



BREAST CANCER AND NURSING MANAGEMENT

MEME KANSERİ VE HEMŞİRELİK YÖNETİMİ

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Abstract

Breast cancer is one of the most common cancer types among women globally and is a manageable disease with early diagnosis and treatment. Healthy lifestyle changes and regular screening programs play a crucial role in reducing the risk of breast cancer. Nurses play a vital role in increasing patient participation in screening programs, managing treatment side effects, and providing emotional support. Multidisciplinary treatment approaches, combining surgical interventions, radiotherapy, chemotherapy, and hormonal therapies, aim to improve the quality of life of patients. Nursing interventions have been effective in improving patients' quality of life by reducing symptoms such as anxiety, depression, and fatigue. Consequently, the critical role of nurses in the fight against breast cancer is to improve patients' quality of life and enhance their treatment adherence by adopting holistic approaches that address both physical and psychosocial needs.

Keywords: Breast Cancer, Non-pharmacological Methods in Breast Cancer, Nursing Care.

Öz

Meme kanseri küresel anlamda kadın cinsiyette en sık rastlanan kanser türlerinden biri olup, erken teşhis ve tedavi ile yönetilebilir bir hastalıktır. Meme kanseri riskini azaltmada sağlıklı yaşam tarzı değişiklikleri ve düzenli tarama programlarının önemi büyüktür. Hemşireler, bu süreçte hastaların tarama programlarına katılımını artırma, tedavi yan etkilerini yönetme ve duygusal destek sağlama konularında hayati bir rol oynar. Multidisipliner tedavi yaklaşımları, cerrahi müdahaleler, radyoterapi, kemoterapi ve hormonal tedavilerle birleştirilerek hastaların yaşam kalitesini artırmayı hedefler. Hemşirelik müdahaleleri, anksiyete, depresyon ve yorgunluk gibi semptomları azaltarak

hastaların yaşam kalitesini iyileştirmede etkili olmuştur. Sonuç olarak, meme kanseriyle mücadelede hemşirelerin kritik rolü, hastaların fiziksel ve psikososyal ihtiyaçlarını karşılamaya yönelik bütüncül yaklaşımlar benimseyerek hastaların yaşam kalitesini iyileştirmek ve tedaviye uyumlarını artırmaktır.

Anahtar Kelimeler: Hemşirelik Bakımı, Meme Kanseri, Meme Kanserinde Nonfarmakolojik Yöntemler.

1. Introduction

Cancer is a disease characterized by the uncontrolled proliferation of abnormal body cells. These cells can originate in any organ or tissue and spread throughout the body, disrupting the functions of these regions. Cancer ranks among the most significant non-communicable diseases (NCDs) worldwide. According to the World Health Organization (WHO), the four most common cancer types globally and in Turkey are lung, breast, colorectal, and prostate cancers. While lung cancer is the most common among men, breast cancer is the most prevalent cancer type in women (International Agency for Research on Cancer, 2023a; International Agency for Research on Cancer, 2023b).

Breast cancer has an extremely heterogeneous nature. The 5-year survival rate for breast cancer patients ranges from 65% to 80%, while the 10-year overall survival rate ranges from 55% to 96% (Phung, Tin, & Elwood, 2019). In high-income countries, the 5-year survival rate exceeds 90%, while it is 66% in India and 40% in South Africa. Addressing inequalities in breast cancer outcomes can be achieved through systematic improvements in access to quality healthcare services, along with alignment to existing resources. The Global Breast Cancer Initiative (GBCI), established by the World Health Organization in 2021, is an initiative that

brings together stakeholders aimed at reducing breast cancer rates by 2.5% annually. This initiative is expected to reduce breast cancer rates by 2.5% over the next 20 years (WHO, 2024a).

Research on pre-cancer, treatment, and care strategies emphasizes that early diagnosis and effective risk reduction methods are critical in the fight against the disease. Lifestyle changes that reduce risk factors and regular screening programs play a strategic role in combating breast cancer (Vidali, & Susini, 2023).

Proactive measures such as early initiation of genetic counseling and regular mammography screenings are recommended for women at high risk. Additionally, a healthy diet, especially the Mediterranean diet, and regular exercise can effectively reduce the likelihood of developing breast cancer. Although hormonal contraceptive methods carry a small risk, it has been observed that this risk decreases after discontinuation of use (Vidali, & Susini, 2023).

