Cancer Related Fatigue in Breast Cancer Survivors: in Correlation to Demographic Factors

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ABSTRACT

Background: Fatigue is one of the most frequent symptoms in cancer patients. However, its exact causes are still unknown, and this circumstance makes it complicated to encounter the problem.

Objectives: The current research was carried out to investigate factors associated with fatigue in cancer patients without other diseases.

Methods: The research was conducted in 2013. A group of 150 randomly selected breast cancer patients who had successful surgical treatment and attending in oncology ward to receive chemotherapy and radiotherapy. They completed the Cancer Fatigue Scale; medical information was obtained through patient recorded files and demographic questions obtained by self-reported data. Then, univariate analysis between the CFS scores and the investigated factors was used to assess the potential fatigue associated factors; related factors (P<0.05) were retained.

Results: The mean age of the subjects was 47.9 (SD=11.4), ranging from 25 to 72 years old. Among demographic factors, age (0.30, p= 0.006) and employment status (0.35, p=0.009) were correlated with physical aspects, whereas marital status (-4.0, p=0.001) and educational status (-0.59, p=0.005) were correlated with affective and cognitive aspects of fatigue scores, respectively. Among factors concerned with cancer and treatment such as disease stage, number of days since surgery, past intravenous chemotherapy, radiotherapy was not correlated with any aspects of fatigue. In this section, only the types of surgery (3.01, p=0.06) were correlated to the affective aspect of fatigue.

Conclusions: The results suggest that fatigue in this population is determined by demographic factors rather than by cancer itself and prior cancer treatments, and that the modifying demographic situation, such as work time and supporting group arrangement as a self-help group as a social support for unmarried patients who live alone, might be essential clues in reducing fatigue in this population.

Keywords: breast cancer, fatigue, demographic
INTRODUCTION

Cancer-related fatigue (CRF) is a symptom commonly experienced by patients during the course of cancer and its treatment (1). It is described as a distressing permanent feeling of tiredness or exhaustion concerned to cancer that is not related to recent activity and interferes with common functioning (2). It can be defined in terms of perceived energy, mental capacity, and psychological situation (3, 4). Patients describe it as one of their most troublesome symptoms, not least because it causes distress and greatly influences quality of life (5). Historically, fatigue has been poorly managed in this patient group (6). While it is increasingly recognized as a common problem, many health care professionals still hesitate to treat it (7). It is perceived as an unavoidable result of the disease and its treatment that patients have to tolerate (8). The prevalence of cancer-related fatigue ranged from 4% to 91%, depending on the studied population and the evaluation methods (9-11). It is found that fatigue conflicts with quality of life regardless of diagnosis, treatment, or prognosis (12).

There are expanding documents to suggest that fatigue may remain for months or even years after completion of breast cancer treatment, especially among patients who have received adjuvant chemotherapy (13). The prevalence of fatigue beyond the acute phase of treatment was first highlighted in studies evaluating the long-term quality of life of breast cancer survivors, which established that many women continued to perceive a sense of fatigue, diminished energy, and distraction in their activity level years after diagnosis and treatment (14).

Fatigue is a comprehensive, multifaceted compound that is commonly thought to affect subjective feelings of tiredness, weakness, and/or lack of energy (15). A large number of factors can provoke fatigue, including physical or mental activity, medical situations, psychological variables and demographic factors that can influence the patient’s life style.

The purpose of this study was to investigate the demographic and clinical factors correlated with fatigue in breast cancer survivors who were not suffering from other diseases. Recognizing these variables may generate suggestions on how fatigue could be mitigated and better perceived by affected patients. Based on the above mentioned studies, we hypothesized that fatigue in this group of patients might be related to demographic and clinical factors. Therefore, we investigated factors correlated with both the total score and each subscale.

PURPOSE

The aim of this study was to evaluate demographic and treatment factors in relation to physical, affective and cognitive aspects of cancer-related fatigue scores in breast cancer survivors.

RESEARCH DESIGN

In the current research, a prospective study was used to evaluate the cancer-related fatigue in physical, affective and cognitive domains of fatigue scale in breast cancer survivors hospitalized in an oncology ward. The study was conducted in Omid Research and Treatment Center (affiliated to Urmia Medical Sciences University). Individuals who were beginning CTX, radiotherapy (RT), or concurrent therapy for cancer were selected by convenience method (n = 150).

