



## SCENARIO OF THE OCCURRENCE OF BREAST CANCER IN PREMENOPAUSAL AND POSTMENOPAUSAL PHASES OF WOMEN IN THE SPAN OF THEIR REPRODUCTIVE PERIOD

**Dr. Firdous Ansari**

Ph.D. (Statistics) Assistant Professor, Department of Mathematics and Statistics(2013-15) Jai Narain Vyas University, Jodhpur, Rajasthan, India

### ABSTRACT

**Background:** Breast cancer, nowadays, becoming a commonly exposed disease in women. In India, 27.7% of all new cancers detected in women in the year 2018, were breast cancers. **Objective:** The Objective of the study is to represent the scenario of the occurrence of breast cancer in premenopausal and postmenopausal phases of women in the span of their reproductive period. **Methodology:** Various studies were searched using Pub-med and Google search engines. These study were analogously mentioned in this paper. **Results:** Early age at menarche, late age at menopause and every year older at menopause were associated with an increased risk of breast cancer. **Conclusion:** Breast cancer awareness campaigns may have their roles in prevention of occurrence of the disease.

**KEYWORDS :** Breast Cancer, Premenopausal women , Postmenopausal women, Reproductive Period

### INTRODUCTION

Breast cancer is steeping high in concern with its occurrence in India and worldwide. According to World Health Organization 2.26 million new cases were diagnosed in the year 2020.

In our study, using Pub-med and Google search engines, we collected some studies to review concern having in our mind. These considered studies were chronologically arranged to make the studies in accordance to access our objective of designing this paper.

### METHODOLOGY

Various studies were searched using Pub-med and Google search engines. These study were analogously mentioned in this paper.

One of the study, we collected, investigated the role of age at menarche and at menopause on breast cancer risk , in a combined analysis of four Italian case-control studies including a total of 6,075 cases and 5,492 controls. The risk of breast cancer was found lower in women whose menarche occurred at age 15 or over, but there was no evidence found reported for the risk to increase with decreasing age at menarche below age 15. Compared with women with earlier menarche, the relative risk (RR) found was 0.9 (95% confidence interval, CI 0.7-1.0) for those with menarche at age 15, 0.8 (95% CI 0.6-0.9) for menarche at 16, and 0.7 (95% CI 0.5-0.8) for menarche at age 17 or over. No significant interaction was reported between age at menarche and study center or age at diagnosis, parity and age at first birth. Study revealed that in relation to age at menopause, compared with women whose menopause occurred at age 40 or less, the relative risk was 1.1 (95% CI 0.8-1.3) between 40 and 44, 1.2 (95% CI 0.9- 1.4) between 45 and 49, 1.4 (95% CI 1.2-1.8) between 50 and 53, and 1.4 (95% CI 1.1-1.8) above 53. The risk estimates were pinpointed comparable in various studies, and the trend in risk with age at menopause was observed statistically significant. The risk estimates were tended to be somewhat higher at peri-menopausal age (45 to 54 years), but no consistent pattern was evident across subsequent strata of age, and the interaction with age was found observed non-significant. In the same way, no consistent interaction was observed with parity, age at first birth or body mass index (C. La Vecchia et al.,1992).

In one of the studies, among 100 female patients taken up for the study, 48 were premenopausal and 52 had reached menopause. According to this study the risk factors for both pre-and post-menopausal breast cancers were found reported similar other than late menopause in postmenopausal patients. Study revealed, having dense breast tissue as a predominant risk factor among all women. This study concluded that late stage at presentation of breast cancer is the main problem and possesses a challenge to the health care community (Aruna S et al.,2014).

We came across another study, aiming to assess the strengths of effects of menarche and menopause and to determine whether these two characteristics depend on characteristics of the tumors or the affected women. This study included data from 117 epidemiological studies, including 118,964 women with invasive breast cancer and 306,091 without the disease, none of whom had used menopausal hormone therapy. Study found reported that breast cancer risk increased by a factor of 1.050 (95% CI 1.044-1.057;  $p < 0.0001$ ) for every year

younger at menarche, and independently by a smaller amount (1.029, 1.025-1.032;  $p < 0.0001$ ), for every year older at menopause. According to this study premenopausal women had a greater risk of breast cancer than postmenopausal women of an identical age (RR at age 45-54 years 1.43, 1.33-1.52,  $p < 0.001$ ). The study resulted that three of these associations were attenuated by increasing adiposity among postmenopausal women, but did not vary materially by women's year of birth, ethnic origin, childbearing history, smoking, alcohol consumption, or hormonal contraceptive use. With the additional informations that all three associations were stronger for lobular than for ductal tumors ( $p < 0.006$  for each comparison). The effect of menopause in women of an identical age and trends by age at menopause were stronger for oestrogen receptor-positive disease than for oestrogen receptor-negative disease ( $p < 0.01$  for both comparisons).The interpretation of the study went through the way that the effects of menarche and menopause on breast cancer risk might not be acting merely by lengthening women's total number of reproductive years. Besides the convolution that endogenous ovarian hormones are more relevant for oestrogen receptor-positive disease than for oestrogen receptor-negative disease and for lobular than for ductal tumors(Anonymous,2012).