In nursing care, nurses play multifaceted roles in increasing patient participation in screening programs, managing treatment side effects, and providing emotional support. In particular, nurse-led patient education and guidance are crucial in overcoming the challenges encountered during the treatment process (Vidali, & Susini, 2023). The aim of this review is to provide information on breast cancer prevention, treatment strategies, and nursing care based on current data.

2. Literature Review

2.1. Epidemiology

Breast cancer is a malignancy that accounts for 36% of all oncological diseases, with the highest incidence rate in women. In 2018, approximately 2.089 million women were diagnosed with breast cancer. This number has a higher incidence in industrialized countries. Nearly half of the global cases occur in developed countries, a situation associated with a Western lifestyle characterized by poor nutrition, tobacco use, high stress, and insufficient physical activity. In 2018, the United States recorded 234,087 cases, the United Kingdom reported 55,439, France had 56,162, and Germany documented 71,888 cases of breast cancer. Belgium had the highest incidence rate, while Southeast Asia and Africa reported the lowest rates (Smolarz et al., 2022). In 2022, breast cancer led to 670,000 deaths worldwide, approximately half of which occurred in women without significant risk factors other than age and gender. While breast cancer occurs in both sexes, men represent approximately 0.5-1% of the total cases (WHO, 2024b).

2.2. Etiology

Breast cancer has significant genetic and clinical heterogeneity, with the majority being adenocarcinomas. These cancers are typically classified based on invasiveness, morphology, immunohistochemical marker expression, and genetic profiles. These characteristics are associated with varying responses to treatment and prognosis. Localized breast cancers are confined to the ducts or lobules. Ductal carcinoma in situ (DCIS) is more common than lobular carcinoma in situ (LCIS), and both are considered risk factors for invasive breast cancer; however, LCIS is not regarded as a lesion with malignant potential. Women with a first-degree relative diagnosed with breast cancer have a 2 to 3 times higher risk.

It is estimated that 10-15% of breast cancers are hereditary, but only 30% of hereditary cases have a known pathogenic mutation. Approximately 5-10% of breast cancers arise from germline mutations, including mutations in the BRCA1 and BRCA2 genes (Houghton, & Hankinson, 2021).

2.3. Risk factors

Risk factors for breast cancer are categorized into modifiable and non-modifiable factors. Modifiable risk factors include obesity, excessive alcohol consumption, a sedentary lifestyle, use of birth control, external hormone exposure (such as hormone replacement therapy), and radiation exposure. Non-modifiable risk factors include advancing age, genetic predisposition (mutations in BRCA1 or BRCA2, PALB2, TP53, PTEN, STK11, NF1), endogenous hormone exposure, early menarche, late menopause, nulliparity, and late pregnancies. Protective factors include breastfeeding, physical activity, reducing alcohol consumption, and the use of medications such as aspirin (Katsura et al., 2022).

2.4. Pathology

The majority of breast cancers are adenocarcinomas, with 85% originating from the mammary ducts and 15% from lobular epithelium. Ductal pathology varies from in situ ductal carcinoma to invasive carcinomas that breach the basal membrane and spread to adjacent breast parenchyma. Other forms of breast cancer include Paget's disease, inflammatory breast cancer, and papillary carcinomas. Sarcomas, particularly malignant phyllodes tumors and angiosarcomas, are very rare. Tumor formation results from the dysregulation of pathways controlling cell proliferation and apoptosis (Katsura et al., 2022).

2.5. Breast cancer symptoms

Common symptoms of breast cancer include breast swelling or thickening, pain in the breast or armpits, skin puckering or dimpling, redness of the breast skin, discharge or bleeding from the nipple, rashes

on the breast, and changes or retraction of the nipple. Other symptoms may include swelling in the armpits, changes in the shape and size of the breast or nipple, unexplained weight loss, and fatigue (Elshami et al., 2022).

