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Research Article

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Breast Cancer Patients and their Orofacial Manifestation

Zahra Ranjbar[1] Habib Noorani khojasteh[2], 1Janan Ghapanchi, [1*]Fatemeh Lavaee, [3]Farnaz Khanzade, * Fatemeh Tavakoli

[1] *Oral and Maxillofacial Disease Department, School of Dentistry, Shiraz University of Medical Sciences, Ghasrdasht street, Shiraz, Iran*

[2]*Department of Hematology Oncology, Shiraz University of Medical Sciences, Shiraz, Iran*

[3]*Undergraduate Students, Student Research Committee, School of Dentistry, Shiraz University of Medical Sciences, Ghasrdasht street, Shiraz, Iran*

[4]*Graduate student, Oral and Maxillofacial Medicine Department, School of Dentistry, Shiraz University of Medical Sciences, Shiraz, Iran*

[*]Corresponding Author
Fatemeh Tavakoli, Graduate student, Oral and Maxillofacial Medicine Department, School of Dentistry, Shiraz University of Medical Sciences, Shiraz, Iran.

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Abstract

Background and Objective: *Surgery, chemotherapy, radiotherapy, and hormone therapy are the most commonly used methods for treating breast cancer, but these therapies, in turn, cause short and long-term side effects in such cases. This study aimed to investigate oral manifestations in patients undergoing breast cancer treatment.*

Method: *In this cross-sectional study, the oral cavity of 101 patients admitted to a private clinic of hematology and oncology for the treatment of breast cancer in Shiraz were examined. Full oral examinations including mucosal and dental changes are recorded. Data were collected and analyzed using SPSS software version18.*

Results: *The mean age of the participants (females) was 45.77±11.47 years old. 38 (37/6%) patients had distant metastases to other organs and 63 (62/4%) had no metastases. 48 (47.5%) patients specifically used chemotherapy and only 7 (6.9%) patients used radiotherapy. The most common oral complications were dry mouth (47.5%) and changes in taste (45.5%). The most common skin disorder was skin irritation with 13.8%, followed by herpes labialis with a 5% prevalence.*

Conclusion: *Our results showed that oral findings such as xerostomia and taste changes were prevalent in the breast cancer patients undergoing radiotherapy, chemotherapy, and hormone therapy but skin complications like erythema, irritation, and herpes simplex infection are less frequent.*

Keywords: Breast Cancer, Chemotherapy, Radiotherapy

Introduction

Breast carcinoma is one of the most common diseases in women with a high rate of morbidity and mortality, especially in developing countries [1]. Despite the improved protocol in the treatment of patients, advanced stages of cancer have not improved significantly [2]. One in 10 women suffers from breast cancer in the world [3]. The risk of breast cancer increases with age [4]. This disease in our country, Iran is at the head of women's cancers, and the study of its prevalence is more regional. Unfortunately, due to the inconsistent registration of vital events, especially cancer, the incidence, prevalence, and the exact mortality rate is not clear [5].

Surgery, chemotherapy, radiotherapy, and hormone therapy as the most commonly used methods for treating breast cancer, and have increased survival rates [6, 7]. These therapies, in turn, cause short and long-term side effects in this group [8]. So, patients with breast cancer suffer from a wide range of physical, mental, and social symptoms during their diagnosis and treatment [9].

Several studies have shown that survivors of breast cancer report symptoms that are different based on the treatment received. For example, in several randomized studies, tamoxifen and chemotherapy were associated with hot flashes [10, 11].

Specific chemotherapy regimens with similar cytotoxic potency cause different moderations in the oral mucosal. However, the mechanism of oral chemotherapy-induced lesions and the effect of these drugs has not been completely determined [12]. On the other hand, information on the toxicity of certain drugs varies from one study to another. Some have shown that cytotoxic agents and anti-metabolites and alkylic drugs are associated with the incidence and severity of oral problems [13, 14]. However, few studies have specifically examined the incidence and severity of toxicity in treatment regimens.

In a study by Gonçalves on patients with breast cancer, dysgeusia was the most pronounced oral presentation in such cases [15]. Another study showed that only 13% of the cases with cancer received clinical guidelines for oral and dental health. Oral disorders such as gingivitis, gingival bleeding, periodontal problems, dry mouth, and burning sensation are more common in this group [16].

