Original Article

Investigation of the Relationship between Preoperative Fatigue and Quality of Life in Prostate Cancer Patients

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Abstract

Background: Cancer-related fatigue should be well understood in order to improve quality of life (QoL) and decrease treatment-related negativity in preoperative period.

Objective: The aim of this study was to investigate the relationship between preoperative fatigue and QoL in patients with prostate cancer.

Methodology: This descriptive study included 82 patients who were scheduled to undergo surgery for prostate cancer. Fatigue level was evaluated with Piper Fatigue Scale; QoL was measured by EORTC QLQ-C30-version 3.0 and EORTC QLQ-PR25 Quality of Life Scale. Data were evaluated using number, percentage, mean and correlation analysis.

Results: The mean Piper Fatigue Scale score for the study population was 3.38±0.77. The overall Piper Fatigue Scale significantly correlated positively with functioning scale (p: .042) of EORTC QLQ-C30; positively with functional (p: .040), positively with hormonal treatment related symptoms (p: .017) and negatively with incontinence aid (p: .038) of EORTC QLQ-PR25 Scale.

Conclusions: In this study, prostate cancer patients experienced mild fatigue in preoperative period. Prostate cancer its self and treatment modalities causes fatigue which effects QoL of patients preoperatively. The results of this study illustrate the need for determining preoperative fatigue levels of prostate cancer patients. Surgical nurses should support prostate cancer patients for managing preoperative fatigue and enhancing QoL.

Keywords: Prostate cancer; fatigue; quality of life; preoperative period

Introduction

Prostate cancer is the most common malignancy among men worldwide. In 2016, 1.4 million diagnosed prostate cancer patients and 381 000 deaths due to prostate cancer were reported by the Global Burden of Disease Cancer Collaboration (Global Burden of Disease Cancer Collaboration et al., 2018). According to the data of the Turkish General Directorate of Public Health 2015, prostate cancer ($33.1/10^5$) is the second most common cancer type among men in Turkey (Turkyılmaz et al., 2018).

There are various treatment options for prostate cancer such as wait-and-see approach, radiotherapy, radical prostatectomy, chemotherapy and hormonal therapy. The treatment is planned considering the stage of the disease, the age of the patient, average life expectancy, general condition, accompanying health problems, urological and sexual function.

A single method can be selected in the treatment plan or it can be applied from a combination of several methods (Turkiye Cumhuriyeti Saglık Bakanlıgı Saglık Arastırmaları Genel Mudurlugu 2017).

Background

Despite advances in prostate cancer treatment, patients may experience many health problems such as fatigue, insomnia, sexual dysfunction, pain, bowel and urination problems during the treatment process (Roth et al., 2008; van Andel et al., 2008; Porreca et al., 2018). One of the most common adverse effects of cancer and cancer treatment is fatigue. The fatigue experienced by cancer patients is different from the fatigue experienced by other patients. Fatigue is more permanent, destructive and long-lasting in cancer patients. It also includes physical, mental and emotional fatigue and does not relax with adequate sleep or relaxation. Therefore fatigue has a negative impact on the self-care capacity and quality of life (QoL) of patients. Cancer-related fatigue that affects physical and psychological conditions as a result of cancer treatment should be well understood in order to improve QoL and decrease treatment-related negativity. This is very critical in terms of compliance and continuation of treatment (Porreca et al., 2018; Bourke et al., 2015). Therefore, this study was conducted to investigate the relationship between preoperative fatigue level and QoL in prostate cancer patients.

Methodology

This descriptive study was conducted between May 20 and December 20, 2019 in a urology department of a healthcare practice and research hospital in Izmir, Turkey. During data collection period, a total of 128 prostate cancer patients admitted to urology department for undergoing surgery. In this study, setting type I error at 0.05, the power of the test at 0.80 and based on the study performed by researcher, it was determined that the minimum study sample needed 108 patients (Porreca et al., 2018). The study sample consisted of 114 patients who were 18 years of age or older, planned to undergo surgery for prostate cancer in the related hospital and voluntarily agreed to participate in the study.

