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Distress thermometer for preoperative screening of patients with oral squamous cell carcinoma

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ABSTRACT

In this study, we evaluate the association between distress, various demographic and medical variables, and the prevalence of psychosocial distress in preoperative patients with oral squamous cell carcinoma. A total of 100 consecutive patients were recruited into the study and asked to complete the Distress Thermometer (DT) form with the Problem List questionnaire prior to surgical intervention; the average distress score was 5.7 ± 2.7. The distress score was neither correlated with age ($r = -0.025$; $p = 0.804$) nor with tumor size ($r = 0.028$; $p = 0.785$). General worries, anxiety, sadness, depression, pain, exhaustion, sleeping disorders, or problems with nutrition resulted in significantly higher distress scores compared to patients without these complaints. Individuals with a DT score of 5 or higher ($p = 0.006$) were advised to seek out psychological support. There is a strong correlation between a high DT score and emotional disorders, as well as physical problems.

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1. Introduction

The assessment and evaluation of psychological distress in oncological patients has become a routine procedure in care giving of patients with most common tumor entities. Most clinicians and researchers recognize the importance of screening for distress and incorporate the relevant information in synthesizing a comprehensive treatment plan for oncologic patients (Haman, 2008; Martinez et al., 2013). In Germany, the National Cancer Taskforce advocates for utilizing psycho-oncological assessment tools, and demands that psycho-oncological support be offered by the healthcare provider for every oncological patient.

Patients with tumors in the head and neck region pose a special challenge for psychooncology. This could be attributed to tumor location being near numerous vital structures, thus affecting the expressive and communicative nature of the patient, as well as their esthetic self-perception and overall quality of life. It is not surprising to find a higher distress level in these patient groups when compared to the healthy population (Aarstad et al., 2014; Beisland et al., 2013; Haman, 2008). It is additionally known that head and neck oncology patients display significantly higher psychological distress, and are more likely to be diagnosed with other mental health conditions when compared to patients with other malignancies (Fischer et al., 2010; Katz et al., 2004; Singer et al., 2005, 2011; Zabora et al., 2001). These findings may explain the higher suicide rate among these patient groups (Anguiano et al., 2012; Misono et al., 2008; Zeller, 2006), and prompt the need for implementing a professional psychological support regimen as part of their overall treatment plan.

Multiple screening tests have been reported in the literature as a means to monitor distress parameters in patients with malignant conditions (Martinez et al., 2013; Mitchell, 2010; Vodermaier et al., 2009). The Distress Thermometer (DT) (Roth et al., 1998), as a short test, has been internationally validated and proved to deliver reliable results in multiple languages (Ma et al., 2014). Several studies have been recommending the standardized implementation of the DT, due to its effectiveness and easy incorporation in the daily

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patient management routine to detect clinically significant distress early and to introduce the patient to psychooncological support if necessary (Donovan et al., 2013; Holland et al., 2011; Vodermaier et al., 2009).

However, previous clinical reports have focused solely on patients with head and neck cancer undergoing radiotherapy (Chen et al., 2009; Lewis et al., 2013). The objective of this study was to determine the prevalence of psychosocial distress among patients undergoing surgical management for oral squamous cell carcinoma, and broaden current knowledge of the correlation between distress and several demographic and medical variables.

2. Materials and methods

This study was conducted in 100 consecutive patients with head and neck cancer at the Department of Oral and Maxillofacial Surgery at the Oncologic Comprehensive Care Center at Aachen University Hospital over a time period of 2 years between June 2013 and November 2015. Eligible patients who had been diagnosed with new squamous cell carcinoma were asked to complete the DT and the problem list questionnaire on the day of admission to the clinic before being cleared for head and neck cancer surgery. At least 1 week prior to delivery of the survey, patients were thoroughly informed about their diagnosis and therapeutic strategy by the attending physician.

All participants were provided with a written consent and had to meet the following criteria: age $\geq$18 years, undergoing surgical intervention for cancer treatment, no prior history of cancer treatment, sufficient understanding and comprehension of the German language, and absence of self-reported psychological detriments. Patients who did not meet the following criteria were not included in this study. This study was approved by the local ethical committee.

Under the supervision of a trained nurse, participants received the DT questionnaire and were asked to self-report their level of distress on a visual analog scale from 0 (no distress) to 10 (extreme distress) (Fig. 1).

