

Original Research Article

Are the Risk Factors of Breast Cancer among Women in Kerala different from around the globe, Need for a detailed analysis : Prospective review from a tertiary care centre Kerala

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Abstract

Introduction: The incidence of breast cancer is increasing worldwide. This study aimed to assess the risk factors of breast cancer in patients reporting at our tertiary care institute with an endeavour to reduce the incidence, mortality and morbidity due to the disease, having the knowledge that risk factors may vary according to different parts of the country. **Methods:** A case control study was conducted in the Department of General Surgery, Government Medical College, Thrissur among 165 histologically proven female breast cancer patients (cases) and 165 females with no evidence of carcinoma breast (age matched controls). Screening was done by both clinical examination and imaging wherever necessary from April 1st 2013 to March 31st 2014. A private interview was set up for all cases and controls using a structured proforma for collecting data regarding risk factors. Both t- test and chi square test were used for analysis. **Results:** Mean age of the study population was 52 years (SD-12). Age at menarche, Menopausal status, Age at menopause, Parity, Duration of breast feeding, Breast Self-examination awareness and Physical activity showed statistically significant difference between cases and controls. Whereas, the presence of Family History of any other cancer showed no significant association with breast cancer, unlike previous studies. **Conclusion:** Our study shown roles for some modifiable risk factors of breast cancer that can be focused by public health intervention in local setup. The women who have one or more of the following risk factors should take the special attention to risk of breast cancer.

Key words: risk factors, cancer, breast

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Introduction

Breast cancer is second to carcinoma cervix in incidence among women in India. About 80,000 new cases are reported annually. Breast cancer ranks first in incidence out of all cancers among females in Mumbai and Trivandrum; and consists of 26.2% and 25.4% of all cancers respectively [1]. It is a complex disease the causes of which are not yet fully understood. Risk factors responsible for the development of breast cancer may be population or region specific. From literature Asian women get this disease a decade earlier when compared to their western counterparts [2]. Both reproductive and socio-demographic factors have prominent roles in the development of breast cancer. Only a handful of epidemiological studies so far have attempted to assess the risk factors of breast cancer in Indian women, and none of these were conducted in Kerala. Geographical patterns in incidence and mortality rates of breast cancer suggest that known risk factors may vary in different parts of the world. Identifying these factors will be helpful in decreasing the incidence of, and morbidity and mortality due to this disease. Late age of menarche, early age of menopause, early age of

first childbirth, history of breast feeding, and increased duration of breast feeding have been found to have significant protective roles against breast cancer in a multicentre case control study conducted in South India [3,4]. A recent study from Eastern India shows that urban residence, literacy and average socioeconomic income were protective in breast cancer. Epidemiological studies conducted in the country have shown variations in the incidence of breast cancer among different religious groups such as Hindus, Christians, Muslims, Parsis and Buddhists [5,6]. This study aimed to assess the risk factors of breast cancer in patients reporting at our tertiary care institute; and thereby to understand the causes in a better way and thus make necessary intervention to reduce the incidence, morbidity and mortality due to this disease.

Material and methods

A case control study was conducted in the Department of General Surgery, Government Medical College, Thrissur among 165 histologically proven female breast cancer patients and 165 females with no evidence of carcinoma breast (Screening was done by both clinical examination and imaging wherever necessary) for one year. Patients who were not willing to give written informed consent, patients with history of other benign breast diseases, patients with secondary tumor to breast were excluded. All histologically proven female primary breast carcinoma patients who register for treatment at the Department of Surgery was consider as cases. Age matched controls was selected either from the hospital (bystanders of other patients) or from the general population (selected by conducting

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camps in selected areas in Thrissur district). After being inducted into the study population, data regarding risk factors were collected using structured proforma by a personal interview. Cases were followed up after surgery to collect the data regarding hormone receptor status. All data - clinical, demographic and treatment - was collected from medical records. Based on hormonal receptor status patients will be grouped in to two as Estrogen receptor positive (ER+) and Estrogen receptor negative (ER-). Statistical analysis was performed using SPSS version 16. Both T-test and chi-square test were used for analysis.

