

Evaluation of oral health status among a group of women with breast cancer in Medical City, Baghdad

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ABSTRACT

Background: Breast cancer is one of the serious diseases affect women in large percentage that may cause general systemic changes, these systemic changes affect general health and oral health.

Aims of the study: The aims of the present study were to assess the oral health condition including dental caries, oral cleanliness and gingival health condition among breast cancer compared to control group.

Materials and Methods: The total sample composed of 40 females aged (16 years – 60 years) 20 females diagnosed with breast cancer attending Baghdad center for radiotherapy in Medical City in Baghdad province, Iraq, were selected for the study compared to 20 healthy females be chosen randomly; attending Collage of Dentistry in Al-Iraqia University for their regular checkup and treatment in Baghdad province matching in age and gender. Decayed, missing and filled surfaces (DMFS), plaque (PII), Gingival (GI) and calculus (Cal) indices were used to measure oral health status for both groups. The data of current study was analyzed using SPSS version 26.

Results: The entire breast cancer group was caries-active. A higher DMFS values were recorded for study compared to control group, difference was statistically highly, concerning DMFS ($P<0.01$). (DS, MS) higher in breast cancer patients than control with highly significant difference between them regarding to (DS, MS) only. PII, Cal, indices were found to be higher in the study compared to control group and the difference were highly statistically not significant. The GI index was found to be higher in the study compared to control group and the difference statistically significant ($P<0.01$). The correlations between GI, CI indices and DMFS indices in study group were statistically not significant except for PII was highly significant.

Conclusion: Patients with breast cancer had more caries severity, gingivitis, plaque and calculus higher than control group. Dental care planners should develop preventive strategies that are targeted at caries prevention; oral care practices and oral care education and promotion to address the various oral care challenges in breast cancer. compared to normal subjects.

Key words: breast cancer, dental caries, oral cleanliness

INTRODUCTION

Breast cancer is the most common cancer and also the primary cause of mortality due to cancer in female around the World. Breast cancer usually starts in the inner lining of milk ducts or the lobules that supply them with milk. From there, it can spread to other parts of the body. Malignancy of the breast is one of the commonest causes of death in women [1-3]. Breast cancer incidence trends are different among countries, likely due to their ethnic and cultural background [4]. And the exact cause of breast cancer remains unclear, but some risk factors make it more likely which may differ for different geographical locations [5]. A number of risk factors for breast cancer have been established including age, reproductive factors, such as early menarche, late menopause, age at first life birth >30 year, null parity, family history, previous breast biopsy, genetics, and hormonal use [6-13]. There are other probable risk factors, such as high Body Mass Index (BMI), low physical activities, and dietary factors [14-19]. Ageing is one of the greatest risk factors for the development of breast cancer [20]. It was well established that the chance of breast cancer occurrence increase with the increase of age [5]. Globally, breast cancer is the most frequent cancer among women and accounts for about 23% of all female cancers. Breast cancer is the second leading cause of death among all types of cancers in women (15% of all cancer deaths) after lung cancer (26% of all cancer deaths) [21]. According to Alwan, breast cancer is the most common type of cancer in Iraq [22]. Breast cancer affect general health also has an effect on oral health. Several studies done concerning the oral health as a risk factor for initiating breast cancer; they showed that about 93% of women with breast cancer had root canals [23]. Another study showed that women of breast cancer had periodontal disease on the same side affected by breast cancer [24].

MATERIALS AND METHODS

The study group included 20 females, with an age range of (16 years–60 years); they were already diagnosed with breast cancer, attending the diagnosed with breast cancer attending Baghdad center for radiotherapy in medical city in Baghdad province, Iraq, were selected for the study compared to 20 healthy females matching in age and genders with the study group. The control group included 20 healthy females be chosen randomly; attending Collage of Dentistry in Al-Iraqia University for their regular checkup and treatment in Baghdad province matching in age and gender. Approval was achieved from the Ministry of Health and Environment for examining breast cancer patients and approval of the patients. Dental caries was diagnosed by clinical

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examination, using dental mirror and sharp dental explorer. Assessment and recording of caries experience were by the application of decayed, missing and filled teeth and surfaces indices (DMFS) according to criteria of WHO [25]. Oral health status evaluated by application Plaque Index (PII) of Silness and Løe and Calculus Index (CaI) of Ramfjord [26, 27].Gingival inflammation assessed by using Gingival Index (GI) of Løe and [28]. Statistical Analyses were achieved by using SPSS version 26 (Statistical Package for Social Sciences). Descriptive measurement (mean and standard deviation) and interferential statistic involved (Student's t-test, Person's correlation coefficient) were applied. The level of confidence was 95%.

RESULTS

Caries experience (DMFS)

Table 1 show caries-experience (mean values of DS, MS, FS and DMFS) among study and control groups. The mean values for all components of DMFS were higher in study group than that in the control with highly significant differences regarding (DS, MS, DMFS) as seen in Table 1.

