst performance status) [3], Patients with an ECOG score of 0 or 1 were categorized as having good performance status, and those with a score of 2 to 4 were categorized as having moderate to poor performance status.

***Corresponding author:** Hanan El Kacemi, Faculty of Medicine and Pharmacy, Mohammed V University of Rabat, Rabat, Morocco, Tel: 00212662436121; E-mail: elkacemihanan@yahoo.fr

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Hospital Anxiety and Depression Scale (HADS): Depression and anxiety are generally considered to be the most important psychopathological comorbidities of cancer patients. The Hospital Anxiety and Depression Scale (HADS) identify symptoms of anxiety and depression in patients with somatic disorders [4]. The HADS is widely used to measure distress in patients with cancer [5]. This questionnaire was also validated on Arab populations [6]. A systematic review of a large number of studies identified a cut-off point of 8/21 for anxiety or depression. For anxiety (HADS-A) this gave a specificity of 0.78 and a sensitivity of 0.9. For depression (HADS-D) this gave a specificity of 0.79 and a sensitivity of 0.83 [7]. The HADS includes 14 items, seven for each anxiety (HAD-A) and depression (HAD-D). Each item is scored from 0 to 3 (0=no problems to 3=maximum distress) [4]. Patients could be categorized based on their individual sum scores: Non-case (0-7), borderline case (8-10) and definitive case (11 and above) [4]. To identify patients with at least moderate symptoms of anxiety and depression, we used a cut-off score of ≥ 8.

Statistical analysis

Statistical analyses were performed using IBM SPSS Statistics 14. A descriptive analysis was made, with frequency distributions for qualitative variables and calculation of the mean and standard deviation (SD) for quantitative variables to categorize patients according to demographic, social and treatment characteristics. The association between different factors and HAD scores was assessed in univariate and multivariate binary logistic regressions using stepwise selection method (alpha-to-enter of 0.05, alpha-to-remove of 0.1).

Results

Of the 160 patients screened for eligibility, 150 filled the study inclusion criteria and completed the interview. The mentioned reasons for not participating were feeling tired (n=1), not able to answer (n=5), already received radiotherapy (n=4).

The mean age of the patients at the time of interview was 54.9 ± 12.8 years. 68% of the patients were married, 12% were in current employment. Regarding the family history of the study participants, 42% of the participants had a positive family history of cancer and 42.9% of whose received radiotherapy. Table 1 shows the social, demographic and clinical related characteristics of the patients in the sample.

Characteristics	N (%)
Sex	
Female	111 (74%)
Male	39 (26%)
Age	
< 60 years	99 (68%)
≥ 60 years	51 (34%)
Marital status	
Married	93 (62%)
Other status	57 (38%)
Educational level	
Low	129 (86%)
Moderate or high	21 (14%)
Financial level	
Low level	96 (64%)
Moderate or high level	54 (36%)
Living environment	
Urbain	123 (82%)
Rural	27 (18%)
Employement status	
Working actually	18 (12%)
Not working	132 (88%)
Children in charge	
Yes	123 (82%)
No	27 (18%)
Family support	
Yes	135 (90%)
No	15 (10%)
Cancer in the entourage	
Yes	27 (18%)
No	123 (82%)
Family history of cancer	
Yes	63 (42%)
Received radiotherapy in family (yes)	27 (42.9%)
Idea about radiotherapy	
Yes	30 (20%)
No	120 (80%)
Pain	
Yes	54 (36%)
No	96 (64%)
Taking anxiolytics	
Yes	4 (4%)
No	196 (96%)

Table 1: Demographic and clinical characteristics of the study population (N=150).

Characteristics	N (%)
Diangnosis	
Breast cancer	60 (40%)
Cervical cancer	24 (16%)
Rhinopharyngeal cancer	15 (10%)
Prostate cancer	15 (10%)
Lung cancer	12 (8%)
Glioblastoma	6 (4%)
Laryngeal cancer	6 (4%)
Vulvar cancer	3 (2%)
Endometrial cancer	3 (2%)
Disease Stage	
Stage I or II	84 (58.3%)
Stage III or IV	60 (41.7%)
Treatment intention	
Curative	135 (90%)
Palliative	15 (10%)
Months since diagnosis	
<3 months	39 (26%)
≥ 3 months	111 (74%)
Treatments modality received	
Surgery (yes)	93 (62%)
Chemotherapy (yes)	66 (44%)
Performance status	
PS 0 to 1	141 (94%)
PS 2 to 4	9 (6%)
Thermoplastic mask	
Yes	24 (36%)
No	114 (76%)

Table 2: Treatment and disease related characteristics.