The data was collected via face-to-face interviews conducted by the researchers, at a convenient time before the surgery. The data were collected with data collection form. The data collection form included 27 questions regarding the socio-demographic and medical status of the patients. The Piper Fatigue Scale was used for fatigue assessment. In order to obtain data related with quality of life "EORTC QLQ-C30-version 3.0" and "EORTC QLQ-PR25" were used.

The Piper Fatigue Scale developed by Piper et al. (1987) evaluates subjective perception of fatigue with four sub-dimensions (behavior/violence, affect, sensory, cognitive / mental) (Piper et al., 1998). The scale consists of 22 items, each of which is evaluated with a visual analog scale of 0-10 points. In addition, there are 5 items in the scale that are not included in the calculation of points. These substances are used to determine the duration of fatigue and the patients' thoughts about fatigue. The subscale scores of the scale are calculated by dividing the total scores of the items that make up the relevant sub-dimension by the number of items. Total fatigue score is obtained by summing the scores of all items and dividing them by the total number of items. As a result of the average score of 0 (zero) points of no fatigue, 1-3 points of mild fatigue, 4-6 points of moderate fatigue, 7-10 points of fatigue is severe. The Turkish validity and reliability study of the scale was conducted by Can et al. and Cronbach's alpha coefficient was 0.94 (Can, 2001).

The EORTC QLQ-C30 Quality of Life Scale, developed by the European Committee for Cancer Treatment and Organization (EORTC), is a widely used scale for the assessment of quality of life in cancer patients. The scale, which assesses functional aspects of health-related quality of life, general health status and common symptoms in patients, consists of 30 questions in total. The Turkish version of the third version of the scale was conducted by Cankurtaran et al. (2007) and it was reported that the Cronbach α coefficient ranged from 0.56 to 0.85. High functional and general health status scores; low symptom scale score indicates high QoL (Cankurtaran et al., 2008).

EORTC QLQ-PR25 Quality of Life Scale is a scale developed by the European Committee for Cancer

Treatment and Organization and Genitourinary Cancer Groups specifically for prostate cancer patients. In addition to the questions in EORTC QLQ-C30, this scale includes 25 questions evaluating urinary, intestinal and sexual functions related to surgery, hormonal or radiotherapy in patients with prostate cancer (van Andel at al., 2008).

This study was approved by the Medical Research Ethics Committee of Ege University (File no:19-4.IT/23). Written permission to conduct the study was obtained from institution in which the study would be conducted. The purpose and details of the study were explained to the all patients, and written consent was provided by all participants. This study was performed in accordance with the Declaration of Helsinki.

The data were evaluated Statistical Program for Social Sciences (SPSS) for Windows version 20.0 SPSS. Descriptive statistics regarding the sociodemographic characteristics of the participants were analyzed through frequencies and percentages. Compliance of numerical variables with the normal distribution was assessed by Shapiro –Wilk test. For the variables with a normal distribution, Independent Samples T-Test, One Way Anova, Pearson correlation analysis were used. For the variables with a non-normal distribution, Mann Whitney U test and Spearman correlation analysis were used to analyze the relationships among the groups. The resulting P-value at, .05 was considered statistically significant.

Results

Characteristics of the patients: The mean age of patients was 60.27±6.91 years (min: 40 max: 76) and all (n: 114) of the participants were male. The socio-demographic and disease/treatment characteristics of the patients are given in Table 1.

Fatigue Measures: The mean Piper Fatigue Scale value for the study population was 3.38±0.77 (min:1.95 max: 5.82). The mean scores of subdomains of behavioral, affective, sensory, and cognitive/mood attributes of fatigue scale are respectively 4.04±1.45 (min:1.17 max: 8.33), 3.82±1.29 (min:1.40 max: 8.00), 3.26±1.27 (min:

0.80 max: 6.60) and 2.46±0.77 (min: 0.50 max: 4.33) (Table 2). It was determined that 55.3% (n: 63) of the patients experienced mild level of fatigue and 44.7% (n: 51) experienced moderate level of fatigue.