Tab. 1. Caries-Experience of Permanent Teeth (DMFS) in Study and Control Group

Group	DS			MS			FS			DMFS		
	No.	Mean	±SD	No.	Mean	±SD	No.	Mean	±SD	No.	Mean	±SD
Study	20	13.2**	8.8	20	23.35**	16.2	20	5.55	12.18	20	42.35**	22.7
Control	20	5.45	5.5	20	9.4	6.76	20	9.45	6.1	20	24.3	11.4

Highly significant at the level P<0.01

Tab. 2. Millustrates the mean values of plaque, gingival indices among study and control groups

Group	PII			GI			CaI		
	No.	Mean	±SD	No.	Mean	±SD	No.	Mean	±SD
Study	20	1.92**	0.96	20	0.7*	0.89	20	0.36**	0.47
Control	20	0.435	0.23	20	0.16	0.12	20	0.06	0.14

Highly significant at the level P<0.01

Tab. 3. Correlation coefficient between caries-experience of permanent teeth and plaque, gingival, calculus indices among study and control group

Groups		DS		DMFS	
		r	P	r	P
Study	PII	0.238	0.311	0.614**	0.004
	GI	-0.075	0.754	0.368	0.11
	CaI	-0.158	0.507	-0.003	0.989
Control	PII	-0.477*	0.033	-0.234	0.321
	GI	0.292	0.212	0.121	0.611
	CaI	0.231	0.328	0.114	0.633

(DMFS, PII) in control group which were negatively correlated as seen in Table 3.

DISCUSSION

Breast cancer is the most common cancer in women and the second leading cause of cancer death in them after lung cancer [29]. Due to high prevalence and mortality rate of this type of cancer in the community, number of studies concerning this disease are increasing [30-32].Breast cancer affect general health like other cancers in any part of the body as well as have a devastating effect as breast considered as a characteristic feature for every female and the matter of mislaying one or both breasts effect on the psychology of the women [33, 34].Not much information is available regarding the association of dental caries in relation to oral cleanliness in patients with breast cancer, thus the present study was designed. This study recorded an increasing in the severity of dental caries (DMFS) were higher among study group compared to control group with highly significant difference. DS and MS were higher in breast cancer

Table 2 illustrates the mean values of plaque, gingival, calculus indices among study and control groups. The total mean values of plaque (1.92 ± 0.96) in study group were found to be higher than control group (0.435 ± 0.23) with highly statistically significant differences. The total mean values of gingival index (0.7 ± 0.89) in study group were found to be higher than control group (0.16 ± 0.12) with statistically significant differences. The total mean values of calculus (0.36 ± 0.47) in study group were found to be higher than control group (0.06 ± 0.14) with highly statistically significant differences.

The correlation coefficient between caries experience of permanent teeth with PII and GI, CI among study and control group is seen in Table 3. Concerning permanent teeth, no significant correlation was seen in both study and control group, except (PII)and DMFS in study group was highly significant also (PII) and (DS) in control group was significant all of them were positively correlated except (DS) with (GI, CaI) in study group (DS) with (GI) and (DS) with (PII) in control group and (DMFS ,CaI) in study group and

patients than controls with highly significant difference and lower FS components among breast cancer group than in control group. It has been found that the major component of DMFS among breast cancer group was Ms fraction, this may be attributed to poor dental health knowledge for breast cancer group [23, 24, 35, 36]that make them prefer tooth extraction over restoration[37-39].These findings could give a view point that breast cancer group neglect their general health as they neglect their oral health. The total mean values of PII and CaI indices in study group were found to be higher than control group with highly statistically significant differences regarding PII and CaI, the explanation could be due to poor oral hygiene among breast cancer group. Dental plaque was found to be one of the etiological factors in dental caries [40, 41]. That showed positive correlation between amount of dental plaque and dental caries, this relation was also confirmed by the result of the present study that revealed significant positive correlation between amount of dental plaque and (DMFS, DS) for breast cancer group. The salivary flow rate may play an important role in relation to plaque accumulation since decrease of salivary flow rate leads to decreased washing action of saliva as well as protective

constituents decreased with decreased flow rate, this may be the explanation of increased dental plaque among breast cancer group [36]. It had been found that females showed higher GI in study group than control group with statistically significant difference, these results could be explained by poor oral hygiene among breast cancer group as shown by highly significantly higher plaque and calculus accumulation than control group. Dental plaque was found to be the primary etiological factor in gingival inflammation because when dental plaque increases, bacteria increase in number and increase in bacterial toxins lead to increase in gingival disease [36, 42]. Dental calculus was found to be significantly higher among breast cancer group plays an important role in gingival inflammation since it is a mineralized dental plaque and act as a retentive factor for dental plaque [43]. this is also confirmed by the result of the present study.

CONCLUSION

The present study showed that the study group was affected by dental caries and the severity of caries-experience was higher among the study group compared to control group. The plaque and calculus indices were higher in study group compared to control group and the difference were statistically highly significant. The gingival index was found to be higher in the study compared to control group with statistically significant difference. Patients with breast cancer are an extremely delicate group of patients. Therefore, dental care planners should develop preventive strategies that are targeted at caries prevention; oral care practices and oral care education and promotion to address the various oral care challenges in breast cancer.

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