Materials and Methods

This cross-sectional study was carried out by the guidelines of the Declaration of Helsinki as revised in Edinburgh (1975). The study protocol was approved by the Ethics Committee of Shiraz University of Medical Sciences, Shiraz, Iran (IR.SUMS.REC.1398.557). The written informed consents were obtained from participants for examination and in unable cases, verbal consent was obtained. Patients were informed about the nature of the study.

In this study, the oral cavity of 101 patients with breast cancer referred to a private and sub-specialized clinic of hematology and oncology from June 2018 – to March 2019 were evaluated. All subjects suffered from breast cancer at least for a year. Any oral complications of breast cancer treatment were performed by oral and dental examinations and all mucosal and dental changes were recorded. Patients with systemic disease, an autoimmune and inflammatory disorders that caused oral symptoms were excluded. The age, severity of disease, duration, type of treatment, type of medications used by patients, any associated factors, and oral manifestations were evaluated. Oral examination was done by a trained student about oral lesions and their clinical findings were recorded. photos of oral manifestations were also taken. Data was entered into SPSS-18 software and analyzed. After refining the data, the normalization of the variables was determined using descriptive tests, frequency, and the mean and standard deviation of the variables studied.

Result

101 females aged between 30-87 years old were enrolled in this study. The mean age of the patients was 47.77 ± 11.45 years old. 38(37.6%) patients had metastases to other organs, 63 (62.4%) had no metastasis, and the disease of more than 50% of patients had been diagnosed in a previous year. The treatment protocols were listed in table 1. The most common medications used by the patients are listed in table 2. The most commonly used medication in these patients was cyclophosphamide and Trastuzumab. The oral manifestations of patients with breast cancer are listed below in table3. Taste change and oral dryness are the most common oral manifestation in these patients.

Table 1: Treatment protocol of the Breast cancer patients.

Type of treatment	Frequency	percentages
Chemotherapy	48	47.5%
Chemotherapy – radiotherapy	11	10.9%
Chemotherapy - hormone therapy	10	9.9%
Radiation Therapy - Hormone Therapy	2	2%
Chemotherapy-radiotherapy hormone therapy	2	2%
Chemotherapy and Surgery, hormone Therapy	4	4%
Radiation therapy, chemotherapy. hormone therapy	9	8.9%
Surgery –Chemotherapy	6	5.9%
Radiotherapy - Chemotherapy	2	2%
Radiotherapy	7	6.9%
Total	101	100%

Table 2: Frequency and distribution of medications used by the patients with breast cancer

Type of medication	Percentages (%)	Frequency
Cyclophosphamide	23.8	24
Tamoxifen and letrozole	1	1
Transtuzumab	23.8	24
paclitaxel	5	5
paclitaxel	4	4
Docetaxel and Cyclophosphamide	9.5	6
Aryotrust and Cyclophosphamide	14.9	15

Taxotere	3	3
Gemcitabin and Navelbin	5.9	6
Endoxan	4	4
Gemcitabin	3	3
MISSING	5.9	6
Total	100	101

Table 3: The oral manifestation of patients with breast cancer

Clinical manifestations	Percentages (%)	Frequency
Osteonecrosis	6.9	7
Dry mouth	47.5	48
Change of the taste	45.5	46
zona	1	1
Dental caries	9.9	10
Recurrent herpes labialis	5	5
Oral aphthous ulcer	11.9	12
Fissured Tongue	2	2
Burning of the skin	13.8	14

Discussion

Over many years, chemotherapy and radiotherapy have improved long time survival rate of patients; but unfortunately, along with all the benefits, they also have some side effects [17]. Oral complications are common and debilitating side effects including infection, mucositis, bleeding, dry mouth, ulcerative problems, neurotoxicity, dysphagia, changes in odor and taste perception, and other unexpected lesions [18].

In this study, we examined oral complications of cancer therapy in patients with breast cancer. The most common complications observed in this study were chemotherapy-induced oral disorders such as oral xerostomia and taste change. The mean age of cases of breast cancer may be different between researchers [15, 19]. The difference in the mean age of patients with breast cancers in these studies can be related to different geographic regions, the impact of race, nutrition and cultures, and social health programs and insurance systems in different countries.

Xerostomia is one of the most common oral complications in cancer treatment but is primarily associated with age, type of medication, and underlying diseases [20]. Current research also showed a high frequency of dry mouth in the participants which are in line with Taichman's findings [20].