It was determined that age (p: .197), marital status (p: .605), educational status (p: .289), employment status (p: .259), having comorbidities (p: .932), continuous drug usage (p: .533), family history of prostate cancer (p: .729), needing support for self-caring (p: .069), having a supportive adult for self-caring (p: .705), having hearing (p: .257), sleep (p: .899) and vision (p: .126) problems, exercising regularly (p: .347), regular nutrition status (p: .565) and decreased appetite (p: .931) did not affect the fatigue scores. The mean fatigue scores tended to be higher in the patients who got psychiatric diagnosis in the last three months (p: .018).

Quality of Life Measures: The mean scores of both EORTC QLQ-C30 Quality of Life Scale and EORTC QLQ - PR25 Quality of Life Scale are presented in Table 2. While mean functioning scores of EORTC QLQ-C30 Quality of Life Scale tended to be significantly lower for older patients (r:-0.512 p: .0001), the mean symptom scale scores tended to be significantly higher for older patients (r: 0.300 p: .001). Besides, patients age showed significant positive correlations with functioning scale score (r: 0.384 p: .0001) and sexual activity (r: 0.540 p: .0001); significant negative correlations with urinary symptoms (r: -0.225 p: .016) and incontinence aid (r:-0.187 p:0.047) for EORTC QLQ - PR25 Quality of Life Scale. Having comorbidities is associated with higher functioning scores (p: .0001) and lower symptom scale scores (p: .001). It is also determined that sexual activity scores of patients having comorbidities was lower that patients not having comorbidities (p: .003).

Needing support for self-care was associated with lower functioning scores (p: .028) and higher symptom scale scores (p: .003) in EORTC QLQ-C30 Quality of Life Scale. Also, it was found that patients needing support for self-care showed higher scores in functioning scale (p: .001), sexual activity (p: .003), sexual functioning (p: .030) and bowel symptoms (p: .017).

Table 1: Patient Distribution by Their Sociodemographic and Disease/Treatment Characteristics

Characteristic	Number	Percentage
Marital status		
Single	10	8.8
Married	104	91.2
Cohabitants		
Living alone	4	3.5
Living with spouse and/or children	103	90.4
Living with other adults	7	6.1
Education level		
Primary school	5	4.4
Secondary school	22	19.3
High school	60	52.6
University	27	23.7
Employement status		
Part time	12	10.5
Full time	67	58.8
Unemployed	35	30.7
Comorbidities		
Yes	69	60.5
No	45	39.5
Chronic Diseases[a]		
Chronic obstructive pulmonary disease	4	3.5
Neurologic disorders	4	3.5
Gastrointestinal disorder	5	4.4
Cardiovascular disorder	14	12.3
Diabetes	15	13.2
Chronic kidney failure	19	16.7
Hypertension	30	26.3
Getting a psychiatric diagnosis in last 3 months		
Yes	7	6.1

No	107	93.9
Continuous drug usage		
Yes	40	35.1
No	74	64.9
Drug usage for prostate cancer		
Yes	107	93.9
No	7	6.1
Family history of prostate cancer		
Yes	12	10.5
No	102	89.5
Needing support for self-caring		
Yes	17	14.9
No	97	85.1
Having a supportive adult for self-caring		
Yes	107	93.9
No	7	6.1
Having difficulties		
Hearing	9	7.9
Sleep	36	31.6
Vision	51	44.7
Regular exercise		
Yes	12	10.5
No	102	89.5
Regular nutrition		
Yes	105	92.1
No	9	7.9
Decreased appetite		
Yes	33	28.9
No	81	71.1

