



Evaluation of Supportive Care Needs and Coping Attitudes of Breast Cancer Patients According to Neuropathic Pain Status: A Case Control Study

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OBJECTIVE

This study was conducted to evaluate the supportive care needs and coping attitudes of breast cancer patients according to their neuropathic pain status.

METHODS

This case-control study design was conducted with 212 patients who were being treated in the daily chemotherapy unit of a hospital in İstanbul, who agreed to participate in the study and met the inclusion criteria. The S-LANSS pain scale was used to determine the neuropathic pain status of the patients. A Descriptive Information Form, Supportive Care Needs Scale, and Coping Attitudes Scale were used to collect the data.

RESULTS

The study sample consisted of case group patients with neuropathic pain (n=100) and control group patients without neuropathic pain (n=112). The mean age of the participants was 50 (45-54) in the case group and 49 (45-57) in the control group. In the case group, 24.5% used paclitaxel chemotherapy, and 40.6% had no knowledge about neuropathic pain. In the control group, 21.7% used paclitaxel chemotherapy, and 46.2% had no knowledge about neuropathic pain. There was no statistically significant difference between the groups in terms of total scores and sub-dimensions of the Supportive Care Needs Scale and total scores and sub-dimensions of the Coping Orientations to Problems Experienced scale.

CONCLUSION

Coping attitudes and supportive care needs of patients do not change according to the presence of neuropathic pain. Nearly half of the patients receiving neurotoxic chemotherapy, which frequently causes neuropathic pain, have no knowledge about neuropathic pain.

Keywords: Breast cancer; cancer; care; coping; needs; neuropathy; pain.

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INTRODUCTION

Breast cancer is the most common cancer in women worldwide and in Türkiye, its incidence is increasing, and it is life-threatening.[1] Chemotherapy,

commonly used in the treatment of breast cancer, has many side effects in addition to its therapeutic effects.[2,3] Peripheral neuropathy is among the side effects observed especially due to neurotoxic chemotherapy.[4]

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Chemotherapy-associated peripheral neuropathy or chemotherapy-induced peripheral neuropathy (CIPN) is a frequently encountered symptom in individuals treated with taxane and platinum compounds, vinca alkaloids, antiangiogenesis agents, and proteasome inhibitors.[5,6] This negatively affects the quality of life of patients.[4] In a randomized controlled study, it was reported that individuals frequently experienced pain, sensitivity to cold, burning sensations, numbness, and tingling as symptoms of CIPN.[7] Symptoms due to CIPN prevent the fulfillment of needs in many areas of life, including the most basic activities of daily living such as dressing, showering, eating, and walking.[8]

According to the literature, it has been reported that cancer patients' supportive care needs in psychological and physical areas are not met.[9,10] Cancer patients face both physical and psychological symptoms and undergo a challenging process. In this process, patients should be able to develop effective coping methods to overcome negative situations.[11] When studies on cancer patients are examined, it is seen that patients mostly use religious coping attitudes.[12,13]

In the literature, there are studies on CPPN, quality of life, and coping methods,[14–17] but the effect of neuropathic pain on supportive care needs and coping attitudes has not been evaluated.

MATERIALS AND METHODS

Aim and Type of Research

The aim of this study was to evaluate the supportive care needs and coping attitude levels of breast cancer patients according to their neuropathic pain status. The type of research is a comparative study in a case-control study design.

Hypotheses of the Study

H1: The supportive care needs of breast cancer patients vary according to their neuropathic pain status.

H2: The coping attitude levels of breast cancer patients vary according to their neuropathic pain status.

Population and Sample of the Study

The population of the study consisted of patients who were being treated in the daily chemotherapy service of a hospital in Istanbul between December 1, 2022, and July 1, 2023. The sample of the study consisted of 212 patients who met the inclusion criteria from the study population. Patients were divided into case (n=100) and control (n=112) groups according to the presence of neuropathic pain.

Inclusion Criteria

Case Group

- Receiving taxane group chemotherapy,
- Scores of 12 or more on the S-LANSS pain scale,
- At least one course of chemotherapy,
- Patients who are conscious and able to answer questions.

Control Group

- Receiving taxane group chemotherapy,
- Score below 12 on the S-LANSS pain scale,
- At least one course of chemotherapy,
- Patients who are conscious and able to answer questions.