Results

Study was conducted among 165 female breast cancer patients and 165 age matched controls. Basic characteristics of the study population was shown in Table 1. Mean age of the study population was 52 years(SD-12). Age, BMI and Waist Hip ratio showed statistically significant difference between cases and controls. Age (p value.004) BMI (P value 0.002) Waist hip ratio (p value 0.001).Distribution of incidence of various known risk factors of

breast cancer among cases and controls was depicted in Table 2 and Table 3. When we analysed various factors with reference to menstrual history of the cases and controls it was found that there is a statistical significance in our population also with early menarche (p value of 0.001), Age at menopause above 50 years (p 0.001) and Parity. There was also strong significant correlation between the duration of breast feeding less than 12 months (p value 0.001) . It was also evident that lack of self-awareness and Breast self-examination were significant in people with Breast cancers(p 0 .001) and Lack of Physical activity showed statistically significant difference between cases and controls. (Table 2). There were also some of the factors documented in previous studied showing no significance in our study population . In the present study Diet (p 0.0564) and Religion (p 0.101) did not show any significance contrary to some Indian series . In the present study it was also found that History of OCP use (p 0.171). Treatment for infertility (0.117) and family history of breast cancer in first degree relatives (p .0. 017) did not show any significant association with breast cancer. (Table 3)

Table 1: Basic Characteristics of study population

	<i>Case</i>	<i>Control</i>	<i>p-Value</i>
<i>Age</i>	54.42±12.8	50.30±12.7	0.004
<i>BMI</i>	24.09±4.5	25.67±4.6	0.002
<i>WHR</i>	0.89±0.12	0.97±0.05	0.000

Table 2:

factors among cases and controls

Distribution of significant risk

		<i>Case</i>	<i>Control</i>	<i>p- value</i>
<i>Age at Menarche</i>	≤12	18	21	0.001
	13-16	101	127	
	≥16	46	17	
<i>Menopausal Status</i>	Pre menopausal	42	71	0.002
	Post Menopausal	123	94	
<i>Age At Menopause</i>	≤40	19	42	0.001
	41-49	107	64	
	≥50	39	59	
<i>Parity</i>	Nulliparous	20	1	0.001
	Primi	38	30	
	Multi	100	88	
	Grand-Multi	7	46	
<i>Duration Of Breast Feeding</i>	≤12 months	19	4	0.001
	>12 months	146	161	
<i>BSE Awareness</i>	Yes	49	79	0
	No	116	86	

Table 3: Distribution Of Non-Significant Risk Factors Among Cases and Controls

	P-value
Family History of Any Other Cancer	0.17
Treatment for Infertility	0.177
Religion	0.101
Diet	0.564

Discussion

Geographical variations in incidence and mortality rates of breast cancer suggest that the known risk factors for breast cancer may vary in different part of the world [7]. Some studies find that menstrual and reproductive factors are associated with an increased risk of breast cancer because they may increase lifetime exposure to Estrogen [8]. In our study there was a strong correlation between the age at menarche <12 years, Age at menopause above 50 years and Post-menopausal status as per previous reported studies around the globe depicting the prolonged estrogenic influence. There are only few series in India reconfirming this known factors. Parity, Duration of breast feeding, Breast Self-examination awareness and Physical activity showed statistically significant difference between cases and controls. Breastfeeding as a protective factor for breast cancer does have a sound biological plausibility. Various pathophysiological mechanisms which are been proposed such as decreased frequency and intensity of ovulation thus maintaining the consistent lower level of Estrogen. Our findings was consistent with previous literature [9,10]. Lifetime duration of breast feeding less than 1 year has got increased risk of breast cancer as found from various studies. Similar finding was noted in the present study. Duration of breast feeding has been one strong factor with personals who breast feed for more than 12 months have less incidence in our study population than those who has not breast fed or breast feed less than 12 weeks. This shows the strong influence of prolactin in estrogenic suppression [11]. The findings presented here show no association between history of breast cancer in first degree relatives and breast cancer patients. This is not concordance with other research data which clearly considered that a positive family history of breast cancer is a strong risk factor for breast concern [12,13]. This difference might be due to relatively small sample size in the present study. Lower socio economic status and low education status were important associated risk factors for breast cancer was also identified as factors which favours breast cancer. These are consistent with previous studies [14]. This may be due to the indirect influence on the awareness, habits and late medical attention. In the present study there were no significance in religion which is contrary to some studies in India which showed increased risk amongst different religious groups such as Hindus, Christians, Muslims, Parsis and Buddhists. There was also no relation with dietary habits even though indirectly the significance of BMI reflected otherwise. History of OCP use and treatment of infertility also showed no association as in western studies. Family history of breast cancer in first degree relatives did not show any significant association with breast cancer in our study. This is not concordance with other research data which clearly considered that a positive family history of breast cancer is a strong risk factor for breast concern [12,13]. This difference might be due to relatively small sample size in the present study.

Conclusion

Our study shown roles for some modifiable risk factors of breast cancer that can be focused by public health intervention in local

setup. The women who have one or more of the following risk factors should take the special attention to risk of breast cancer. The family associations with breast cancer needs to be more probed in various types of breast cancer to identify the risk groups in diverse populations and health intervention measures be implemented to improve overall outcome.

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