[a] Patients may have multiple diagnoses

Table 2: Fatigue and Quality of Life Scores of Patients

Scale				Mean±SD	Range
Piper Fatigue Scale			Total	3.38±0.77	1.95 - 5.82
			Behavioral	4.04±1.45	1.17 - 8.33
			Affective	3.82±1.29	1.40 – 8.00
			Sensory	3.26±1.27	0.80 - 6.60
			Cognitive/Mood	2.46±0.77	0.50 - 4.33
EORTC QLQ- C30 Quality of Life Scale			Functioning Scales	79.04±13.62	26.67-100.00
			Symptom Scales	19.57±9.71	2.56-48.72
			Global Health Status	48.10±15.87	0.00-83.33
EORTC QLQ - PR25 Quality of Life Scale			**Functioning Scales**	78.12±16.45	22.22-100.00
			Sexual Activity	61.99±25.43	0.00-100.00
			Sexual Functioning	86.18±17.84	33.33-100.00
			Symptom Scales	73.15±11.61	33.33-100.00
			Urinary Symptoms	41.12±20.19	0.00-100.00
			Bowel Symptoms	13.60±18.33	0.00-66.67
			Hormonal Treatment-Related Symptoms	15.45±17.70	0.00-66.67
			Incontinence Aid	34.21±31.19	0.00-100.00

Abbreviation: SD, standard deviation

Table 3: Correlation Between Patients' Fatigue and Quality of Life Scores

	EORTC QLQ-C30 Quality of Life Scale						EORTC QLQ - PR25 Quality of Life Scale												The Piper Fatigue Scale Scores					
	Functioning Scale		Symptom Scale		Global Health Status		Functional Scales		Sexual activity		Sexual functioning		Symptom Scales		Urinary symptoms		Bowel symptoms		Hormonal treatment		Incontinence aid		Behavioral		Affective		Sensory		Cognitive		Total	
	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p
Functioning Scale			-0.505	0.001	-0.055	0.562	0.514	0.009	-0.419	0.001	0.014	0.429	-0.411	0.001	0.123	0.201	0.101	0.142	0.142	0.208	0.031	0.196	0.215	0.025	0.129	0.269	0.110	0.759	0.073	0.594	0.191	0.042
Symptom Scale	-0.505	0.001			0.009	0.919	-0.030	0.913	0.135	0.189	0.138	0.204	0.506	0.005	0.725	0.056	0.085	0.081	0.055	0.175	0.918	0.137	0.143	0.183	0.288	0.036	0.099	0.446	0.044	0.044
Global Health Status	-0.05	0.059	0.09				0.09	0.006	0.09	0.010	0.09	0.101	-0.101	0.107	-0.107	0.056	0.00		-0.600	0.00												

EORTC QLQ - PR25 Quality of Life Scale

Health Status	.055	.62	0.01	9.1			207	27	0.4	2.0	1.7	63	1.3	5.0	.124	8.2	.028	6.9	0.4	5.7	.257	0.6	0.2	9.7	0.3	6.1	1.3	2.2	1.8	0.4	1.8	1.3
Functional Scales	0.11	0.94	-0.12	0.93	0.207	0.02			0.739	0.01	0.78	0.01	0.13	0.14	-0.256	0.025	0.09	0.37	0.11	0.13	-0.15	0.09	-0.06	0.05	0.10	0.68	0.21	0.02	0.18	0.04	0.19	0.04
Sexual activity	-0.0192	0.41	0.133	0.159	0.047	0.06	0.0739	0.01			0.2135	0.12	0.29	0.18	-0.256	0.06	0.048	0.151	0.178	0.016	-0.207	0.28	-0.2045	0.207	0.375	0.10	0.193	0.04	0.128	0.18	0.13	0.16
Sexual functioning	0.191	0.042	-0.01	0.283	0.0715	0.06	0.0789	0.01	0.0235	0.12			0.047	0.018	-0.011	0.021	0.0108	0.056	0.019	0.029	0.059	0.03	0.07	0.14	0.04	0.46	0.15	0.13	0.17	0.06	0.15	0.12
Symp	-0.0	0.0	-0.0	0.5	0	0	0	0.	0	0.	0	0.6			-0.0	0.0	-0.0	0.0	-0.0	0.0	-0.0	0.0	-0	0	0	0	0	- 0.	0	- 0	- 0	0