In addition to the oral dryness, taste change also has been mentioned as a common oral manifestation in presenting study which is confirmed by Gonçalves et al. [15]. They reported that changes in taste and sensory disorders had the highest rate of oral complications among patients with breast cancer followed by oral dryness. Taste change may be related to the mean age of the cases, drugs neurotoxicity, use of mouthwashes that may alter the taste, emotional stress, dietary regimen, and smoking. Xerostomia can be treated by more hydration, using artificial saliva, changing habits, and moisturizing the mouth.

Osteonecrosis has been reported in a few cases of our study and is a rare complication in patients with this neoplasm, which is most commonly seen in patients treated by a bisphosphonate drug regimen. However, in the Gonçalves study this complication was not reported [15].

In the current research, breast cancer in more than 50% of patients had been diagnosed during the last year and chemotherapy was the common treatment protocol. Although radiotherapy is widely used in the treatment of breast neoplasm; fewer patients have been treated with this method in our evaluation.

Mucositis is one of the most common oral complications associated with chemotherapy and radiation therapy. Its incidence is typically 20-40% in patients receiving conventional chemotherapy and is usually indicated as erythema or mucosal ulcer and dry mouth [21]. However, mucositis was not observed in this study in contrast to McCarthy's and Nicolatou's results [22, 23]. This difference may be related to the self-limiting nature of oral mucositis after discontinuation of long-term chemotherapy or radiotherapy, and the time of evaluation from the last dose of the treatment protocol. Breast cancer does not occur only in women, but men also
develop it [24]. In this study, all patients were female, and is not in coordination with Gonçalves research that 32 cases were male [24]. Genetic, religious, behavioral, and cultural factors may influence the presence of disease.

Cyclophosphamide compounds were the main treatment regimen used by our participants and it is associated with oral complications during chemotherapy. In other research also this medication was commonly used This finding is opposite to Gonçalves study, in which most complications were reported for Paclitaxel consumption [20, 25, 15].

In this study, 5 cases suffered from recurrent herpes labialis. To the best of our knowledge, there is no documented research regarding the prevalence of oral herpetic ulcers in breast cancer

patients.

Oral squamous cell carcinoma is a rare finding in breast cancer and it has been found in one patient in our study. Recently breast cancer-related biomarkers were detected in oral SCC [26].

Early detection and effective management of such lesions may assist to decrease the rate of morbidity and mortality.

Assessing the oral manifestation of a larger population-based on their treatment regimen can help the professionals to design a preventive protocol to decrease these manifestations. Each community's breast cancer prevalence, the insurance system, habits, and cultural factors can affect the predisposing factors of cancer incidence and treatment care and preventive intervention.

Conclusion

Our results showed that almost all patients undergoing radiotherapy, chemotherapy, and hormone therapy may experience a wide range of oral complications and the skin complications are less frequent. Most of the complications were seen in the cases undergoing chemotherapy regimen, followed by radiotherapy and hormone therapy. Oral dryness and taste changes are the most common reported oral manifestations.

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Conflict of Interest

The authors declare no conflict of interest.

