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RISK FACTORS ASSOCIATED WITH CARCINOMA BREAST: A CASE CONTROL STUDY

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Abstract:
Background: Breast cancer is the most common cancer among females in the world. Owing to regional variations in distribution of risk factors and differing lifestyles, there is geographical variation in incidence and mortality due to breast cancer.
Methods: The case control study was conducted at department of general surgery. Cases were newly diagnosed (histologically confirmed) female breast cancer patients presenting at any stage (TNM) during the recruitment phase. Controls were apparently healthy females i.e., attendants of other cases and who were not biologically related to the patients. Only cases with no history of any malignancy previously and controls, with no history of previously diagnosed or treated for any kind of malignancy were included in our study.
Results: The mean age of the cases was 48.23±10.63years and that of controls was 46.23±11.03 years. The age of women in both groups varied from 24 years to 75 years. Most of the cases and controls belonged to Hindu religion. Age at marriage and age at menopause reported significant risk for breast cancer. Parity and breast-feeding duration did not report any significant risk in present study population.
Conclusion: Information, education and communication activities regarding these risk factors, early signs and symptoms of breast carcinoma, and breast self-examination should be imparted to the women to create awareness about this fatal disease.
Keywords: Breast cancer, Breast self-examination, Risk factor.

Introduction:

Breast cancer is the most common cancer among females in the world.[1] Owing to regional variations in distribution of risk factors and differing lifestyles, there is geographical variation in incidence and mortality due to breast cancer.[2] In India, incidence of breast cancer is increasing rapidly due to population growth and increase in life expectancy leading to greater proportion of geriatric population.[3]

Reproductive and hormonal factors contribute most to the development of breast cancer. Nulliparity, more age at first live birth and no breastfeeding are major reproductive risk factors for breast cancer in the developed countries. The role of reproductive factors in the development of breast cancer in Indian population is different as compared with that seen in the western population. This is because parity, younger age at first live birth, and lactation practices are part of our culture, whereas these factors are far less prevalent in western women. Geographic variation in the incidence of breast cancer can be attributed to exposure to various risk factors. Risk of breast cancer increases in successive generations of people moving from low risk areas to high risk regions proving that changes in reproductive behavior and lifestyle are more important than hereditary factors in the development of breast cancer.[4]The reasons for varying incidence of breast cancer among women are not fully understood, which are likely to be explained by reproductive and lifestyle factors such as literacy, diet, age at menarche and menopause, age at first delivery, abortion, family history of breast cancer. [5-7]

Most of the breast cancer cases are usually diagnosed in the advanced stages despite availability of screening tests and biomarkers for early detection. Early detection can prevent complications, improve quality of life and increase survival period. Owing to the resource intensive nature of screening tests, it is imperative to identify women at risk and judiciously apply them for optimal benefits.[6] So, there is a need to determine the distribution of risk factors associated with breast cancer. Hence, this study had been attempted with an objective to assess the modifiable and non-modifiable risk factors associated with breast cancer.

Material and methods

The case control study was conducted at department of general surgery. Cases were newly diagnosed (histologically confirmed) female breast cancer patients presenting at any stage (TNM) during the recruitment phase. Controls were apparently healthy females i.e., attendants of other cases and who were not biologically related to the patients. Only cases with no history of any malignancy previously and controls, with no history of previously diagnosed or treated for any kind of malignancy were included in our study.

The study subjects were interviewed with a pre-tested interview schedule after obtaining informed consent. Presence of female attendant was ensured during the interview of the subject. Variables studied were socioeconomic status, religion, caste, age at menarche, age at marriage, age at first child, number of children, number of abortions, total months of breast feeding, age at menopause, use of hormones (oral contraceptive pills), previous benign breast disease, biopsy, family history, exposure to radiation etc.

Controls were enrolled after explaining to them in detail about the purpose of the study and their role in the study. Their queries regarding health problems were answered.

Data analysis was done using epi info. The data is summarized in the form of tables. Chi-square test, odds ratio and logistic regression were used to identify and quantify the risk.

Results

Table 1: Socio-demographic variable

Variable	Case (n=30)	Control (n=30)	p-value
Mean age (Yrs)	48.23±10.63	46.23±11.03	>0.05
Rural : Urban	18:12	19:11	>0.05
Hindu: Muslim	24:6	25:5	>0.05

The mean age of the cases was 48.23±10.63years and that of controls was 46.23±11.03 years. The age of women in both groups varied from 24 years to 75 years. Most of the cases and controls belonged to Hindu religion.

Table 2: Reproductive factors associated with breast cancer

Variable	Case (n=30)	Control (n=30)	p-value
Age at menarche (years)			
<13 Yrs	16	15	>0.05
>13 Yrs	16	15	
Age at marriage (years)			
<30Yrs	24	28	<0.05
>30Yrs	6	2	
Parity			
Nulliparous	3	2	>0.05
Multi para	27	28	
Age at menopause (years)			
<45	24	27	<0.05
>45	6	3	
Breast feeding			
<6 months	11	10	>0.05
>6 months	19	20	

Age at marriage and age at menopause reported significant risk for breast cancer. Parity and breast-feeding duration did not report any significant risk in present study population.

Discussion

The present study conducted in a teaching hospital consists of 30 cases and 30 controls.

The mean age of the cases was 48.23±10.63 years and that of controls was 46.23±11.03 years, similar findings were noted in the study conducted by Meshram et al, the study reported most of the patients between 40 to 49 years of age with the average age of 48.4 years for cases.[7]

In the present study, age at marriage and age at menopause reported significant risk for breast cancer. Helmrich et al, also reported significant trend of increasing risk with increasing age at first birth, women who had first pregnancy after the age of 35 years had 40% increased risk compared with those with first pregnancy before the age of 20 years.[8] This observation supports the hypothesis that, pregnancy at a younger age is associated with a favorable estrogen profile, which drastically reduces the presence of undifferentiated/vulnerable breast cells,

differentiates terminal end buds to lobules, and/or reduces the pool of estrogen receptor positive cells.

In the present study, women who got married before 30 years of age have decreased risk compared with women who got married after 30 years of age. The difference was found to be statistically significant. A study done by Ebrahimi et al, found that never married women were at a higher risk for breast cancer.[9] Although marital status by itself is not a determining factor for increased or reduced breast cancer risk, but the main protective effect is from early first full-term pregnancy.

In the present study, risk of carcinoma increased as the age at menopause increased. The risk of carcinoma was more among cases who have had menopause after 45 years as compared with cases who have had menopause before 45 years. The difference found was statistically significant. Meshram et al, reported that menopause (≥50 years of age) was observed to be associated with increased risk and the risk was 7.9 times more among women who had menopause at or after 50 years of age as compared with women who had menopause before 45 years.[7]

Conclusions

Information, education and communication activities regarding these risk factors, early signs and symptoms of breast carcinoma, and breast self-examination should be imparted to the women to create awareness about this fatal disease.

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