2.6. Early diagnosis and screening prevention

Targeted risk factors for breast cancer prevention include maintaining a healthy weight, regular physical activity, reducing or completely avoiding alcohol consumption, and limiting postmenopausal hormone replacement therapy. Healthy eating and breastfeeding also play a role in reducing risk factors. For women at high risk, selective estrogen receptor modulators or aromatase inhibitors are recommended. Prophylactic mastectomy and oophorectomy are surgical options for risk reduction (Houghton, & Hankinson, 2021).

Screening and Early Diagnosis: Mammography is the most commonly used method for screening. However, recommendations regarding the age and frequency of screening vary among organizations. In high-income countries, screenings are typically conducted biennially for women aged 50-69 or 70. Mammography can detect the disease at early and treatable stages, potentially reducing breast cancer mortality. However, screening may result in false positive results and overdiagnosis. For women at high risk, additional annual MRI screenings are recommended, with other alternative screening methods including ultrasound, MRI, and digital breast tomosynthesis. Various studies continue to explore optimal screening intervals, starting ages, and alternative methods (Esserman, 2017).

In Turkey, as part of the national screening program, women are provided with counseling services to perform monthly breast self-examinations, annual clinical breast exams are conducted, and mammography is recommended every two years for women aged 40-69 (Sağlık Bakanlığı, 2024).

Palpation: During a breast examination, the palmar surface of the index, middle, and ring fingers is used to gently palpate the upper and lower edges, as well as the medial and lateral sides of both breasts. This technique allows the examiner to detect differences in tissue density. Subsequently, the tips of these three fingers are used to palpate the superficial, middle, and deep planes of the breast tissue in its four quadrants, as well as the nipple. Benign masses typically do not cause changes in the skin and are generally smooth, mobile, and well-defined. However, fibroadenomas and tense cysts may feel firmer. To palpate the axillary lymph nodes, the patient's forearm is supported from below, and the fingertips of the opposite hand palpate the four corners of the axilla and deep axillary nodes. Finally, the supraclavicular nodes on both sides are palpated (Katsura et al., 2022).

3. Treatment

3.1. Multidisciplinary treatment decisions

Treatment plans are determined based on tumor characteristics, the patient's overall health, and preferences. Decision-making tools such as Adjuvant Online, Predict, and NICE guidelines are used. Additionally, tumor profiling analyses (e.g., Oncotype DX, MammaPrint) are employed to assess the risk of recurrence and monitor treatment response (Goggins, 2024). Surgical treatment includes the removal of the breast cancer and axillary lymph nodes. Oncoplastic breast-conserving surgery aims to optimize cosmetic outcomes and quality of life while maintaining oncological safety. The use of sentinel node biopsy ensures accurate staging with minimally invasive surgery and reduces morbidity (Goggins, 2024).

3.2. Upper extremity edema

Postmastectomy syndrome (PMES) is the most commonly observed symptom, affecting 2% to 90% of patients. Research shows that the progression of PMES leads to loss of workforce capacity in one-third of patients following surgery. After radical mastectomy, neurological symptoms and limited mobility in the shoulder region are commonly seen. PMES is characterized by impaired lymphatic drainage, fibrous tissue formation, and brachial plexopathy. Postoperative radiotherapy can exacerbate fibrosis, leading to severe physical and psycho-emotional distress. Lymphedema can develop due to high protein concentration and granulation tissue (Filonenko et al., 2021).

3.3. Adjuvant therapy

Radiotherapy reduces the risk of local recurrence, while endocrine therapy and chemotherapy reduce the risk of systemic recurrence. Endocrine therapy uses drugs that target estrogen receptors, while chemotherapy often employs combination regimens to minimize toxicity and prevent resistance development (Goggins, 2024).

3.4. Molecular targeted therapies

In HER2-positive patients, monoclonal antibodies such as trastuzumab are used, while promising new treatments like CDK 4/6 inhibitors and PD-1/PD-L1 targeted immunotherapies are being investigated for ER-positive patients. PARP inhibitors have shown efficacy in patients with BRCA gene mutations (Goggins, 2024).

3.5. Post-breast cancer follow-up care

The NICE guidelines (2009) recommend annual mammography and clinical follow-up until adjuvant treatments are completed, for a period of five years. Follow-up protocols are typically determined at the local level and should include the management of

the side effects of adjuvant hormones, particularly their impact on bone health (Goggins, 2024).