References

1. Mousavi, S. M., Montazeri, A., Mohagheghi, M. A., Jarrahi, A. M., Harirchi, I., Najafi, M., & Ebrahimi, M. (2007). Breast cancer in Iran: an epidemiological review. The breast journal, 13(4), 383-391.
2. Motallebnejad, M., Akram, S., Moghadamnia, A., Moulana, Z., & Omidi, S. (2008). The effect of topical application of pure honey on radiation-induced mucositis: a randomized clinical trial. J contemp dent pract, 9(3), 40-47.
3. Bigler, L. R., Streckfus, C. F., Copeland, L., Burns, R., Dai, X., Kuhn, M., ... & Bigler, S. A. (2002). The potential use of saliva to detect recurrence of disease in women with breast carcinoma. Journal of oral pathology & medicine, 31(7), 421-431.
4. Little J, Falace D, Miller C, Rhodus N. (2002). Dental management of the medical compromised patients. 6th ed. Toronto: Mosby, 388-91.
5. Azizi, F., Hatami, H., & Janghorbani, M. (2004). Epidemiology and control of common diseases in Iran. Tehran.
6. Maleki D. (2010). Evaluation of Demographic and clinical characteristics of patients with breast cancer in UrmiaWhich could be a good screening method? Urmia Med J, 21(3), 273-7. (Persian)
7. Ream, E., Richardson, A., & Alexander-Dann, C. (2002). Facilitating patients' coping with fatigue during chemotherapy—pilot outcomes. Cancer nursing, 25(4), 300-308.
8. Broeckel, J. A., Jacobsen, P. B., Horton, J., Balducci, L., & Lyman, G. H. (1998). Characteristics and correlates of fatigue after adjuvant chemotherapy for breast cancer. Journal of Clinical Oncology, 16(5), 1689-1696.
9. de Jong, N., Courtens, A. M., Abu-Saad, H. H., & Schouten, H. C. (2002). Fatigue in patients with breast cancer receiving adjuvant chemotherapy: a review of the literature. Cancer nursing, 25(4), 283-297.
10. Ganz, P. A., Rowland, J. H., Meyerowitz, B. E., & Desmond, K. A. (1998). Impact of different adjuvant therapy strategies on quality of life in breast cancer survivors. In Adjuvant therapy of primary breast cancer VI (pp. 396-411). Springer, Berlin, Heidelberg.
11. Love, R. R., Cameron, L., Connell, B. L., & Leventhal, H. (1991). Symptoms associated with tamoxifen treatment in postmenopausal women. Archives of internal medicine, 151(9), 1842-1847.
12. Rask, C., Albertioni, F., Bentzen, S. M., Schroeder, H., & Peterson, C. (1998). Clinical and pharmacokinetic risk factors for high-dose methotrexate-induced toxicity in children with acute lymphoblastic leukemia: a logistic regression analysis. Acta Oncologica, 37(3), 277-284.
13. Worthington, H. V., Clarkson, J. E., Bryan, G., Furness, S., Glenny, A. M., Littlewood, A., ... & Riley, P. (2011). Interventions for preventing oral mucositis for patients with cancer receiving treatment. Cochrane database of systematic reviews, (4).
14. Wilkes, J. D. (1998, October). Prevention and treatment of oral mucositis following cancer chemotherapy. In Seminars in oncology (Vol. 25, No. 5, pp. 538-551).
15. Gonçalves, J. F. D. S. (2015). Oral complications of cancer treatment in patients with breast neoplasm: a retrospective observational study in a hospital setting (Doctoral dissertation).
16. Taichman, L. S., Gomez, G., & Inglehart, M. R. (2015). Oral health-related complications of breast cancer treatment: assessing dental hygienists' knowledge and professional practice. American Dental Hygienists' Association, 89(suppl 2), 22-37.
17. Naidu, M. U. R., Ramana, G. V., Rani, P. U., Suman, A., & Roy, P. (2004). Chemotherapy-induced and/or radiation therapy-induced oral mucositis-complicating the treatment of cancer. Neoplasia, 6(5), 423-431.
18. Harirchi, I., Ghaemmaghami, F., Karbakhsh, M., Moghimi, R., & Mazaherie, H. (2005). Patient delay in women presenting with advanced breast cancer: an Iranian study. Public health, 119(10), 885-891.
19. Jensen, S. B., Mouridsen, H. T., Reibel, J., Brünner, N., & Nauntofte, B. (2008). Adjuvant chemotherapy in breast cancer patients induces temporary salivary gland hypofunction. Oral oncology, 44(2), 162-173.
20. Wong, S. F., & Wilder-Smith, P. (2002). Pilot study of laser effects on oral mucositis in patients receiving chemotherapy. The Cancer Journal, 8(3), 247-254.
21. McCarthy, G. M., & Skillings, J. R. (1992). Orofacial complications of chemotherapy for breast cancer. Oral surgery, oral medicine, oral pathology, 74(2), 172-178.
22. Nicolatou-Galitis, O., Nikolaidi, A., Athanassiadis, I., Pa-

padopoulou, E., & Sonis, S. (2013). Oral ulcers in patients with advanced breast cancer receiving everolimus: a case series report on clinical presentation and management. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, 116(2), e110-e116.
23. Fentiman, I. S., Fourquet, A., & Hortobagyi, G. N. (2006). Male breast cancer. The Lancet, 367(9510), 595-604.
24. Wilberg, P., Hjermstad, M. J., Ottesen, S., & Herlofson, B. B. (2014). Chemotherapy-associated oral sequelae in patients with cancers outside the head and neck region. Journal of pain and symptom management, 48(6), 1060-1069.
25. Parris, T. Z., Aziz, L., Kovács, A., Hajizadeh, S., Nemes, S., Semaan, M., ... & Helou, K. (2014). Clinical relevance of breast cancer-related genes as potential biomarkers for oral squamous cell carcinoma. BMC cancer, 14(1), 1-11.