RISK FACTORS FOR BREAST CANCER IN A DEFINED COMMUNITY: AN EPIDEMIOLOGICAL STUDY

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ABSTRACT

Breast cancer (BC) is the one of the most common cancer among women in the world. Breast cancer (BC) is a group of disease in which breast tissue divide uncontrolled, finally a production of lump or mass. There are no any clinical symptoms of breast cancer (BC) in initial stage. A tiny breast tumour can be treated if it detected in early age. So, it is very important to early detect the breast cancer. This study is helpful to identify the risk factors for breast cancer in India (Kanpur). To study the epidemiological characteristics of breast cancer (BC) patients who were attending the Surgery department of GSVM Medical College Kanpur, India. It was cross sectional study which includes 50breast cancer patients confirmed by histopathological and cytopathological investigation. Their personal and social status information collected by questionnaire form. Their clinical staging is also recorded. The average age of diagnosis breast cancer was 41.17± 14.97 years. Majority (80%) of the patients were in the age group of 40–60 years. 60% (n=30) subjects were housewife, 18 % (n=10) were farmer, 2% (1) were in official job, and 18% (9) were college students. Mean age of menarche was 13.92±1.133 (n= 40), and mean age of menopausal was 48.17± 3.97 (n= 10). 43% were suffering from ductal invasive carcinoma, 2 % were invasive lobular carcinoma, 4% sarcoma of breast, 2% cystosarcoma a phylloids, 2% fungal mycetoma. 6 % (n=3) were had histological grading I, 25% (n=12) were had grade II, 12% (n=6) were had grade III. There are many risk factors of developing breast cancer. This study revealed that some factors like lack of awareness of breast cancer risk factor, lack of education are present in this study. There is a need for aware people about Breast cancer and early detection of BC screening programs and also self-examination for breast cancer.

KEYWORDS: Breast Cancer (BC), Epidemiology, Causative factor, Awareness breast cancer.

INTRODUCTION

Worldwide, 71% of total deaths accounted for noncommunicable diseases (NCDs). In India, noncommunicable diseases were estimated to account for 63% of all deaths, and among cancer was one of the leading causes (9%) (1). Breast cancer (BC) constitutes about 22.9% of cancer in women; it is most common malignancy in females and also one of the root causes of death (2-4). In every 2 diagnosed females with breast cancer in India one women dies from breast cancer.

In India starting age of breast cancer (BC) is thirties and it reaches peak at the age of 50-64.

Overall, 1 in 28 females is likely to develop breast cancer during her lifetime. In urban area, 1 in 22 females develop breast cancer during her lifetime as compared to rural areas where 1 in 60 women develops breast cancer in her lifetime (5). Rarely breast cancer can occur in men. Breast cancer (BC) develop when the cells in the area of breast start to multiply at very fast or abnormal rates. There are so many risk factors for breast cancer. It may be genetic and hereditary. Sporadic breast cancer (BC) is also risk factor for breast cancer (BC) e.g.: excessive use of oral contraceptive, late menopausal age, excessive intake of alcohol, late or no pregnancy, smoking, stress, poor dietary intake, excessive intake of alcohol, increasing age, obesity, radiation exposure, history of breast condition. Excessive intake of high-fat diet and minimum physical activity are the risk factors for breast cancer (6-7). Increasing age is major cause of the risk factors of causing breast cancer (BC). Women who are on hormonal therapy of postmenopausal problem are the

prone for breast cancer. Early age at menarche is also a cause to lead breast cancer. There are very few studies are accessible on the causative factor of BC in India. The aim of the present study is to identify the epidemiological characteristic or find causative factor of the breast cancer in Kanpur, India. Staying single with delayed marriage and higher income is also a risk of breast cancer (8). Duration of breast feeding is inversely proportional to breast cancer was also found in a study (9-10).