4. Nursing Management

4.1. Preoperative nursing care for breast cancer patients

It is important to understand individuals' knowledge and experiences in order to prevent misunderstandings and develop an appropriate education plan. Nurses, in collaboration with doctors, should aim to reduce the patient's anxiety and answer any questions. Before surgery, details about the procedure, its rationale, risks, the shape, location, and drainage of the incision should be explained. Additionally, exercises such as turning in bed, sitting, coughing, deep breathing, and shoulder and arm exercises should be taught and practiced. Patients should be encouraged to express their thoughts and feelings regarding breast loss, and, when possible, communicate with individuals who have undergone similar surgeries (Ateş, & Dikmen Totur, 2021).

4.2. Postoperative nursing care for breast cancer patients

The patient should be provided with self-care education, with adjustments made based on their anxiety levels. Self-care measures should also be taught, and routine surgical procedures clarified. Empathetic and compassionate care should be provided to enhance the patient's hope and morale. A comprehensive care plan addressing physical, emotional, and spiritual needs should be created, and patients should be encouraged to express their hopes, dreams, anxieties, and sadness. The patient's and family's psychosocial history should be investigated, and a biopsychosocial care plan should be developed. Patients should be instructed to wash their hands before touching the incision area and informed about performing regular exercises at home. The patient should be advised to seek medical attention if there is swelling or inflammation at the incision site, and dressing should be checked for bleeding or serous fluid leakage. During dressing changes, wound healing and signs of infection should be reviewed. For patients discharged with drainage, instructions on how to follow up with drainage and empty the drainage bag should be provided. A high-calorie, high-protein diet should be given to meet energy needs and support tissue repair. Patients should be encouraged to openly and sensitively discuss their thoughts on privacy, sexuality, body image, and treatment effects. If the patient is married, their spouse should be encouraged to participate in these stages. Within the first 24 hours after mastectomy, the patient should be instructed to avoid arm and shoulder movements, perform hand exercises, and elevate

the arm with a pillow. No powder, deodorant, lotion, or perfume should be applied to the incision area until it heals. Blood pressure measurements, intravenous procedures, or injections should not be done on the arm with the incision site (Kalkan, 2022).

4.3. Symptom management nursing care for breast cancer patients

Pain: Pain management should include both pharmacological and complementary methods. Nursing care should be coordinated, and the side effects of analgesics should be monitored. Evidence-based methods should be supported (Bahar et al., 2019).

Nausea and Vomiting: Adequate fluid intake and small, frequent meals should be ensured. Alternative methods such as hypnosis, aromatherapy, acupuncture, and progressive relaxation techniques can also be utilized (Bahar et al., 2019).

Fatigue: The causes of fatigue should be identified, and appropriate medication or vitamin supplementation should be provided. A high-protein diet should be followed, and psychosocial interventions should be planned. Physical therapy and exercise should be encouraged, regular physical activity recommended, and customized exercise programs created (Bahar et al., 2019).

Dyspnea: To manage dyspnea, air circulation should be increased, relaxation techniques should be used, position changes should be encouraged, anxiety should be reduced, and supportive oxygen therapy with postural drainage should be implemented (Bahar et al., 2019).

Oral Mucosal Inflammation (Mucositis): The oral cavity should be monitored, and proper oral hygiene should be maintained. Patients should be educated on preventing mucositis and maintaining oral care, with recommendations to gargle with saline and sodium chloride solutions (Bahar et al., 2019).

Hair Loss (Alopecia): Information about hair loss should be provided, and self-care strategies should be taught. Patients should be encouraged to cut their hair before it falls out and informed about materials available for managing hair loss (Bahar et al., 2019).

Constipation: The patient's bowel function should be assessed, and they should be encouraged to visit the bathroom after meals to establish bowel habits, thus stimulating the gastrocolic reflex. Adequate fluid intake should be ensured, a high-fiber diet recommended, and daily exercise encouraged (Bahar et al., 2019).

Diarrhea: The causes of diarrhea should be identified, and fluid-electrolyte balance should be maintained. Trigger foods such as spicy and fried foods should be avoided (Bahar et al., 2019).

