Journal of Psychosomatic Research 87 (2016) 14–21

Contents lists available at ScienceDirect

Journal of Psychosomatic Research

A longitudinal study on anxiety, depressive and adjustment disorder, suicide ideation and symptoms of emotional distress in patients with cancer undergoing radiotherapy

Manuel Hernández Blázquez [a], Juan Antonio Cruzado [b,*]

[a] Psycho-oncology Unit, Basurto University Hospital, OSI Bilbao-Basurto, 48013 – Bilbao, Spain
[b] Faculty of Psychology, Complutense University of Madrid, , 28223 – Madrid, Spain

ARTICLE INFO

Article history:
Received 12 September 2015
Received in revised form 10 May 2016
Accepted 29 May 2016
Available online xxxx

Keywords:
Radiotherapy
Cancer
Anxiety disorder
Depression disorder
Adjustment disorder
Suicide ideation
Distress
HADS

ABSTRACT

Background: The aim of this study is to evaluate the presence of anxiety, depressive and adjustment disorders, suicide ideation, and symptoms of anxiety and depression in patients with cancer before (T1), and after radiotherapy (T2) and at the 1-month follow-up (T3).
Methods: A longitudinal study on 103 patients with cancer treated as outpatients undergoing radiotherapy was carried out, evaluating them three times (T1-T2-T3) according to DSM-IV criteria with the Mini-International Neuropsychiatric Interview and the Hospital Anxiety and Depression Scale.
Results: Prevalence of the depressive disorders was: T1 = 6.8%, T2 = 3.9% and T3 = 3.9%; for anxiety disorders: T1 = 16.5%, T2 = 18.4% and T3 = 16.5%; for adjustment disorder: 10.7%, 5.8% and 7.8%; and for suicide ideation: T1 = 11.7%, T2 = 7.8% and T3 = 7.8%. In all, the presence of disorders was: T1 = 35%, T2 = 26.2%0.4% and T3 = 29.1%. At least one mental disorder was diagnosed in 46.6% of patients in one of the three times of the study. In relation to the symptoms, the prevalence of the possible cases of clinical anxiety was: T1 = 35.9%, T2 = 18.4% and T3 = 22.3%; the prevalence of possible cases of clinical depression was 19.4%, 16.5% and 10.7%, respectively; and the prevalence of emotional distress was 27.2%, 17.5% and 18.4%, respectively. All symptoms decreased significantly from T1 to T2 and from T1 to T3, with moderate effect sizes. No changes were observed between the end of the radiotherapy and the follow-up period.
Conclusions: High prevalence of mental disorders and symptoms of anxiety, depression and distress were observed in the patients with cancer before finishing radiotherapy treatment and during the follow-up.
Funding: Basurto University Hospital and Basque Foundation for Innovation and Research in Health-BIOEF.

1. Introduction

More than 60% of cancer patients receive radiotherapy, in 70% of the cases with a curative intent [1]. However, research on the psychological impact of radiotherapy in patients is very scarce. Many cancer patients frequently present disorders of depression, anxiety, adjustment and suicide ideation/risk. A meta-analysis noted that, in patients with cancer, the prevalence of depressive disorders was 16%, with a prevalence of 10.3% of anxiety disorders, and a 19.4% of adjustment disorders [2]. Mehnert et al. reported a prevalence of 31.8% of psychopathological disorders in cancer patients; this included depressive disorders (6.5%), anxiety disorders (11.5%) and adjustment disorders (11.1%) [3]. Suicide ideation in cancer patients is greater than in the general population, and is thought to be around 12.3% [4]. Despite the numerous studies on psychopathology and emotional distress in cancer patients, only a small number of studies focused on the patients during treatment with radiotherapy [5–7]. In a study with cancer patients undergoing radiotherapy, Fritzsche et al. reported a prevalence of 3.4% of mood/depressive disorders, a 10.3% of anxiety disorders, and a 13.9% of adjustment disorders [8]. As a whole, half of the patients treated with radiotherapy in that study met criteria of psychopathological disorders. There are few longitudinal studies available on psychopathological disorders in patients undergoing radiotherapy, most of them using small samples focused on very specific cancers, which impedes generalization [5,6].

In relation to the symptoms of anxiety, depression and distress evaluated through the Hospital Anxiety and Depression Scale (HADS) [9] or similar measurements, in cancer patients undergoing radiotherapy, the following prevalence has been reported: 13%–24% of possible cases of clinical anxiety, 5%–21% of possible cases of clinical depression, and 9.5%–37% of cases of emotional distress [10–19]. The symptoms increase from pre-radiotherapy to after radiotherapy, and decrease in the

* Corresponding author.
E-mail addresses: m.pernetas@cop.es (M. Hernández Blázquez), jacruzad@ucm.es (J.A. Cruzado).

http://dx.doi.org/10.1016/j.jpsychores.2016.05.010
0022-3999/

following months [5,6,16]. Depression symptoms increase over the course of radiotherapy and persist to the follow-up period [5,14,20,21]. At the start of radiotherapy, there is a high level of anxiety symptoms, which improve afterwards [6,7].

The objective of this present study is to determine the prevalence and evolution of anxiety, depression and adjustment disorders, and suicide ideation — evaluated through diagnostic interview — and the symptoms of anxiety, depression and emotional distress before radiotherapy treatment, one week after its conclusion, and at the 1-month follow-up.

