

Association between Breast Feeding And Breast Cancer: A Case Control Study in Erbil

Sherwan Aziz¹, Abdulqadir Zangana²

¹MBChB, MSc. lecturer in the Department of surgery, College of Medicine, Hawler Medical University, Erbil, Kurdistan Region, Iraq, ²MBChB, CABS-FICS. Professor of surgery, Erbil Teaching Hospital, Erbil, Kurdistan Region, Iraq

Abstract

Background and Objective: Breast cancer is the most common cancer that threatens life of women all over the world. In Iraq it is the most common cancer; 5141 new cases of breast cancer registered in 2018 comprising 36.7% of all women cancers and 20.3% of all cancers in both sexes. Breast cancer is a multifactorial disease many of the risk factors are modifiable, one of these factors is breastfeeding.

The aim of the study is investigating the association of duration of breastfeeding with breast cancer development, and comparing the risk in premenopausal and postmenopausal women.

Patients and methods: This study is a prospective case control study conducted in Erbil Breast Clinic and Erbil teaching hospital in Erbil city from January 31, 2016 to June 31, 2016.

140 women with histopathologically proved breast cancer compared with 160 women with no breast cancer in regard to total duration of breastfeeding.

Results: Among the 140 women with breast cancer; 66.4% women were pre-menopausal, and 33.6% women were postmenopausal, among the 160 women in the control group; 73.1% women were pre-menopausal, and 26.9% were postmenopausal.

Among postmenopausal women; 19.15% of women with breast cancer never practiced breastfeeding, while only 2.33% of women in the control group never practiced breastfeeding which was statistically different.

Conclusion: Postmenopausal women who did not practice breastfeeding and parous women who breastfed their children less than 12 months are at increased risk of breast cancer.

Key words: women, breast cancer, breastfeeding, risk.

Introduction

Breast cancer is the most commonly occurring cancer in women and the second most common cancer after lung cancer overall, there were over 2 million new cases all over the world in 2018 ¹. In Iraq it is the most common cancer; 5141 new cases of breast cancer registered in 2018 comprising 36.7% of all women cancers and 20.3% of all cancers in both sexes².

The incidence of breast cancer greatly varies among different populations, up to a 10-fold difference in incidence have been observed between low rates in rural African and Asian populations and high rates in

North American and Western European populations ³. This great variation in the incidence is related to the risk factors which may contribute to the development of breast cancer; genetic factors contribute only to 5-10% of cases, the rest 80-85% of breast cancer causes are related to behavior and endocrine risk factors, which vary according to the culture, education and income of these populations, most of these risk factors are modifiable and avoidable⁴, therefore preventing or modifying these factors can prevent or lessens the development of the disease, one of these modifiable endocrine risk factors is breastfeeding. Breastfeeding not only reduces breast cancer risk but also provides other health benefits to

the mother including reduced risk for endometrial and ovarian cancers⁵, and reduced risk for chronic medical diseases that are also risk factors for cancer, such as hypertension and diabetes⁶.

Controversies exist in the researches about the protective role of breastfeeding against the risk of breast cancer development in the mother as general and in pre and postmenopausal women.

The aim of the study is to assess the risk of breast cancer development in pre and postmenopausal women who never breastfed and parous women who practiced breastfeeding.

Patient and Methods

A prospective case control study conducted in Erbil Breast Clinic and Erbil teaching hospital in Erbil city, Iraq from January 31, 2016 to July 15, 2017. Erbil Breast Clinic is the only governmental clinic specialized for management of breast problems, it daily receives 50-70 women with breast problems, it provides necessary investigations.

After taking informed consent, physical examination and necessary investigations performed for both breast cancer and control women.

152 breast cancer women enrolled in the study, 13 women were excluded from the study because they

declined to continue with the study and only 139 women with proved breast cancer continued with the study, 175 control women attending to the surgical consultation unit in Erbil teaching hospital for non-breast complaints enrolled in the study, one of these women incidentally found to have breast cancer and included in the breast cancer group, 14 other women declined from the study, and 160 women continued with the study.