total mScales	.191	**4.11**	.64	0.07	1.36	1.507	1.53	4.54	1.27	8.97	0.44	1.48		**.807**	**0.017**	**.313**	**0.131**	**.3145**	**0.185**	**.401**	**0.15**	.14	1.05	0.56	5.53	0.29	7.50	.819	8.40	.741
Urinary symptoms	0.120	0.234	0.055	0.527	-0.1	0.181	**-0.2 66**	**0.055**	**-0.2 6**	**0.061**	-0.10	0.24	**-0.8 07**	**0.001**		0.011	0.915	-0.0 7	0.548	**0.54 2**	**0.00 1**	0.116	0.128	-0.05	0.330	-0.26	0.530	-0.03	0.550	-0.34	0.745
Bowel symptoms	0.121	0.241	0.055	0.506	-0.0 28	0.70	0.098	0.346	0.047	0.615	0.058	0.356	**-0.0 337**	**0.0011**	0.011	0.91		0.010	0.916	-0.0 43	0.06 1	-0.2 58	0.20 1	0.5 0	0.504	0.56 9	0.07 7	0.53 6	0.08 2	-0.03 24	0.81
Hormonal treatment rela	0.082	0.851	0.050	0.587	0.046	0.51	0.013	0.22 1	0.07 1	0.06 8	0.08 1	0.39 9	**-0.0 3346**	**0.00 17**	-0.00 5	0.548	0.09 1	0.2		-0.01 43	0.02 1	**0.22 334**	**0.20 1 2**	0.097	0.06 4	0.30 8	0.04 4	0.67 8	0.36 4	**0.02 2**	**0.07 1**

ted symptoms																														
Incontinence aid	0.095	0.3167	0.011	0.908	**-0.257**	0.0065	-0.015	0.099	**-0.207**	0.027	0.029	**0.759**	**-0.485**	**0.0001**	0.542	0.0001	0.0433	0.646	-0.14	0.128	0.031	0.074	**-0.196**	**0.0137**	-0.175	0.062	-0.10	0.266	**-0.195**	**0.038**
Behavioral	**0.215**	**0.0227**	**-0.13**	**0.145**	**0.002**	**0.987**	**-0.063**	**0.505**	**-0.108**	**0.254**	**0.003**	**0.974**	**-0.115**	**0.125**	**0.116**	**0.218**	**-0.108**	**0.254**	**0.234**	**0.012**	**0.074**		**0.0416**	**0.0086**	**-0.381**	**0.0167**	**-0.476**	**0.780**	**0.584**	**0.011**
Affective	0.122	0.196	0.014	0.843	0.034	0.056	0.161	0.068	0.097	0.305	0.011	0.245	0.055	0.50	-0.0359	0.530	-0.0691	0.519	0.090	0.036	**-0.0199**	**0.0137**	**0.040**	0.0	0.0486	0.0029	0.219	0.124	0.180	0.031
Sens	0	0	0	0	0	0	**0**	**0**	**0**	**0**	0	0	0	0	-0	0	-0	0	0	0	0.	-0	0	-0	0.	**0**	**0.**		0	0. 0 0.

