

Breastfeeding and breast cancer

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ABSTRACT

Background: Several factors contribute to increase breast cancer risk including age, genes, childbearing history, menstrual history, use of hormone therapies and socioeconomic and physical environment.

The study **aimed** to make a review of the articles published from 1970 to 2008 that discuss whether breastfeeding reduces the risk of breast cancer. The review used the Pubmed database and included 25 research articles which examined the relation between breastfeeding and breast cancer.

Results from studies investigating lactation and breast cancer risk have been inconsistent. However most studies suggest that extended period of breastfeeding during women's life time can reduce breast cancer. Although breastfeeding may be one factor that reduces a woman's risk of breast cancer, it is certainly not the only factor determining her risk.

Conclusions: Since breastfeeding is a modifiable risk factor all women should be encouraged to breastfeed their children in order to keep themselves, their children, health systems and societies healthy.

Key words: Breastfeeding, lactation, duration of breastfeeding, breast cancer, women's health.

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INTRODUCTION

Epidemiologic research shows that breastfeeding offers mothers a number of important health benefits. Breastfeeding within the first hour of birth prevents from post birth haemorrhage, facilitates the expulsion of placenta and helps uterus to return to its prepregnancy size. Afterwards when

mothers breastfeed exclusively will not menstruate for as long as they are nursing, thus they build up their stores of iron and they are less likely to become pregnant.¹ Furthermore, breastfeeding women return to pre birth weights more easily. In later life nursing mothers appear to have some protection from

both breast and ovarian cancer and also from osteoporosis.²⁻⁴

Breast cancer seems to be the second leading cause of death among women, after lung cancer. Therefore, breastfeeding is one of the actions women can take to lessen their risk for this disease, a good practice with important public health benefits.¹ It has been documented, decades ago, that credible mechanisms such as local effects of breastfeeding on mammary tissue, as well as hormonal mechanisms dependent on the effect of lactation in changing endocrine patterns, can be postulated to explain a relationship between lactation and low breast cancer risk.⁵ Early in the 20th century, it was also noted that nulliparity and a history of never having breastfed were more common in women with breast cancer than without the disease.⁶

Prevalence and duration of breastfeeding

During the first 30 years of the 20th century, infant nutrition was one of the main fields of paediatric research because the importance of proper feeding was quite obvious. In the middle of the century infant formulae was taken over by infant food industries and breastfeeding was no longer actively promoted. Consequently, the prevalence

of breastfeeding declined continuously in the industrialized countries till the late 1970s.⁷ In the succeeding decades many organizations including World Health Organization,⁸ UNICEF,⁹ American Academy of Pediatrics¹⁰ and American Dietetic Association¹¹ recommended exclusive breastfeeding for 6 months because of its well-known advantages for children, mothers, health systems and societies.¹²

The lack of or short lifetime duration of breastfeeding typical of women in developed countries makes a major contribution to the high incidence of breast cancer in these countries. More specifically, for every year a woman breastfed, her risk of developing breast cancer was reduced by 4.3%.¹³

Moreover, Chang-Claude et al., examined breastfeeding and breast cancer risk among women (of age 50) in two geographic areas in Germany and found that prolonged breastfeeding had a protective role against the development of breast cancer in predominantly premenopausal women.¹⁴

In the same year, Zheng et al.,¹⁶ found a significant inverse association between duration of lactation and breast cancer risk in Shandong Province, China.¹⁵

Also, in Iceland researchers found that an inverse association was evident

between total duration of breastfeeding and breast cancer.

In Israel breast cancer remains the major malignant disease among Israeli women, with about 4.000 new cases diagnosed annually and a steadily increasing incidence rate. A hospital –based case control study showed that short duration of lifetime breastfeeding, late age at first breastfeeding and experience of insufficient milk were found to increase breast cancer risk. On the contrary, women who had ever breastfed their infants were compared with females who had not, breastfeeding was found to be protective.⁶

In addition Furberg et al.,¹⁷ studying lactation and breast cancer risk in African- American and white women residents of North Carolina found that any lactation, regardless of duration or timing, was associated with a slight reduction in the risk of breast cancer among younger and older parous women.

The relation between breast cancer and breastfeeding

The hypothesis that lactation reduces breast cancer risk has been the subject of many debates. Results from studies of various populations investigating lactation and breast cancer risk have been inconsistent.^{2, 14, 18-21}

More studies show that lactation has a protective effect against breast cancer than those which show that lactation has no effect or has a slight effect on breast cancer.

In Sweden and Norway a study conducted by Adami et al.,¹⁸ found that reproductive factors did not explain the occurrence of breast cancer before the age of 45. Thomas, Noonan and the WHO Collaborative Study of neoplasia and steroid contraceptives examining more than 17.000 women in 10 countries found that long- term lactation may reduce slightly the risk of breast cancer.²²

Another study conducted by Brinton et al., stated that breastfeeding doesn't substantially reduce breast cancer risk of premenopausal women (less than 45 years of age).¹⁹ However their finding may reflect the fact that most of their study subjects breastfed only for limited periods of time.