The study is a part of an ongoing PhD research was approved by the ethical committee of the college of medicine/ Hawler Medical University.

The recorded information analyzed by SPSS software version 22 using student t test and Chi square test.

Results

This study compared 140 histopathologically proved breast cancer women with 160 control women, Among the 140 women with breast cancer; the women age range from 25 to 91 years with the mean of 46.06 years age, 93 women were pre-menopausal (66.43%), and 47 women were postmenopausal (33.57%), among the 160 women in the control group; the women age range from 25 to 70 years with the mean of 42.76 years, 117 women were pre-menopausal (73.1%), and 43 were postmenopausal (26.9%), with no significant statistical difference between the two groups: tables 1, 2 and 3.

Table-1: Age distribution of breast cancer and control women

| | N | Minimum | Maximum | Mean | Std. Deviation | p-value |
|---------------|-----|---------|---------|-------|----------------|---------|
| control | 160 | 25.00 | 70.00 | 42.76 | 10.14 | 0.390 |
| Breast cancer | 140 | 25.00 | 91.00 | 46.06 | 11.24 | |

Table 2: Age distribution of pre-menopausal women

| | Number | Minimum | Maximum | Mean | p-value |
|---------------|------------|---------|---------|------------|---------|
| breast cancer | 93(66.4%) | 25.00 | 53.00 | 40.9±6.78 | 0.491 |
| Control | 117(73.1%) | 25.00 | 51.00 | 38.24±7.10 | |
| total | 211 | | | | |

Table 3: Age distribution of post-menopausal women

| | Number | Minimum | Maximum | Mean | p-value |
|---------------|-----------|---------|---------|------------|---------|
| breast cancer | 47(33.6%) | 46.00 | 91.00 | 57.87±8.50 | 0.329 |
| Control | 43(26.9%) | 42.00 | 70.00 | 55.07±6.19 | |
| total | 90 | | | | |

Table 4 compares the practice of breastfeeding whether never or ever breastfed, regarding the premenopausal women; 25 women with breast cancer and 21 women from the control side never used their breasts for feeding which was not statistically significant different. While more postmenopausal women in the control group had breastfed their children, which is statistically significant.

Table 4: Breastfeeding practice of breast cancer and control women

| | Breast cancer women | | Control women | | p-value |
|----------------|---------------------|------------|---------------|------------|---------|
| | Breastfeeding | | Breastfeeding | | |
| | Yes | No | Yes | No | |
| Pre-menopausal | 68(73.12%) | 25(26.88%) | 96(82.05%) | 21(17.95%) | 0.133 |
| postmenopausal | 38(80.85%) | 9(19.15%) | 42(97.67%) | 1(2.33%) | 0.016 |
| Total | 106 | 34 | 138 | 22 | 300 |

In regard to the minimum duration of breastfeeding which may protect against breast cancer; the study show that at least 12 months of breastfeeding may protect against breast cancer only in postmenopausal women Table 5 and 6.

Table 5: Total breastfeeding duration of premenopausal breast cancer and control women

| | Total breastfeeding (months) | Breast cancer | | Control women | | p- value |
|--------------------------------|------------------------------|---------------|-------|---------------|-------|----------|
| | | No. | % | No. | % | |
| Breastfeeding practice | Never practiced | 25 | 26.88 | 21 | 17.95 | 0.133 |
| | Ever practiced | 68 | 73.12 | 96 | 82.05 | |
| Women practiced breast feeding | 1-11 | 4 | 5.88 | 9 | 9.38 | 0.561 |
| | 12+ | 64 | 94.12 | 87 | 90.62 | |
| | 1-23 | 11 | 16.18 | 18 | 18.75 | 0.836 |
| | 24+ | 57 | 83.82 | 78 | 81.25 | |
| Total | | 68 | | 96 | | |