*(Row header for the lower block, printed vertically: **The Piper Fatigue Scale Scores**)*

...ory	0.029	0.759	0.026	0.783	0.113	0.232	**0.217**	**0.020**	**0.190**	**0.043**	0.149	0.115	0.025	0.790	0,26	0.783	0.057	0.546	0.044	0.638	0.17	0.062	0.086	3.613	**0.40**	**0.031**			5.064	6.041
Cognitive/Mood	0.089	0.344	0.006	0.946	0.168	0.074	**0.189**	**0.044**	0.126	0.183	0.173	0.066	-0.019	0.840	-0,030	0.750	0.082	0.388	0.074	0.436	-0.010	0.266	-0.066	0.479	**0.229**	**0.145**	0.543	0.001		0.526	0.001
Total	**0.191**	**0.042**	-0.044	0.644	0.138	0.143	**0.193**	**0.040**	0.131	0.163	0.145	0.125	-0.131	0.741	-0.030	0.754	-0.002	0.801	**0.224**	**0.017**	-0.019	0.038	0.504	0.081	0.803	0.001	0.644	0.011	0.526	0.011

Correlation Between Patients' Fatigue and Quality of Life Scores: Correlation between patients' fatigue and quality of life scores are presented in Table 3. Functioning scale correlated positively with sexual functioning (p: .042) and behavioral (p: .022), overall Piper Fatigue Scale (p: .042); negatively with symptom scale of EORTC QLQ-C30 (p: .0001), sexual activity (p: .041) and symptom scale of EORTC QLQ - PR25 (p: .041). Global health status had positive correlation with functional scale (p: .027) and negative correlation with incontinence aid (p: .006) (Table 3).

There was a positive correlation between the functional scale of EORTC QLQ - PR25 and sexual activity (p: .0001), sexual functioning (p: .0001), urinary symptoms (p: .005), sensory (p: .020), cognitive (p: .044) and overall Piper Fatigue Scale (p: .040). The sexual activity scores of EORTC QLQ - PR25 showed positive correlation with sexual functioning (p: .012), sensory scores of Piper Fatigue Scale (p: .043) and negative correlation with urinary symptoms (p: .006), incontinence aid (p: .027). The urinary symptom scores correlated positively with incontinence aid (p: .0001). The hormonal treatment related symptoms positively correlated with behavioral (p: .012) and overall Piper Fatigue Scale (p: .017). Incontinence aid showed negative correlation with affective (p: .037) and overall Piper Fatigue Scale (p: .038) (Table 3).

The behavioral scale of the Piper Fatigue Scale correlated positively with affective (p: .0001) and overall Piper Fatigue Scale (p: .0001). The affective scale of the Piper Fatigue Scale correlated positively with sensory (p: .0001), cognitive (p: .014) and overall Piper Fatigue Scale (p: .0001). The sensory scale of the Piper Fatigue Scale correlated positively with cognitive (p: .0001) and overall Piper Fatigue Scale (p: .0001). The cognitive/mood scale of the Piper Fatigue Scale correlated positively with overall Piper Fatigue Scale (p: .0001) (Table 3).

Discussion

Experienced by most patients with prostate cancer, fatigue is a complex and versatile challenge. Fatigue negatively affects patients physically, psychologically, emotionally, and socially. Determination of correlation between fatigue and quality of life is critical in term of compliance and

continuation of treatment (Porreca et al., 2018; Bourke et al., 2015). The aim of this study was to investigate the relationship between preoperative fatigue level and quality of life in prostate cancer patients.

Fatigue Measures: In line with the scores obtained in this study, it was determined that prostate cancer patients experienced mild (3.38±0.77) fatigue preoperatively. It was observed that fatigue affects the behavioral (4.04±1.45) subdomain mostly and cognitive/mood (2.46±0.77) subdomain at least. More than half of the patients included in the study experienced mild level of fatigue. It is known that one of the most common side effect of prostate cancer treatment is fatigue. It is stated that 50-90% of prostate cancer survivors experience fatigue during their treatment (Langston et al., 2013; Stasi et al., 2003; Charalambous & Kouta, 2016). Charalambous and Kouta (2016) reported that prostate cancer survivors experienced a low to moderate level of fatigue (Charalambous & Kouta, 2016). Although patients' experienced mild fatigue levels, preoperative fatigue should be managed for improving physical and emotional recovery from surgery.