Attached to the actual DT was a problem list with 40 questions divided into practical problems, family problems, emotional problems, spiritual issues, and physical problems, which could be answered by checking “yes” or “no” (Fig. 1). The problem list specified the actual cause of the patients' distress. If the patient selected a DT stress level of 5 or higher, they were advised to accept professional psychological consultation according to the guidelines of the German Society for Psychooncology (Mehnert et al., 2006). Typically, the customary problem list contains 39 items, but in this study an additional item was incorporated so that regardless of their score, an individual who indicated the wish for psychological help could receive such care.

Additionally, age, gender, marital status, tumor size, the presence of lymph node metastasis, grading, and TNM classification of the tumor were documented and considered factors in determining whether a patient needed professional psychological consultation as part of their overall treatment.

The Pearson chi-squared test was applied to sets of unpaired categorical data to evaluate the likelihood that any observed difference between the sets was due to chance. The Spearman rank correlation coefficient (“Spearman's rho”) was calculated as a measure of the association between two ordinal or metric variables. An independent sample *t*-test was used when two separate sets of independent and identically distributed samples were obtained, and their population means were compared to each other.

For descriptive statistics, mean values and standard deviations were calculated. Statistical analyses were performed with IBM SPSS version 23 (IBM Corp., Armonk, NY).

3. Results

Of a total of 100 consecutive patients, 57 were male and 43 were female with a mean age of 64.4 ± 14.7 years, and all presented with newly diagnosed oral squamous cell carcinoma. Sixty-three patients were married or described themselves as “in a relationship.” Eight patients were single, 12 patients were divorced, and 17 patients were widowed.

The average distress score of the patients included in the analysis was 5.7 ± 2.7. Seventy-two patients were at or above the cut-off score of 5. The distress score was neither correlated with age (Spearman rank correlation: $r = -0.025$; $p = 0.804$), nor with tumor size (Spearman rank correlation: $r = 0.028$; $p = 0.785$).

Patients who had indicated on the problem list that they suffered from general worries, anxiety, sadness, depression, pain, exhaustion, sleeping disorders, or problems with nutrition showed significantly higher distress scores compared to patients without these complaints (Table 1).

Gender had a significant influence on the patients' specific problems. Female patients were more likely to report pain (Chi-squared test; $p = 0.041$) and to express fears (Chi-squared test; $p = 0.043$) or problems with nutrition (Chi-squared test; $p = 0.014$) than male patients. On the other hand, more male patients stated problems with their housing situation (Chi-squared test; $p = 0.042$) and a higher incidence of sweating than female patients (Chi-squared test; $p = 0.042$) (see Table 2).

It was discovered that marital status exhibited a significant influence on the patients' complaints and ability to handle the cancer diagnosis. Patients who were “married” or “in a relationship” at the time of this study reported considerably fewer problems with their housing situation of statistical significance (Chi-squared test; $p = 0.012$).

Psychological support was received by 43 individuals, who had a higher distress score on their DT than patients who refused support (Chi-squared test; $p = 0.006$); the patients' age, however, displayed no significant correlation in this matter ($p = 0.627$). Out of the 43 participants, 35 patients (81.2 %) had a cut-off score of 5 or higher. Only 8 patients scoring less than 5 sought out psychological support out of self-motivation. We also found a uniform distribution between men and women (Chi-squared test; $p = 0.206$). The civil status did not influence this choice (Chi-squared test; $p = 0.100$). All individuals who decided to accept psychooncological consultations either due to our recommendation or out of self-motivation, stated on the problem list that they were suffering from either worries (Chi-squared test; $p = 0.041$), fears (Chi-squared test; $p = 0.030$), sadness (Chi-squared test; $p = 0.032$), depression (Chi-squared test; $p = 0.006$), tension (Chi-squared test; $p < 0.001$), pain (Chi-squared test; $p = 0.005$), exhaustion (Chi-squared test; $p = 0.016$), sleeping disorders (Chi-squared test; $p = 0.027$), irritations in the oral cavity (Chi-squared test; $p = 0.017$), and/or problems with nutrition (Chi-squared test; $p = 0.014$).

4. Discussion

The purpose of this prospective study was to determine the average distress score of patients suffering from oral squamous cell carcinoma prior to undergoing surgical intervention. We aimed to expose the medical and demographic variables that influence the distress score, and to assess the demand for professional psychooncological support while understanding the rationale behind this decision by the patients.

In our sample, the mean DT score was 5.7 ± 2.7, which is notably higher than the DT scores of patients diagnosed with different tumor entities. Bulli et al. published an average score of 4.9 ($n = 290$) when investigating patients with breast, colon, uterine or prostate

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