Neutropenia: Infection symptoms should be closely monitored, and both the patient and their family

should be educated on infection prevention strategies (Bahar et al., 2019).

Thrombocytopenia: A safe environment should be provided, and the patient should be protected from trauma. Platelet counts should be monitored (Bahar et al., 2019).

Anxiety and Stress: Complementary therapies, such as reflexology and yoga, can promote deep relaxation and parasympathetic responses. For depression symptoms, massage therapy and music therapy should be used, and support from family, friends, and spouses should be encouraged (Bahar et al., 2019).

Terminal Delirium: Excessive stimuli should be avoided, and a familiar environment should be created to ensure the patient's safety (Bahar et al., 2019).

Insomnia: Factors contributing to insomnia should be identified, and education on sleep hygiene should be provided. Supportive methods such as massage, yoga, and meditation should be utilized (Bahar et al., 2019).

5. Effectiveness of Nursing Care in Breast Cancer Patients

Studies by Maguire et al. (1980) and McArdle et al. (1996) found that nursing care reduces anxiety and depression in breast cancer patients (Maguire et al., 1980; McArdle et al., 1996). Ritz et al. (2000) and Wengström et al. (1999) also reported that nursing care reduces uncertainty and depression in breast cancer patients (Wengström et al., 1999; Ritz et al., 2000). A study by Goodwin et al. (2003) found that nurse-led case management interventions, applied to 335 breast cancer patients over 12 months, resulted in significant improvements in arm function within two months post-surgery (Goodwin et al., 2003). Coleman et al. (2005) evaluated the social support and education provided by oncology nurses via phone for 2-4 weeks after surgery. Both the experimental and control groups showed a reduction in symptom distress (Coleman et al., 2005).

Arving et al. (2007) found that nursing care interventions significantly reduced side effects such as nausea, vomiting, insomnia, and dyspnea in the intervention group (Arving et al., 2007). There is strong evidence supporting the effectiveness of nurse-led education, guidance, and case management interventions in symptom management (Chan et al., 2020).

According to a meta-analysis by Lu et al. (2022), nursing interventions improved sexual function and satisfaction, reduced depression, and increased overall quality of life. Long-term effects on sexual function were particularly evident in younger patients, while short-term improvements in sexual satisfaction were observed in older patients. These findings highlight the potential significant role of

nursing interventions in breast cancer treatment (Lu et al., 2022).

A systematic review examining the effectiveness of care interventions for breast cancer patients analyzed 1,972 references and included 13 studies. The interventions included psychological support, end-of-life discussions and preparations, physical activity, lifestyle changes, and medication-assisted self-management. The frequently applied multimodal interventions were found to be effective, with physical activity interventions having a positive impact on symptom experience (Keane et al., 2023).

In a study conducted by Brown et al. (2021) on breast cancer patients, it was found that psychosocial interventions provided by expert cancer nurses were more effective compared to standard care (Brown et al., 2021).

A study investigating the impact of evidence-based nursing (EBN) interventions on upper extremity function in postoperative breast cancer patients demonstrated that EBN interventions improved emotional well-being, reduced lymphedema, and positively affected upper extremity function. Significant improvements were also observed in shoulder and elbow performance, overall health, physical pain, mental health, and physiological function (Wang et al., 2020).

In a study by Zhou et al. (2020), a WeChat-based multimodal nursing program was found to increase the quality of life during early rehabilitation in postoperative breast cancer patients (Zhou et al., 2020).

Nursing interventions have shown a statistically significant effect in reducing cancer patients' symptoms and improving their quality of life (Nayak, & George, 2023).

A study by Zhang et al. (2022) found that evidence-based nursing (EBN) interventions significantly improved sleep quality and psychological well-being in breast cancer patients with liver metastasis. The experimental group had higher sleep quality and lower levels of anxiety, depression, fatigue, distress, and anger compared to the control group. Additionally, EBN interventions increased patients' self-care skills, health knowledge, and mental health (Zhang et al., 2022).

Khezri et al. (2022) found that nursing care increased the levels of hope in breast cancer patients. The nursing intervention program led to improvements in sexual dysfunction, a reduction in stress levels, and an increase in quality of life (Khezri et al., 2022). It is recommended to increase nursing staff awareness regarding the side effects of breast and gynecological cancer treatments (Nady et al., 2018).