Inclusion and exclusion criteria

Subjects were eligible if they were presently starting treatment for breast cancer. Individuals were excluded if they had chronic fatigue syndrome and were registered in other research that engaged a psychoeducational intervention or if they had obvious declaration of somatic or psychiatric disorder. Another exclusion criterion was the beginning of treatment for anemia or depression during the previous three weeks, since these conformable causes of fatigue (16, 17) may have been overlapped by perceived fatigue.

Procedure

After the study was approved by the ethics committee of Urmia University of Medical Sciences, informed consent was obtained from all participants. A researcher was attending at chemotherapy ward to meet potential participants. Data on fatigue were obtained when they were applied for the treatment. Medical information was provided by patient recorded files and demographic as well as several new questions that
were designed specifically for this study population and obtained by self-reported data.

Subjects’ fatigue was assessed using the Cancer Fatigue Scale (CFS), a brief self-rating scale for assessing cancer-related fatigue, which was constructed particularly to reflect the nature of fatigue. The scale includes 15 items and three subscales—physical, affective, and cognitive. The physical aspect of fatigue assumes being easily tired, an urge to lie down, exhaustion, a feeling of heaviness and tiredness, being fed up, reluctance, and not knowing what to do with oneself. Affective aspects of fatigue are lack of energy, lack of interests, lack of concentration, and not encouraging oneself to do anything. Cognitive aspects of fatigue are forgetfulness, errors while speaking, slower thinking, and carelessness. Each item is rated on a scale of 1 (not at all) to 5 (very much), and individuals are asked to circle the one number that explains their current state. The desirable answers for each subscale range from 0 to 28 (physical), 0 to 16 (affective), and 0 to 16 (cognitive). The maximum total score is 60. Higher scores announce more severe fatigue (18). In the Iranian study of Haghighat et al. (2003), the alpha reliability coefficient for each of the three subscales (physical, affective, and cognitive) and for total score were 0.92, 0.89, 0.85 and 0.95, respectively (19).

Ethical considerations

Before collecting the data, the proposal for the study was approved by the Institutional Review Board where the research was carried out. All potential subjects were informed about: the purpose of the study; what being in the study would involve; anonymity and confidentiality issues; and the right to withdraw from the study at any time without repercussions. In addition, each potential subject was given the primary investigator’s (PI) contact information and was encouraged to contact her if they had questions or concerns. The written consent form was obtained.

Statistical Analysis

The Statistical Package for the Social Sciences (SPSS, SPSS Inc., Chicago, IL, U.S.A.), release version 10.0, was used for data analysis. First descriptive statistics was used to analyze demographic and clinical-related characteristics of the subjects as well as the scores of fatigue and its...
domains. Then, univariate analysis between the CFS scores and the investigated factors was used to assess the potential fatigue associated factors; related factors (P<0.05) were retained.

Findings

Demographic, clinical characteristics and cancer related fatigue scores

The research was conducted in 2013. In all, 176 randomly selected subjects were eligible for inclusion. Of these, 150 subjects accepted to participate in the study. Their demographic characteristics are presented in Table 1. The mean age of the subjects was 47.9 (SD=11.4), ranging from 25 to 72. Most of them (n=104) were married and 22% had attended high school and above, and about 32% of the subjects were working outside their home. Regarding the financial situation, only 65% of the subjects reported that they had no money problems. Most of them (57%) were living in rural areas. The mean number of days after surgery was 78±37, and the mean number of days since the last chemo- and radiotherapy was 57±23 days and 38±21 days, respectively. The mean (SD) of total cancer related fatigue scores (range: 0-60) was 41.5 (10.25). Regarding the dimensions of fatigue, results showed that mean (SD) in physical (0-28), cognitive (0-16) and affective (0-16) subscales were 20.36 (4.28), 10.66 (3.55) and 9.66 (3.55), respectively. A summary of the demographic characteristics of the participants is presented in Table 1.

Results of univariate analysis between investigated factors and fatigue scores

Table 2 shows the results of univariate analysis for factors having <0.05 association with cancer related fatigue scores. Among demographic factors, age (0.30, p=0.006) and employment status (0.35, p=0.009) were correlated with physical aspects, whereas marital status (-4.0, p=0.001) and educational status (-0.59, p=0.005) were correlated with affective and cognitive aspects of fatigue scores respectively. Among factors concerned with cancer and treatment, such as disease stage, number of days since surgery, past intravenous chemotherapy, and radiotherapy, were not correlated with any aspects of fatigue. In this section, only the types of surgery (3.01, p=0.06) were correlated to the affective aspect of fatigue.

DISCUSSION AND CONCLUSIONS

The aim of this study was to evaluate demographic and treatment factors in relation to physical, affective and cognitive aspects of cancer related fatigue scores in breast cancer survivors.