MATERIALS AND METHODS

This cross-sectional study is placed in the Department of Surgery and Department of Biochemistry in GSVM Medical college Kanpur. This cross-sectional study included breast cancer patients from January 2019 to June 2020 in GSVM Medical College Kanpur. Female with the age group of 25-65 years diagnosed along with Breast cancer (BC) attending the Surgery OPD at GSVM Medical College Kanpur were included in the study. Based on the inclusion/exclusion criteria, the subjects were enrolled. The subjects included based on their medical history, their family history, and personal information. All the breast cancer patients were included in this study which were confirmed by histopathological examination, FNAC, MRI with their clinical staging. Patients without breast cancer are excluded from this study. Before conducting this study, patients were informed a consent about the purpose of the study. The patients who were not interested in this study or refuge for their consent are also excluded from this study.

Total 50 breast cancer patients confirmed by histopathological and cytological (fine needle aspiration cytology) investigation are included in this study. For collecting their social and personal data like age, religion, occupation, education, smoking, drinking and dietary habit patients were administered a questioner. Their clinical history and diagnosis of breast cancer (BC) was also recorded. We collect their personal information/ causative factor of breast cancer such as first child birth age, breast feeding history, menarche age, menopausal age, family history regarding cancer. Their blood pressure (BP), pulse rate and body weight are also collected. The data collection is done by investigators. All the required document for approval for research were obtained. The ethical approval for carrying the research was approved by ethical committee of faculty of GSVM Medical College Kanpur, India.

RESULTS

The average age of patients when the breast cancer (BC) diagnosed was 41.17± 14.97 years. Majority (80%) of the patients were in the age group of 40–60 years. The distribution parameters of breast cancer (BC) patients are showed in Table 1. 60% (n=30) subjects were housewife, 20 % (n=10) were farmer, 2% (1) were in official job, and 18% (9) were college students. Mean age of menarche was 13.92±1.133 (n= 40), and mean age of menopausal was 48.17± 3.97 (n= 10). 42.7% were illiterate (21), 16.5% (7) were from grade school, 8.3% (4) were jr. high school, 16.6% (8) were in high school, 10.3% (5) were graduate and 6.3% (5) were 12th passed.

Parameters		Sample no.(N)	Mean ±Standard deviation	Range
	Age (years)	50	41.17 ± 14.97	16-70
	Sex	50	1.00 ± 0.00	All female
	Age of Menarche	40	13.92 ±1.133	12-16
	Age of Menopause	10	48.17 ±3.971	45-55
Occupation of subject		**Frequency**	**Percentage (%)**	
	Housewife	30	60	
	Farmer	10	20	
	Office	1	2	
	Student/teacher	9	18	
Status of education				
	No school	21	42.0	
	Grade school	7	16.5	
	Jr. high school	4	8.3	
	10th	8	16.6	
	College	5	10.3	
	12th	5	6.3	

Table 1: Distribution Of Breast Cancer Patients According To Their Sociodemographic Profile And Presence Of Risk Factors

Status of smoking			
	No	50	100
	Yes	0	0
Type of diet			
	Non-veg	19	37.5
	Veg	31	62.5
Alcohol consumption			
	No	50	100.0
	Yes	0	0
Habit of Tobacco			
	No	48	95.8
	Yes	2	4.2
HIV			
	Yes	0	0
	No	50	100.0
HBS Ag			
	No	50	95.8
	Yes	0	4.2
TV Status			
	No	50	97.9
	Yes	10	2.1
Breast side			
	Right	19	33.3
	Left	31	55.6
FNAC			
	Ductal	14	29.2
	Cystosarcomaphylloids	1	2.1
	Fibroadenoma	3	6.3
Histopathological type			
	Ductal invasive carcinoma	21	43.8
	Invasive lobular carcinoma	1	2.1
	Sarcoma of breast	2	4.2
	Cystosarcoma phyllodes	1	2.1
	Fungal mycetoma	1	2.1
Histological grading			
	I	3	6.3
	II	12	25.0
	III	6	12.5

Cont. Table 1: Distribution Of Breast Cancer Patients According To Their Sociodemographic Profile And Presence Of Risk Factors

There was no any history of smoking. 37 % (n= 19) were non-vegetarian, 60% (n=31) were vegetarian. There was no any history of alcohol consumption.95% were not taking tobacco (n= 48) only 4.2 % (2) had history of taking tobacco. There was no history of HIV. There was no history of HBsAg, no history of TB (tuberculosis). 55% were had left side breast cancer while 33% were had right side breast cancer.