Exclusion Criteria

- Patients under 18 years of age,
- Diagnosis of bone metastases and diabetes,
- Receiving any treatment other than taxane group chemotherapy,
- Completion of taxane group chemotherapy.

Limitations of the Study

The results obtained from the study include voluntary patients who received chemotherapy at a specified institution in Istanbul and within a certain time interval and met the inclusion criteria. These results cannot be generalized to all patients receiving chemotherapy.

Data Collection

Before starting the study, patients were informed about the purpose and method of the study and asked whether they were willing to participate. Written informed consent was obtained from those who volunteered to participate. The Descriptive Information Form, S-LANSS (Self-Leeds Assessment of Neuropathic Symptoms and Signs) Neuropathic Pain Scale, Supportive Care Needs Scale Short Form (DeBGÖ-KFTr), and Coping Attitudes Scale (COPE) were used to collect data.

The questionnaires were administered in a quiet room in the daytime chemotherapy unit using a face-to-face interview technique, with patients completing the forms in approximately 20 minutes. Patients with a score of 12 and above on the S-LANSS pain scale were assigned to the case group, and those with a score below 12 were assigned to the control group.

Descriptive Information Form

It includes questions about the patient's age, marital status, education, employment status, income level, presence and type of chronic disease, smoking and al-

cohol use, chemotherapy protocol, cycle, neuropathy symptoms, information about CPPN, and perception of social support.[18–20]

S-LANSS Pain Scale

It is used to distinguish between neuropathic and nociceptive pain. It was developed by Bennett et al.[21] by modifying the LANSS (Leeds Assessment of Neuropathic Symptoms and Sign) Pain Scale. The validity and reliability study of the scale was conducted by Rabia Koç.[22] Questions on the scale are answered with “yes” or “no,” with possible scores ranging from 0 to 24. A score of 12 or above indicates neuropathic pain. The Cronbach’s α value of the pain scale was found to be 0.73 and 0.74.[22]

Supportive Care Needs Scale Short Form (DeBGÖ-KF^{Tr})

This scale, developed by Boyes et al.,[23] aims to identify patients’ supportive care needs. Özbayır et al.,[19] who conducted the Turkish validity and reliability of the scale, determined the number of items as 29. DBGÖ-KF29 addresses four different aspects of supportive care needs: health care and information (14 items), daily living (5 items), sexuality (3 items), and psychological needs (7 items). Each item is scored from 1 to 5 points, with the total score ranging from 29 to 145 points. Higher scores indicate a greater need for supportive care. The Cronbach’s α value of the scale was found to be between 0.86 and 0.96 in the study by Boyes et al.[23] and 0.99 in the study by Özbayır et al.[19]

COPE - The Coping Orientations to Problems Experienced Scale

Developed by Carver and Scheier (1989), the COPE inventory (The Coping Orientations to Problems Experienced Scale) evaluates coping attitudes used when faced with difficult events in daily life.[24] The Turkish validity and reliability study was conducted by Ağargün et al.[25] The scale consists of 60 questions and 15 subscales, each with four questions providing information about a separate coping attitude. Higher scores from the subscales allow for an assessment of which coping attitudes are more frequently used. The 15 sub-dimensions are:

1. Positive reinterpretation and growth,
2. Mental disengagement,
3. Focus on and venting of emotions,
4. Use of instrumental social support,
5. Active coping,
6. Denial,

7. Religious coping,
8. Humor,
9. Behavioral disengagement,
10. Restraint,
11. Use of emotional social support,
12. Substance use,
13. Acceptance,
14. Suppression of competing activities,
15. Planning.

The Cronbach’s alpha value of the scale is 0.94.[25]

Statistical Analysis

Data from the study were analyzed using IBM SPSS (Statistical Package for Social Science) Statistics 25.0. Summary statistics for quantitative variables were presented as frequency and percentage. The Kolmogorov-Smirnov test assessed data normality. The independent samples t-test was used for group comparisons with normal distribution, and the Mann-Whitney U test was used for group comparisons without normal distribution. The chi-square test (chi-square test with Yates Correction, Pearson’s exact chi-square test) evaluated relationships between categorical variables. Significance was set at $p < 0.05$ in the statistical evaluation.[26]

Ethical Dimension

Permission was obtained from the university’s clinical research ethics committee and subsequently from the Istanbul Provincial Directorate of Health. The informed consent form was explained to participating individuals, and their permission was obtained. Patients were informed that they could withdraw from the study at any time without giving a reason.