The analysis of disease related characteristics revealed that 90% of participants had curative treatment, while the rest had a palliative treatment (10%). The percentage of patients who had stage I or II and II or IV was 58.3% and 41.7% respectively. Regarding treatment modalities received, 62% of participants underwent surgery and 44% underwent

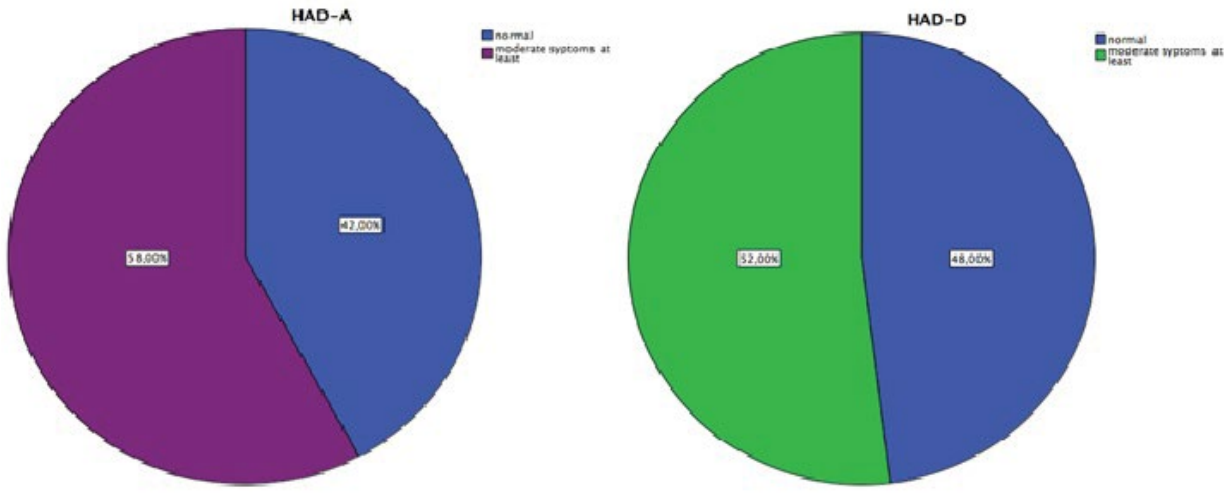

Figure 1: Percentage of patients classified as normal or having at least moderate symptoms according to HADS.

Anxiety	
Normal case (HAD-A ≤ 7)	63 (42%)
Bordeline case (8 ≤ HAD-A ≤ 10	45 (30%)
Definitive case (HAD-A ≥ 11)	42 (28%)
Depression	
Normal case (HAD-D ≤ 7)	72 (48%)
Bordeline case (8 ≤ HAD-D ≤ 10)	24 (16%)
Definitive case (HAD-D ≥ 11)	54 (36%)

Table 3: Psychopathological comorbidity: Anxiety and depression.

Variables	Univariate analysis			Multivariate analysis		
	OR	IC	p	OR	IC	p
Age						
<60 years	0.73	0.37-1.4	0.36	-	-	-
≥ 60 years						
Sex						
Female	1.25	0.6-2.6	0.54	-	-	-
Male						
Marital status						
Married	2.02	1.03-3.9	0.04	1.49	0.68-3.25	0.31
Other status						
Educational level						
Low	0.93	0.41-2.64	0.93	-	-	-
Moderate or high						
Financial level						
Low level	0.6	0.3-1.1	0.13	-	-	-
Moderate or high level						
Living environment						
Urban	0.88	0.3-2.05	0.77	-	-	-
Rural						
Employement status						
Working actualy	0.11	0.31-0.41	0.001	0.07	0.01-0.36	0.002
Not working						
Children in charge						
Yes	0.5	0.22-1.18	0.14	-	-	-
No						
Family support						
Yes	0.44	0.15-1.3	0.14	-	-	-
No						
Cancer in the entourage						
Yes	0.63	0.26-1.5	0.31	-	-	-
No						
Family history of cancer						
Yes	2.09	1.07-4.05	0.02	3.78	0.84-5.15	0.025
No						
Received radiotherapy in family						
Yes						
No	3.8	1.5-9.4	0 .04	3.9	0.79-19.5	0.09
Idea about radiotherapy						
Yes	0.9	0.39-2.03	0.8	-	-	-
No						
Pain						
Yes	0.81	0.4-1.6	0.56	-	-	-
No						
Taking anxiolytics						
Yes	1.4	0.27-7.17	0 .68	-	-	-
No						
Disease Stage						
Stage I or II	0.79	0.4-1.5	0.49	-	-	-
Stage III or IV						
Treatment intention						

Curative	3.2	0.86-11.8	0.08	5.14	1.02-25.8	0.047
Palliative						
Months since diagnosis						
<3 months	1.2	0.57-2.5	0.6	-	-	-
≥ 3 months						
Received Surgery						
Yes	0.49	0.2-0.98	0.04	0.86	0.32-2.31	0.77
No						
Received Chemotherapy						
Yes	1.8	0.93-3.47	0 .08	2	0.84-5.15	0.11
No						
Performance status						
PS 0 or 1	-	-	0.99	-	-	-
PS 2 to 4						
Thermoplastic mask						
Yes	0.98	0.45-2.1	0.96	-	-	-
No						

Table 4: Estimated logistic regressions coefficients for the HAD-A score.