6. Effectiveness of Yoga, Exercise, and Other Interventions in Breast Cancer Patients

In a study by Hsueh et al. (2021), it was found that among breast cancer patients who experienced post-treatment complications, the experimental group showed higher levels of social, emotional, and functional health, as well as a better quality of life compared to the control group. Yoga practice in breast cancer patients resulted in significant improvements in physical health, mental health, and sleep quality, with reductions in anxiety, depression, stress, fatigue, and pain intensity (Hsueh et al., 2021).

Lin et al. (2023) found that the most effective intervention for improving post-surgical quality of life and preventing lymphedema among breast cancer survivors was the combination of progressive resistance exercises (PRE) with joint mobility exercises (JME). JME combined with aerobic exercise (AE) was effective in pain relief, while JME combined with PRE showed better overall results in terms of functionality (Lin et al., 2023).

Wang et al. (2023), in a meta-analysis, found that yoga practice significantly improved the quality of life in breast cancer patients experiencing post-treatment complications. The experimental group showed higher levels of social, emotional, and functional health compared to the control group. Additionally, the yoga group showed significant improvements in physical and mental health, sleep quality, anxiety, depression, stress, fatigue, and pain intensity. These findings suggest that yoga practice can enhance the overall well-being of breast cancer patients after treatment (Wang et al., 2023).

In a study by Kunkler et al. (2023), breast cancer patients in the experimental group received radiotherapy, while the control group did not. Over a 10-year period, the cumulative incidence of local breast cancer recurrence was found to be 9.5% in the group that did not receive radiotherapy and 0.9% in the group that received radiotherapy (Kunkler, et al., 2023).

In a study by Li et al. (2021), evidence-based nursing interventions applied to 263 breast cancer patients were found to improve quality of life, relieve symptoms, and reduce negative emotions and postoperative complications (Li et al., 2021).

7. Non-Pharmacological Interventions for Breast Cancer Patients

In a systematic review conducted by Tola et al. (2021), it was found that non-pharmacological interventions such as music, aromatherapy, and acupuncture were effective in reducing pre-surgical anxiety and post-surgical pain in breast cancer patients (Tola et al., 2021).

Jung et al. (2023) found that auricular acupuncture, when managed by nurses, was effective in managing

chemotherapy-induced peripheral neuropathy symptoms in breast cancer patients (Jung et al., 2023).

Wei et al. (2022) emphasized that Baduanjin exercises provided positive effects by reducing fatigue and improving anxiety in breast cancer patients undergoing chemotherapy (Wei et al., 2022).

He et al. (2022) reported that culturally specific dance interventions were seen as a promising method for managing fatigue, sleep disturbances, and depression symptoms in breast cancer patients undergoing chemotherapy, and they improved the quality of life. Given the program's acceptability and feasibility, it is suggested that it could be integrated into routine cancer care (He et al., 2022).

Aybar et al. (2020) found that breast cancer patients who performed breathing exercises experienced a reduction in chemotherapy-induced nausea, vomiting, and choking sensations compared to the control group, and their functional status was positively affected (Aybar et al., 2020).

In a study by Chin et al. (2021), it was observed that symptom management self-efficacy and self-care positively impacted the quality of life of oncology patients (Chin et al., 2021).

8. Conclusion

Breast cancer is the most frequently diagnosed malignancy in women, and early diagnosis and risk reduction strategies are vital in managing the disease. Regular screening programs and healthy lifestyle changes are effective in reducing the risk of breast cancer. Nurses play a significant role in increasing patient participation in screening programs, managing treatment side effects, and providing emotional support.

Multidisciplinary approaches in breast cancer treatment aim to improve the quality of life of patients by combining surgical interventions, radiotherapy, chemotherapy, and hormonal therapies. Nursing interventions have been proven effective in reducing symptoms such as anxiety, depression, and fatigue, thereby improving patients' overall quality of life.

In conclusion, effective nursing care in the fight against breast cancer should be supported by early diagnosis and preventive strategies, with a holistic approach that addresses both the physical and psychosocial needs of patients. The critical role of nurses in this process is indispensable for improving patients' quality of life and enhancing their adherence to treatment.

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