Michels et al.,²³ also studying nearly 90.000 women found that there was no important association between breastfeeding and the occurrence of breast cancer. In addition, Coogan et al.,²⁰ in their study in a South African population found that lactation had little or no protective effect on breast carcinoma risk. In the study conducted in Southern Brazil, Tessaro et al.,²⁴

found that breastfeeding did not have a protective effect against breast cancer. Finally, Yang et al.,²⁵ stressed that previous reviews (between 1999 and 2007), of the association between breastfeeding and breast cancer have not found any consistency that breastfeeding reduces risk of breast cancer. Specifically of the 27 studies that assessed the effect of ever breastfeeding compared with never breastfeeding 11 found significant protection against breast cancer and of the 24 studies of the effect of breastfeeding duration, 13 found a reduced risk of breast cancer with extended lactation.

Despite the demonstrated slight or no effect of breastfeeding on breast cancer there are many studies of various populations which show that breastfeeding protects either premenopausal or both premenopausal and postmenopausal women against breast cancer.

Siskind et al.,²⁶ studying breast cancer and breastfeeding in Brisbane, Australia found that lactation plays a modest direct or indirect part in reducing the risk of breast cancer for both premenopausal and postmenopausal women. Newcomb et al.,²⁷ also studying the effect of lactation to premenopausal and post menopausal women found that

there was a reduction in the risk of breast cancer among premenopausal women who have lactated but there was no reduction in the risk of breast cancer among postmenopausal women with a history of lactation.

In the United Kingdom a population based case- control study designed to investigate the relation between breast cancer before age 36 and breastfeeding found that risk of breast cancer fell with increasing duration of breastfeeding and with number of babies' breastfed.²⁸

A collaborative reanalysis of individual data from 47 epidemiological studies in 30 countries, including 50.302 women with breast cancer and 96.973 women without the disease found that the longer women breastfeed the more they are protected against breast cancer.¹³

At the same time Freund et al.,²¹ in order to examine the impact of lactation on the risk of breast cancer carried out a pub med search for publications in English and French from 1974 through 2004 and found that lactation reduced the risk for breast cancer and that this protective effect seemed greater for women who had extended periods of breastfeeding during their lifetime, particularly in case of BRCA1 mutation. Recently, Huo et al.,²⁹ focusing on Nigerian women found that parity and

breastfeeding are protective against breast cancer. More specifically breast cancer risk decreased by 7% for every 12 months of breastfeeding. Breast cancer tended to occur more frequently in the higher socio-economic groups and since women in such groups lactate less, it might have been expected that the patients would have had shorter total periods of lactation on this basis alone.⁵ It was stressed by Lipworth et al.,³⁰ also that some problems of methodology could be carefully avoided. In some studies were used «average breastfeeding per child of 30 weeks», «ever breastfeeding compared with never breastfeeding», «exclusive breastfeeding and breast feeding that was supplemented with formula». Exclusive breastfeeding and duration of breastfeeding seem to play important roles in the understanding of underlying mechanisms for health protection.³¹ It is however of utmost importance that breastfeeding patterns are classified in epidemiologic studies of mothers' health.⁴

Breast cancer is preventable

It is important to recognise that overall an individual's risk of cancer is a combination of genetic determinants, as well as lifestyle and environmental factors. Since breast cancer is

predominantly a disease diagnosed in older women, as the age limit of the population increases the incidence of breast cancer is also expected to increase. If women begin to make changes in their lifestyle now, such as to reduce the use of hormone replacement therapy, to maintain normal body weight, to increase levels of physical activity, to limit alcohol use and to breastfeed for six months then by 2024 one in 10 cases could be prevented.³²

Women should also be informed that the risk for premenopausal breast cancer is reduced with lactation and that this protective effect seems to be best for women who have extended period of breastfeeding during their lifetime. Women with familial risks could potentially benefit most from breastfeeding. Since breast milk is the ideal nutrient for the newborn, and since breastfeeding is a modifiable risk factor, all women should be encouraged to breastfeed their children.³³

Finally, further research is needed to identify lifestyle or other exogenous determinants of pregnancy hormone levels, as well as possible mechanisms by which they may influence carcinogenic processes in the breast and possibly other organs.³⁰

Conclusion

Research shows that a number of factors work together to increase or decrease breast cancer risk- including age, genes, childbearing history, menstrual history and use of hormone therapies. Various psychopathological mechanisms are involved in the protective effect of breastfeeding and especially anovulation and cellular differentiation of the mammary cells. While breastfeeding is a potentially modifiable behaviour, the practical implication of reduced breast cancer risk among women with prolonged durations of breastfeeding may be of great importance particularly in Western societies.

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