2. Methods

2.1. Design of the study and participants

A longitudinal study on patients with cancer treated as outpatients undergoing radiotherapy was carried out. The criteria for inclusion in the sample were the following: be over 17 years of age, be capable of understanding and speaking Spanish, with a cognitive ability (Mini-Mental State Examination (MMSE) score > 26 [22]), and a Karnofsky Performance Status (KPS) score > 80 [23]. The purpose of radiotherapy was curative, not palliative. Individuals that — according to the medical charts — suffered from psychiatric disorders or received psychiatric treatment before the start of radiotherapy were excluded. Out of an initial sample of 150 patients, 15 refused to participate, 7 did not meet the inclusion criteria (5 had a KPS score < 80 and 2 had a MMSE score < 26) and 8 did not complete the first evaluation. At total of 17 patients did not attend the two last evaluation sessions and, hence were disregarded. The final sample of the study consisted of 103 outpatients. No significant differences were found between the 103 patients that completed the evaluation and the 17 patients who only took part in the initial evaluation, in terms of sociodemographic and clinical data. None of the patients were under psychiatric treatment during the study. All the selected patients were evaluated at three times during the study: T1 (before radiotherapy), T2 (a week after finishing the treatment) and T3 (at the one-month follow-up). The approval of the Research Ethics Committee of the Hospital was obtained.

2.2. Variables and instruments

The socio-demographic variables and the clinical information regarding the cancer, such as the diagnosis, histology and treatment of the tumor, were obtained from the medical charts. The Spanish version of the Mini-International Neuropsychiatric Interview (MINI) [24,25] was administered. This is a brief diagnostic interview that explores the principal psychiatric disorders of the Axis I of the DSM-IV and the ICD-10. It can be administered in 15 min, and can be used by clinicians after a brief training. The MINI modules correspond to mood disorders within the last two weeks (major depression with or without melancholic symptoms, manic or hypomanic episode, and dysthymia); suicide ideation/risk in the last month, and anxiety disorders (panic, agoraphobia, social phobia and generalized anxiety) within the last month, and generalized anxiety within the last six months.

The MINI incorporates a section on adjustment disorder but it is incomplete and not very precise. We diagnosed the adjustment disorders by means of an interview in which we included supplementary questions according to DSM-IV criteria for adjustment disorders and evaluated the relationship between symptoms and cancer- or treatment-related events (stressors). Those stressful events included the primary cancer diagnosis, cancer recurrence, metastasis, medical treatments, and other cancer-associated events. We diagnosed adjustment disorder when the psychological stress reported did not meet the criteria DSM IV for anxiety or depression, similarly to Mehnert, et al. [3].

The symptoms of anxiety, depression and emotional distress were evaluated by means of the Spanish version of the Hospital Anxiety and Depression Scale (HADS) [9,26]. The HADS is a well-validated and reliable measurement of self-reporting, designed to detect the presence and the severity of anxiety and depression. The 14 items of the questionnaire exclude somatic symptoms and, therefore, avoid symptom overlap between somatic diseases and mood disorders. The interviewees are asked to assess their symptoms during the previous week. The highest scores in the two subscales — anxiety (HADS-A) and depression (HADS-D) — indicate a greater frequency of symptoms. The total score of the scale is a measurement of emotional distress (HADS-T). Scores from 8 to 10 indicate a high frequency of anxiety or depression symptoms, and scores from 11 upwards are indicative of probable clinical cases of anxiety or depression. For the HADS-T, the cut-off points for this study were >14 (emotional distress) and >20 (probable clinical case).

Assessment tests were administered by three clinical psychologists trained specifically in psycho-oncology.

3. Statistical analysis

The descriptive data of frequencies and percentages were extracted for qualitative variables, and means and standard deviations for quantitative variables. The Kolmogorov-Smirnov test was applied to verify that the variables were normally distributed. The Friedman test was applied to check whether there were significant differences between the three measurement times for the variables HADS-A, HADS-D and HADS-T. The Wilcoxon test was used to verify the differences between each one of the assessment times, together with the Bonferroni correction. The Cochran's Q test was used for the nominal variables (diagnoses of depressive disorders, suicide ideation, anxiety disorders and adjustment disorders), and post-hoc pairwise McNemar tests with Bonferroni correction were conducted afterwards. The effect size was calculated using Cohen's *d*, and the Phi value for the nominal variables. The confidence level was set at 95%, with an Alpha level of 0.05. The Bonferroni correction was applied for multiple comparisons.

The Chi-square test was used to investigate any differences in the prevalence of at least one psychopathological disorder for the variables of gender, educational level, cancer stage, surgery treatment and chemotherapy treatment. The Student's *t*-test was applied to check for differences in age means between the patients with or without at least one psychopathological disorder. The Kruskal-Wallis test was used to verify the possible significant differences in the educational level (primary, secondary and post-secondary) and in the stage of cancer within the variables of HADS-A, HADS-D and HADS-T. Post-hoc Mann-Whitney tests were applied with the Bonferroni correction. The Pearson's correlations between age and HADS-A, HADSD and HADS-T were calculated. Student's *t*-tests were performed in order to check for significant differences for such variables in HADS-A, HADS-D and HADS-T scores. The effect size was calculated using Cohen's *d*. These analyses were performed for each one of the three different assessment times.

4. Results

Table 1 shows the socio-demographic and clinical data. The majority of patients were married, had undergone primary studies, suffered from stage II cancer and had undergone previous surgical treatment.

Table 2 shows the prevalence and evolution at the three times of the study of the disorders of depression, anxiety, adjustment, and suicide ideation/risk. More than a third (35%) of the patients were diagnosed with a psychopathological disorder at the beginning of radiotherapy, with the most prevalent being anxiety disorders. In T1, there are 11 overlapped cases, i.e., with more than one disorder. In particular, there were cases with suicide ideation that overlapped with anxiety (4 cases), depression (3 cases), anxiety and depression (1 case) and adjustment disorders (2 cases), as well as depression disorders that overlapped with anxiety disorders (1 case). In T2 there were cases of suicide ideation that overlapped with anxiety disorders (5 cases), anxiety and depression (1 case), adjustment disorders (2 cases); and depression