Quality of Life Measures: In this study, patients reported high functional scale scores indicating no critical problems on these functions in preoperative period. Charalambous and Kouta (2016) found similar results to ours in patients with advanced prostate cancer undergoing chemotherapy (Charalambous & Kouta, 2016). Talcott el al. (2003) reported minimal urinary incontinence, bowel dysfunction before primary prostate cancer therapy (Talcott et al., 2003).

Prostate cancer patients experience erectile dysfunction due to aging, the cancer itself or treatment modalities. Erectile dysfunction affects patients sexual functioning and sexual activity resulting deteriorating in QoL (Talcott et al., 2003; Roth et al., 2008). Talcott el al. (2003) reported low sexual dysfunction scores in the pre-treatment period (Talcott et al., 2003). In the current study, a moderate level of sexual activity and high level of sexual functioning scores were determined. A possible explanation for these confusing results may be that in men generally do not feel confident to share their concerns about their sexual intimacy with others due to socialization and social/cultural

norms. Surgical nurses should encourage patients about expressing their realistic feelings.

The global health status of the patients was found to be moderate (48.10±15.87). Bach et al. (2011) reported a global health status of 73.8 points preoperatively (Bach et al., 2011). Arredondo et al. (2006) reported a preoperative global health status of 84.2 points for prostate cancer patients without comorbidities, 76.3 points with 1-2 comorbidities and 66.6 points for patients with 3 or more comorbidities (Arredondo et al., 2006). The mean global health status score in this study was lower than previous studies.

However, the symptom scales of EORTC QLQ-C30 were at satisfactory levels, the symptom scale scores of EORTC QLQ-PR25 were at high levels. This difference was an expected result indicating patients experience more prostate cancer related symptoms than general symptoms. Urinary symptoms and incontinence aid were the problems patients experienced most. These results indicate that surgical nurses should place special emphasis on educating patients about effective coping strategies that help them manage these symptoms in their daily life.

Correlation between Patients' Fatigue and Quality of Life Scores: It is reported in the previous studies that fatigue is a critical challenge that has a negative influence on prostate cancer patients QoL (Charalambous & Kouta, 2016; Sternberg et al., 2013; Ozdemir et al., 2019; Özkan & Akın, 2017). Sternberg et al. (2013) determined fatigue as a significant side effects affecting patients QoL negatively (Sternberg et al., 2013).

Similarly, it is reported that fatigue is a significant problem that affects QoL of patients with prostate cancer and advanced fatigue levels may affect prostate cancer patients' QoL negatively (Charalambous & Kouta, 2016; Ozdemir et al., 2019). Similarly, Özkan and Akın (2017) reported that advanced fatigue, which can occur at any stage of the disease, negatively affects the quality of life and leads to limitations in the functional area (Özkan & Akın, 2017). Contrary to expectations, in this study a positive significant correlation was found between functioning scale and overall Piper Fatigue Scale (p: .042).

Study Limitations: This study has some limitations. Firstly, generalizability of the findings is limited, given the use of a single regional hospital in Izmir. Secondly, the relationship between fatigue and quality of life in prostate cancer patients was measured only preoperatively and not monitored postoperatively. It is also acknowledged that these findings may vary in different cultural regions. Therefore, further studies should be performed in broader range of cultural settings throughout perioperative period.

Conclusions

Prostate cancer is the most frequent malignancy among men worldwide. Despite advances in diagnosis and treatment modalities, prostate cancer its self and treatment modalities causes side effects deteriorating patients' QoL. In this study, prostate cancer patients experienced mild fatigue in preoperative period. Prostate cancer its self and treatment modalities causes fatigue which effects QoL of patients preoperatively. It is recommended that surgical nurses who are responsible for caring prostate cancer patients should provide support to their patients for minimizing preoperative fatigue and improving quality of life. In addition, future prospective studies comparing the effect of fatigue on quality of life during all perioperative period are warranted.

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