RESULTS

The mean age of the patients was 50 (45–54) in the case group and 49 (45–57) in the control group. In the case group, 40.1% were single or widowed, 22.2% were primary school graduates, and 37.3% had an income equivalent to expenditure. In the control group, 42% were single or widowed, 24.5% were primary school graduates, and 43.4% had equal income and expenditure status (Table 1). Both groups were homogeneous in terms of marital status, education, and income ($p > 0.05$).

Among the patients in the case group, 31.1% had no chronic disease, 24.5% used taxane group chemotherapy, and 40.6% were unaware of neuropathic pain; in the control group, 34.9% had no chronic

Table 1 Distribution of socio-demographic characteristics of case-control group patients

Features	Group	n	Median (Q1-Q3)	U	p				
Age (year)	Case	100	50 (45–54)	5518.5	0.855				
	Control	112	49 (45–57)						
Features	Group	Case		Control		Total	X ²	p	
		n	%	n	%	n	%		
Marital status	Married	15	7.1	23	10.8	38	17.9	0.756*	0.384
	Single or widowed	85	40.1	89	42	174	82.1		
Education status	Primary education	47	22.2	52	24.5	99	46.7	2.258**	0.323
	High school	45	21.2	44	20.8	89	42		
	Higher education	8	3.8	16	7.5	24	11.3		
Income status	Income less than expenditure	21	9.9	20	9.4	41	19.3	0.163*	0.686
	Income equals expenditure	79	37.3	92	43.4	171	80.7		

*: Chi-square test with Yates correction; **: Pearson exact Chi-square test. U: Mann Whitney U test

Table 2 Distribution of medical characteristics of case-control group patients

Features	Case		Control		Total		X ²	p
	n	%	n	%	n	%		
Chronic disease								
There is	34	16	38	17.9	72	34	0.000**	0.991
None	66	31.1	74	34.9	140	66		
Chemotherapy protocol								
Taxane (paclitaxel), antibody drug conjugates (trastuzumab)	11	5.2	15	7.1	26	12.3	23.973**	0.001
Taxane (paclitaxel), platinum (carboplatin)	19	9	17	8	36	17		
Taxane (paclitaxel)	52	24.5	46	21.7	98	46.2		
Taxane (docataxel), platinum (cisplatin)	–	–	10	4.7	10	4.7		
Taxan (docataxel), antibody drug conjugates (trastuzumab)	1	0.5	5	2.4	6	2.8		
Taxane (docataxel), antibody drug conjugates (trastuzumab)	–	–	2	0.9	2	0.9		
Taxane (paclitaxel), antibody drug conjugates (trastuzumab)	10	4.7	17	8	27	12.7		
Taxane (docataxel)	7	3.3	–	–	7	3.3		
Knowledge of neuropathic pain								
There is	14	6.6	14	6.6	28	13.2	0.014*	0.905
None	86	40.6	98	46.2	84	86.8		

*: Chi-square test with Yates correction; **: Pearson Chi-square Test

disease, 21.7% used taxane group chemotherapy, and 46.2% were unaware of neuropathic pain (Table 2). There was no statistically significant difference between the groups regarding knowledge of chronic disease and neuropathic pain ($p>0.05$), whereas there was a statistically significant difference between the groups according to the chemotherapy protocol applied ($p<0.05$).

Table 3 presents the total scores of the patients' supportive care needs and coping attitudes and the scores

of the sub-dimensions of the scales. According to this table, there is no statistically significant difference between the total and sub-dimension scores of the Supportive Care Needs Scale and the total and sub-dimension scores of the Coping Attitudes Scale between the groups ($p>0.05$). Examination of the mean scores of the total score and sub-dimensions of the groups reveals close values. This indicates that the levels of supportive care needs and coping attitudes of both the case and control groups are similar.