In our study there was a significantly positive association between age and fatigue score, as
shown in Table 2, which means that older women were at risk to increase the fatigue score. Therefore, health professionals should be alert to the possibility of greater fatigue in older survivors.

In general, aging results in deterioration of physiological systems. While there is no known threshold age, it is considered that the deterioration of biological systems begins from about the age of 45–50 years (20). Alteration of the circadian time-keeping system and physiology of sleep homeostasis often results in fatigue (21). Aging is related to a more difficult adaptation of circadian rhythms, changes in the sleep/wake cycle, and heightened sleep disorders (22). So, decreased sleep quality stimulates higher fatigue. Aging also results in changes to the construction and formation of sleep. In a metaanalysis, Ohayon et al. (2004) found that aging was related to a reduction in slow wave (deep) sleep, an increase in stages 1 and 2 of sleep, and a larger number of awakenings. In addition, higher age seems to result in shorter sleep duration and inferior sleep quality (23). Shortened and poorer sleep quality commonly results in increased sleepiness and fatigue during the waking hours (24). In the present study, being employed was associated with fatigue. In this line, other studies showed that longer working hours have also been associated with elevated patients’ complaints of fatigue (25). Similarly, Mehnert et al. (2011) reported a significantly larger likelihood of ‘general fatigue’ and ‘chronic tiredness’ among employees working a longer (26) than shorter workweek. It seems that interacting psychosocial work characteristics associated to the nature of work and work environment plays important roles in increasing fatigue.

Education and income have been reported to be weekly associated with intention to sleep (27). In particular, people with higher incomes and higher level of education spent less time in bed, while those with lower incomes showed longer sleep latency and slept less, even though time in bed was similar.

In the present study, marital status is significantly associated with cognitive subscale of fatigue. Studies suggest being married reduces fatigue. On the other hand, studies showed that employees who lived alone had significantly higher fatigue (28, 29). However, being married was linked to an additional set of demands that stemmed from family related issues such as looking after young children or marital stress, which may contribute to fatigue, but receiving support from the family motivated them and diminished their fatigue. It would seem that having a spouse/children may lessen the feeling of loneliness and depression causing achieve family support and consequently experiencing less fatigue. Cognitive fatigue may interfere with the use of social support, but this finding is also difficult to explain. Further research is needed to explore this issue.

There was a significant association between affective aspects of fatigue in patients who had a partial resection and those who had a mastectomy. Tong et al. (2012) revealed the social outcomes of breast-conserving surgery versus mastectomy and found psychological benefits in breast-conserving surgery (30). Our results indicate that the psychological impact of mastectomy might be positively associated with affective aspects of fatigue. Fung et al. (2001) found that patients who received breast conserving therapy were less concerned about their appearance and more freely selected clothing than those who received mastectomies. They also found better psychological adjustment in patients with breast conserving therapy (31).

Neither the number of days after surgery nor past chemotherapy or radiotherapy was significantly correlated to fatigue scores. According to these results, we assume that fatigue might not be simply the consequence of aggressive cancer treatment, and therefore, it might not decrease with time, but it was caused by concurrent physical and psychosocial factors at the time.

Limitations of the present study were related to the study design (cross-sectional). The study was conducted in a single medical center; also, the findings cannot be generalized. Despite limitations, this study may contribute to the management of fatigue in breast cancer survivors, directing innovative interventions to prevent and treat fatigue. The strengths of this study were its focus on fatigue in Iranian non-depressive breast cancer survivors and the use of one standardized and internationally validated cancer-specific questionnaire to evaluate fatigue.

Iranian breast cancer survivors who suffer from fatigue have a higher age, live alone and are employed. Thus, for breast cancer survivors, health care professionals should pay more attention to the possibility of fatigue in older, unmarried and employed women. Also, our results sug-
gest that fatigue in this population is determined by demographic factors rather than cancer itself and prior cancer treatments, and that the modifying demographic situation, such as shortening work time and supporting group arrangement as a self help group for social support in unmarried patients who live alone, might be an essential clue in reducing fatigue in this population. Future research should evaluate additional variables related to fatigue following breast cancer treatment and their impact on quality of life over time.

Acknowledgements: The authors wish to thank Mrs Shoori, the head of oncology ward, for her help to invite participants, as well as all participants who accepted to attend the study.

Ethical statement: The research project has received the confirmation of the Institution’s Ethics Committee.

This research project was conducted during 2014 as a master’s degree thesis for midwifery consultation student.

References