Variables	Univaried analysis			Multivaried analysis		
	OR	IC	p	OR	IC	p
Age						
<60 years	0.74	0.37-1.45	0.38	-	-	-
≥ 60 years						
Sex						
Female	0.9	0.43-1.88	0.78	-	-	-
Male						
Marital status						
Married	1.34	0.69-2.61	0.37	-	-	-
Other status						
Educational level						
Low	1.53	0.6-3.89	0.36	-	-	-
Moderate or high						
Financial level						
Low level	0.43	0.22-0.86	0.017	0.6	0.28-1.2	0.19
Moderate or high level						
Living environment						
Urban	1.19	0.51-2.75	0.68	-	-	-
Rural						
Employement status						
Working actualy	0.15	0.04-0.55	0.004	0.16	0.04-1.2	0.008
Not working						
Children in charge						
Yes	0.69	0.29-1.59	0.38	-	-	-
No						
Family support						
Yes	0.58	0.19-1.73	0.33	-	-	-
No						
Cancer in the entourage						
Yes	0.84	0.36-1.94	0.68	-	-	-
No						
Family history of cancer						
Yes	1.35	0.7-2.59	0.36	-	-	-
No						
Received radiotherapy in family						
Yes						
No	4.3	1.5-11.7	0.004	3.79	1.1-12.1	0.024
Idea about radiotherapy						
Yes	1.8	0.81-4.13	0.14	-	-	-
No						
Pain						
Yes	1.13	0.58-2.2	0.71	-	-	-
No						
Taking anxiolytics						
Yes	1.08	0.21-5.56	0.92	-	-	-
No						
Disease Stage						
Stage I or II	0.86	0.44-1.68	0.67	-	-	-
Stage III or IV						
Treatment intentien						
Curative	1.4	0.48-4.25	0.51	-	-	-
Palliative						
Months since diagnosis						
<3months	1.1	0.58-2.2	0.78	-	-	-
≥ 3months						
Received surgery						
Yes	0.68	0.35-1.32	0.25	-	-	-
No						
Received chemotherapy						
Yes	1.6	0.83-3.06	0.15	-	-	-
No						
Performance status						
PS 0 or 1	-	-	0.99	-	-	-
PS 2 to 4						
Thermoplastic mask						
Yes	1.1	0.52-2.3	0.78	-	-	-
No						

Table 5: Estimated logistic regressions coefficients for the HAD-D score.

chemotherapy. Table 2 shows the disease related characteristics of the patients in the sample.

The results derived from the HADS show that 58% of the study participants suffered from at least moderate symptoms of anxiety, and 52% from at least moderate symptoms of depression. (Figure 1 and Table 3). The statistically significant predictors of anxiety score were a family history of cancer, employment status, and treatment intention. For depression score, only employment status and received radiotherapy in the family were a significant predictor factors. Results of the stepwise method are shown in Table 4 for the HAD-A score and Table 5 for the HAD-D score.

Discussion

Anxiety and depression are a common disorder in cancer patients. In a systematic review and meta-analysis in cancer Chinese population that evaluated 17 studies, the reported prevalence of anxiety and depression was 49.69% and 54.90% respectively [8]. Another review conducted in Germany using the HADS has noted 28.6% of anxiety and 25.5% of depression problems in cancer patients [9]. The prevalence of anxiety and depression disorder in our sample is higher. A possible explanation for why our rates are higher than those in other studies is that the majority of our patients have a low financial status, worrying about treatment cost and family financial difficulties. On the other hand, development country like Germany, have lower prevalence of mental health problems as compared to developing countries like morocco

[10], patients with cancer can have easily a screening for detecting psychopathological comorbidity and providing psychotherapeutic support.

Focusing on Arab populations, In Jordany, depression was found in 45% and anxiety disorder was found in 58% of female breast cancer patients [11]. Another study conducted also on female breast cancer patients in Levant, noted that 41.3% of participants scoring abnormal on the anxiety subscale and 24.7% on the depression subscale [12]. This difference can be explained that our study regroups different type of cancer. This might reflect differences in treatments or prognosis. Some cancer types are associated with worse side effects from radiotherapy treatment [13].

Family history of cancer and received radiotherapy in family were an important predictor factor of anxiety score and depression score respectively. Our results are the same from those reported in Jordan study [11]. Because of knowing more information about cancer, people have less severe fear of these treatments [14]. It is recommended that counselors and psychosocial support programs should also focus on the family history.

This study has several strengths including the use of standardized measures for the assessment of anxiety and depression, a relatively large sample size and one of the few available studies that evaluates specific psychiatric disorders in Africa and Arab cancer population.

Among the major limitations of this study was to not compare anxiety and depression scores of the same individuals at several time of radiotherapy treatment. Being a cross-sectional study might introduce some selection bias, we made an effort to include as many patients being seen in our department as possible during the recruitment period.

Conclusion

The results of this study suggest that a large proportion of cancer patients have psychiatric comorbidities and disorder. There is an urgent and vital need for psychosocial support programs and psychological screening for patients diagnosed with cancer candidate for radiation therapy.

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