Table 3 DEBGÖ-KF^{Tr} and COPE score distributions of case-control group patients

	Group	n	Medyan (Q1-Q3)	U	p
Scales					
S-LANSS pain scale score	Case	100	14 (13–16)	1.500	<0.001
	Control	112	0 (0–5)		
DeBGÖ-KF ^{Tr}					
Total points	Case	100	–	–0.601	0.599
	Control	112	–		
Health care and information	Case	100	52 (46–55)	5574.50	0.954
	Control	112	53 (46–56)		
Daily life	Case	100	19 (16–20)	5130.50	0.214
	Control	112	18.5 (17–20)		
Sexuality	Case	100	3 (3–4)	4855	0.054
	Control	112	3 (3–6)		
Psychological needs	Case	100	27 (25–28)	5051	0.214
	Control	112	27 (25.25–29)		
Patient care support	Case	100		55.76	0.957
	Control	112			
COPE					
Total points	Case	100		5535.5	0.885
	Control	112			
Pozitive reframing	Case	100	12 (11–13)	5042	0.194
	Control	112	12 (11–13)		
Mental disengagement	Case	100	11 (9–12)	4827.5	0.077
	Control	112	11 (10–12)		
Focusing on the problem and revealing emotions	Case	100	11 (9–12)	5108	0.264
	Control	112	10 (9–12)		
Wounded social support	Case	100	12 (11–13)	5109	0.259
	Control	112	12 (11–13)		
Active coping	Case	100	11 (9–12)	5122.5	0.272
	Control	112	11 (9.25–12)		
Denial	Case	100	8 (6–10)	5407	0.662
	Control	112	8 (6–9)		
Religion/spiritual beliefs	Case	100	14(12–16)	5595	0.991
	Control	112	14 (12–16)		
Making jokes	Case	100	8 (8–9)	5378.5	0.598
	Control	112	8 (8–9)		
Behavioral disengagement	Case	100	8 (8–10)	5286	0.475
	Control	112	8 (7–10)		
Retreat	Case	100	10 (9–11)	5303.5	0.494
	Control	112	10 (9–11)		
Emotional support	Case	100	12 (10–13)	5284.5	0.473
	Control	112	12 (10–13)		
Substance use	Case	100	4 (4–8)	4998.5	0.127
	Control	112	4 (4–6)		
Acceptance	Case	100	11 (10–12)	5502	0.821
	Control	112	11 (10–12)		
Suppressing other preoccupations	Case	100	10 (9–11)	5409	0.662
	Control	112	10 (9–11)		
Making a plan	Case	100	10 (8–12)	4759	0.053
	Control	112	11 (9–12)		

U: Mann Whitney U test. DeBGÖ-KF^{Tr}: Supportive Care Needs Scale Short Form; COPE: Coping Attitudes Scale; S-LANSS: Self-Leeds Assessment of Neuropathic Symptoms and Sign

DISCUSSION

CIPN is one of the most common neurotoxicities in women with breast cancer treated with taxane and platinum-based chemotherapy. CIPN may lead to treatment dose reduction, treatment change, and treatment discontinuation.[27–30] In a systematic review, the incidence of CIPN was reported as 70–100% in platinum group treatments, while this rate was 11–87% in taxane group treatments.[31] Another study reported the incidence of peripheral neuropathy due to oxaliplatin, cisplatin, and carboplatin treatments in solid tumor therapy as 50–85%.[32] It was also reported that the frequency of acute COPD in oxaliplatin treatment was 90% and chronic COPD was 30–50%.[33] When cisplatin and paclitaxel were administered together, the incidence of CIPN was 69–76%. In the same study, the incidence of cisplatin-induced CIPN was 12–84% and paclitaxel-induced CIPN was 61–92%.[29] In our study, 24.5% of the case group and 21.7% of the control group received taxane group chemotherapy; 9% of the case group and 8% of the control group received combined taxane and platinum group chemotherapy. A significant difference was found according to the chemotherapy protocols applied (Table 2, $p < 0.05$). Although there was a similarity with the literature in terms of the types of chemotherapy causing CIPN in the control group, chemotherapies causing CIPN were also used in the control group without neuropathic pain. This may be due to various risk factors such as chemotherapy administration rate, cumulative dose, gender, age, chronic disease, and genetic predisposition affecting the development of CIPN.[34,35] Thus, we recommend designing studies on CIPN that take these risk factors into account.