Table 6: Total breastfeeding duration of postmenopausal breast cancer and control women

| | Total breastfeeding (months) | Breast cancer | | Control women | | p- value |
|--------------------------------|------------------------------|---------------|-------|---------------|-------|----------|
| | | No. | % | No. | % | |
| Breastfeeding practice | Never practiced | 9 | 19.15 | 1 | 2.33 | 0.016 |
| | Ever practiced | 38 | 80.85 | 42 | 97.67 | |
| Women practiced breast feeding | 1-11 | 4 | 10.53 | 0 | 0 | 0.47 |
| | 12+ | 34 | 89.47 | 42 | 100 | |
| | 1-23 | 5 | 13.16 | 2 | 4.76 | 0.248 |
| | 24+ | 33 | 86.84 | 40 | 95.24 | |
| Total | | 38 | | 42 | | |

Discussion

Breast cancer is a multifactorial disease with many risk factors, some of them are modifiable, breastfeeding is one of the important modifiable risk factor which may have protective role against breast cancer, though there is a large debate about its role especially when related to the menopausal state.

This study concluded that breastfeeding has protective role against breast cancer in postmenopausal women; postmenopausal women who ever breastfed their babies are less susceptible to breast cancer compared with women who never practiced breastfeeding, more ever among parous women who practiced breastfeeding; at least 12 months of total duration of breastfeeding needed to have a protective role against breast cancer development but this protective role was only found for postmenopausal women, while no significant difference found in susceptibility for breast cancer among premenopausal women who never breastfed and those who breastfed less than 12 months.

A number of studies; Two local studies ^{7, 8} a regional study ⁹ and a number of international studies¹⁰⁻¹⁶, reported no association between breastfeeding and breast cancer.

A number of studies reported the protective effect of breastfeeding against breast cancer only for premenopausal women ¹⁷⁻²⁵.

Many review articles and meta-analytic articles support the protective role of breast cancer in both pre and postmenopausal women:

-A meta-analysis on four cohort studies concluded that breastfeeding protects against breast cancer, a 2% reduction in breast cancer risk for each 5 months increase of lifetime breastfeeding. The longer women breastfeed, the more they are protected against breast cancer ²⁶. The 4th edition of the European Code against Cancer in 2014 recommends: “Breastfeeding reduces the mother’s cancer risk. If you can, breastfeed your baby” ²⁶.

-Research by the international Collaborative Group on Hormonal Factors in Breast Cancer – based on individual data from over 50,000 women with breast cancer in 30 different countries – has shown that breastfeeding has a protective effect estimated at a 4.3% risk reduction for every 12 months of cumulative breastfeeding (in addition to an estimated 7.0% reduction in risk for each birth. The same study showed that breast cancer risk was reduced in both

premenopausal and postmenopausal women, with no significant difference in the effect estimated according to menopausal status²⁷.

The hypotheses which may explain the protective effect of breast-feeding against breast cancer are:

1. Breastfeeding induces long-term endogenous hormonal changes; increased prolactin production and decreased estrogen level, which may decrease a woman's total exposure to estrogen, thereby preventing the carcinogenesis or growth of breast cancer cells²⁸.

2. Most lactating women will be amenorrhic as long as they lactate, so less exposure to the cyclical elevated estrogens which enhance mitotic activity of the mammary cells during the luteal phase of the menstrual cycle²⁹.

3. The estrogen levels in breast fluid of lactating premenopausal women is lower compared with nulliparous women and parous women who did not practice breast-feeding³⁰.

4. Pregnancy and subsequent breastfeeding induces differentiation of the mammary gland lobules from lobule 1 of nulliparous women to fully differentiated lobule type 4 during breastfeeding which is more resistant to carcinogenesis^{29,31}.

6. Breastfeeding milk excretes some potential chemical carcinogens, hence provides temporary protection of the mammary tissue from these carcinogens³².

7. During breastfeeding Oxytocin hormone increases which inhibits proliferation and growth of tumor cells³³.

8. Breastfeeding may decrease cancer risk by excreting DNA damaged cells³⁴.

Conclusion

Breastfeeding for at least 12 months is protective against breast cancer in postmenopausal women. It is worthwhile to encourage women to breastfeed their children to increase the protection against breast cancer.

Conflict of Interest: Not

Ethical Clearance: The study research was approved by the ethical committee of the college of medicine/ Hawler Medical University

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