In another study we found examination of tumor characteristics and epidemiologic risk factors associated with premenopausal women's and young women's breast cancer in phases I-III of the Carolina Breast Cancer Study (5309 cases, 2022 control subjects). Results of the study showed that in both premenopausal and postmenopausal strata, younger women were found more aggressive disease, including higher stage, hormone receptor-negative, disease as well as increased frequency of basal-like subtypes, lymph node positivity, and larger tumors. Results also revealed that higher waist-to-hip ratio was associated with reduced breast cancer risk among young women but with elevated risk among older women. Parity was reported associated with increased risk among young women and reduced risk among older women, while breastfeeding was archived more strongly protective for young women. Longer time since last birth was found protective for older women but not for young women. When a comparison was made by stratifying the data by age, menopausal status was not found attached associated with distinct risk factor or tumor characteristic profiles, except for progesterone receptor status, which was more commonly appeared positive among premenopausal women. Conclusion of the study was described as age is a key predictor of breast cancer biologic and etiologic heterogeneity and may be a stronger determinant of heterogeneity than menopausal status. Besides the abstracted information that young women's breast cancer appeared to be etiologically and biologically distinct from that among older women (LCHinton et al.,2016).

In one of the study, Etiology of breast cancer (C50) in Central and South America was accessed. In this study early age at menarche and late age at menopause were consistently found associated with an increased risk of breast cancer development. Whereas, The Collaborative Group on Hormonal Factors in Breast Cancer (CGHFBC) conducted a meta-analysis of 117 studies (35 cohort and 56 case-control) that included 118 964 women with breast cancer and resulted that the risk of breast cancer increased by 5% (95% confidence interval [CI], 4.4-5.7%) for each year younger at menarche and by

2.9% (95% CI, 2.5–3.2%) for each year older at menopause. The CGHFBC also observed that the risk of breast cancer was 43% (95% CI, 33–52%) higher in premenopausal women (aged 45–54 years) than in postmenopausal women of the same age. (Di A Sibio et al, 2016)

One study was found assessing the different treatment options for menopausal HT and the risk of breast cancer. This Swedish prospective nationwide cohort study included all women who received 1 HT prescription during the study period 2005–2012 (290 186 ever-users), group-level matched (1 : 3) to 870 165 never-users; respectively, 6376 (2.2%) and 18 754 (2.2%) developed breast cancer. HT, ascertained from the Swedish Prescribed Drug Register, was found subdivided by estrogen and progestogen formulation types, regimens (continuous versus sequential) and modes of administration (oral versus transdermal). The risk of invasive breast cancer was also found presented as adjusted odds ratios (OR) and 95% confidence intervals. Results of the study showed that current use of estrogen-only therapy was associated with a slight excess breast cancer risk [odds ratio (OR) ¼ 1.08 (1.02–1.14)]. The risk for current estrogen plus progestogen therapy was reported higher [OR ¼ 1.77 (1.69–1.85)] and indicated increase with higher age at initiation [OR ¼ 3.59 (3.30–3.91) in women 70þ years]. In contrast, past use was associated with reduced breast cancer risk. In this study current continuous estrogen/progestin use was reflected association with higher risk [OR ¼ 2.18 (1.99–2.40) for progesterone-derived; OR ¼ 2.66 (2.49–2.84) for testosterone-derived] than sequential use [OR ¼ 1.37 (0.97–1.92) for progesterone-derived; OR ¼ 1.12 (0.96–1.30) for testosterone-derived]. The OR for current use was 1.12 (1.04–1.20) for estradiol, 0.76 (0.69–0.84) for estriol, 4.47 (2.67–7.48) for conjugated estrogens, and 1.68 (1.51–1.87) for tibolone. Oral and cutaneous HT showed similar associations. Conclusion of the study was, different HT regimens have profoundly different effects on breast cancer risk. Because of registry limitations some confounders could not be assessed (N. Brusselsaers et al, 2018).

## RESULTS

Early age at menarche, late age at menopause and every year older at menopause were associated with an increased risk of breast cancer.

## CONCLUSION

Breast cancer awareness campaigns may have their roles in prevention of occurrence of the disease.

## REFERENCES

1. C. La Vecchia, E. Negri, P. Bruzzi, G. Dardanoni, A. Decarli, S. Franceschi, D. Palli & R. Talamini. The role of age at menarche and at menopause on breast cancer risk: Combined evidence from four case-control studies. *Annals of Oncology* 1992, (3): 625-629
2. Aruna Surakasula, Govardhana Chary Nagarjunapu, K. V. Raghavaiah. A comparative study of pre- and post-menopausal breast cancer: Risk factors, presentation, characteristics and management. *Journal of Research in Pharmacy Practice / Jan-Mar 2014, 13(1): 12–18.* doi: 10.4103/2279-042X.132704
3. Anonymous. Menarche, menopause, and breast cancer risk: individual participant meta-analysis, including 118 964 women with breast cancer from 117 epidemiological studies. *Lancet Oncol.* 2012 Nov;13(11):1141-51. doi: 10.1016/S1470-2045(12)70425-4.
4. Lynn Chollet-Hinton, Carey K. Anders, Chiu-Kit Tse, Mary Beth Bell, Yang Claire Yang, Lisa A. Carey, Andrew F. Olshan, and Melissa A. Troester. Breast cancer biologic and etiologic heterogeneity by young age and menopausal status in the Carolina Breast Cancer Study: a case-control study. *Breast Cancer Research* 2016, 18(79): 1-10 DOI 10.1186/s13058-016-0736-y
5. Di Sibio A, Abriata G, Buffa R, Viniestra M, Forman D, Sierra MS (2016). Etiology of breast cancer (C50) in Central and South America. In: *Cancer in Central and South America*. Lyon: International Agency for Research on Cancer. Available from: [http://www-dep.iarc.fr/CSU\\_resources.htm](http://www-dep.iarc.fr/CSU_resources.htm), accessed.
6. N. Brusselsaers, R. M. Tamimi, P. Konings, B. Rosner, H.-O. Adami & J. Lagergren. Different menopausal hormone regimens and risk of breast cancer. *Annals of Oncology* 2018, 29: 1771–1776. doi:10.1093/annonc/mdy212