CIPN leads to increased care needs in patients and a decrease in quality of life.[36] However, in our study, no difference was observed in the supportive care needs of patients with and without neuropathic pain. Sezgin (2021) reported a significant positive correlation between peripheral neuropathy and supportive care needs.[37] Contrary to our study, in Sezgin's study, patients were followed for three months after receiving neurotoxic chemotherapy to monitor the development of peripheral neuropathy; at the end of the third month, an increase in care needs correlated with the severity of peripheral neuropathy. In our study, only neuropathic pain and sensory evaluation were performed once among the symptoms of peripheral neuropathy. Neuropathic pain is influenced by treat-

ment protocol, concurrent other health problems, and age,[38] and may be detected at different time intervals during chemotherapy, after the completion of the cycle, until the next cycle. Supportive care needs have been reported to vary with factors such as gender,[39,40] educational level,[41–43] economic status,[44,45] presence of chronic disease,[20] cancer type,[46,47] cancer stage,[48] treatment type, and treatment process.[48,49] In our study, all patients had breast cancer and received neurotoxic chemotherapy. Moreover, factors affecting supportive care needs, as mentioned in the literature, were normally distributed between the case and control groups, and the presence of neuropathic pain did not impact the supportive care needs. Hence, we propose that the relationship between neuropathic pain and supportive care needs be evaluated through large population studies with a follow-up period.

There are no studies in the literature that examine the effect of neuropathic pain on coping attitudes. Studies indicate that patients' attitudes towards coping with cancer are related to how they perceive the disease[50] and their level of anxiety.[51] In one study examining the general coping attitudes of cancer patients, coping attitudes and related factors were evaluated in poor women with breast cancer; age and income status were found to affect patients' coping attitudes in the areas of denial, acceptance, religion, self-blame, and planning. It has been reported that self-blame, planning, and acceptance decrease with increasing age.[12] In support of this study, Erbay et al.[52] reported that women's acceptance coping attitudes decreased with increasing age. In Lotfi's study,[12] there was significance in the sub-dimensions of religion and substance use with educational level and in the sub-dimensions of substance use, financial support, and self-blame with marital status. This result was interpreted as the fact that women with a low education level were more attached to religious elements was effective on the acceptance process.[12] Similarly, in our study, the educational level of the individuals was found to be low, and the most commonly used coping method was religious coping. In the study of Erbay et al.,[52] it was concluded that there was an increase in rejection coping attitude as the educational level increased. In another study conducted with Chinese women, it was reported that women from rural areas, who were widowed, had a low level of education, were young, and received chemotherapy, had lower coping skills.[53] In another study conducted in Iran on coping attitudes, 62 breast cancer patients were examined, and religion,

acceptance, distraction, planning, active coping, positive reinterpretation, and rejection were listed as the most commonly used coping attitudes.[54] When coping attitudes are evaluated in general, it is seen that our study is similar to the literature. However, in our study, it was determined that there was no change in the coping attitudes of the patients according to the presence of neuropathic pain. This is thought to be related to the similarities in age and education between the case and control groups and the higher average age. It is thought that older patients have higher coping skills related to having reached a certain point in their life processes and having fulfilled certain goals and wishes. In fact, Akkanat Karagil (2023) emphasized in his study that the coping skills of cancer patients over the age of 30 were even better than those of cancer patients aged 18–30.[55] However, two studies in the literature emphasize the opposite findings.[56,57] Pennant et al.[57] found that the coping levels of cancer patients aged 18–30 years were higher, while Dempster et al.[56] reported that there was no significant difference in coping attitudes of cancer patients according to advanced age.

CONCLUSION

In the study, there was a significant difference between the groups according to the chemotherapy protocol. Patients' supportive care needs and coping attitudes did not change according to the presence of neuropathic pain. It was found that the care needs of the two groups were high; they needed more care support in the areas of health system and information, daily life, psychological needs, patient care support, and sexuality was the area where they needed the least care support. Additionally, it was determined that patients mostly used religion, positive reinterpretation, social support, and emotional support as coping methods; substance use among coping methods was at the lowest level.

In this direction, it is recommended that follow-up studies be conducted on patients' care needs and coping attitudes of patients with cancer within the scope of the mechanism of action and risk factors of neuropathic pain in patients diagnosed with cancer; the studies should be planned by considering the factors affecting neuropathic pain, care needs, and coping attitudes. Furthermore, it is recommended that tools to assess neuropathic pain should be routinely used in clinical practice, and individualized holistic care should be provided by considering the supportive care needs and coping attitudes of patients.

Ethics Committee Approval: The study was approved by the Istanbul Gedik University Ethics Committee (no: 2022/3, date: 28/02/2022).

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