43% were suffering from ductal invasive carcinoma, 2 % were invasive lobular carcinoma, 4% sarcoma of breast, 2% cystosarcoma a phylloids, 2% fungal mycetoma. 6 % (n=3) were had histological grading I,

25% (n=12) were had grade II, 12% (n=6) were had grade III.The mean neutrophils count was 68.40±8.857, mean lymphocytes count was 26.45±8.66, monocytes count was 2.60± 0.672, eosinophils count was 2.7±1.344, basophils were 0.00. the mean hemoglobin was 12.098±1.415, TLC count were 903.50±2807 mean corpuscular volume was 82.255±9.121, mean corpuscular hematocrit were 35.28±2.40, mean corpuscular hemoglobin were 28.98±3.296.

DISCUSSION

Breast cancer (BC) is most common cancer in females in Kanpur city. Other cities in India also reported that breast cancer (BC) is most common in females. The peak age of breast cancer in western countries is between 60-70 years, while in Asian countries is between 40-50 years (11). Kumar Vaibhav et.al (2018) found in their study that peak incidence of breast carcinoma was during fifth decade of life, followed by fourth decade of life (12).

Incidence of breast cancer (BC) in Indian females peaks at younger age as compared to western countries. So many research studies conducted in India observed that age of breast cancer (BC) was between 45-50 years. (13-15). In above study we found the breast cancer diagnosis age was also 40-60 years. In this study 42.7% patients were illiterate and very few had a higher education. Because of illiteracy there was poor awareness of breast cancer in rural area. So, this study explain that illiteracy is correlated with increased risk of breast cancer. Clinically this study shows that 43% were suffering from ductal invasive carcinoma, 2 % were invasive lobular carcinoma, 4% sarcoma of breast, 2% cystosarcoma a phylloids, 2% fungal mycetoma. Similar findings were found by Shital M Dikle et.al (2019) that infiltrating duct carcinoma (IDC) was the frequently common histological type of breast cancer (16).

In this study clinical staging reveals that 6 % (n=3) were had histological grading I, 25% (n=12) were had grade II, 12% (n=6) were had grade III breast cancer. In a study Sofi, et al (2019) found that 47% of patient had stage II, 36% had stage III ,14% with stage I and 3% were stage IV (17). Other previous research (2001, 2011) reported that more than 50% of newly diagnosed patients were had stage III or stage IV breast cancer (18,19).

In the above study mean age of menarche was 13.92±1.133. Early menarche age is also correlated with breast cancer (BC) (20). Early age menarche is result of imbalance of some hormone such as oestrogens and progesterone (21). BC is a hormone dependent malignancy and it may be affecting the menarche and menopausal age. In above study mean age of menopausal was 48.17± 3.97. Late age of

menopause is also correlated with a high risk of breast cancer (BC) (22). Previous research was also observed that the risk of breast cancer was more common in those females who had menopause after 50 years comparatively those females who had menopause before 45 years of age (23).

In this study there was no history of smoking. Eivind Bjerkaas et.al (2014) concluded that exposure of life time smoking had significantly increases risk of BC mortality compared with non-smokers. They suggested that further studies are needed to conclude a correlation between lifetime smoking exposure and breast cancer (BC) mortality (24).

There was no history of alcohol consumption in this study. Different studies had correlated the alcohol consumption and carcinogenesis (25, 26). In European prospective investigation into cancer and nutrition revealed a relationship between alcohol consumption and the hormone receptor -negative and the hormone receptor -positive breast tumors.

Many researchers have been focused on a relationship between diet and nutrition. In a case control study, there was found a relationship between nonvegetarian diet and breast cancer (27). In this study 37% were non-vegetarian and 60 % were vegetarian. Result of various studies observed that the risk of developing breast cancer increases with increase in total consumption of meat.

There was no history of HIV and HBSAg. There was no history of TB (tuberculosis). In a chines study Dongcheng Gao et.al (2020) found that those patients who had hepatitis B showed a smaller tumor size, but a higher ratio for the percentage of histological grade 3 at diagnosis than control group (28). Their study concluded that breast cancer patient suffered from chronic hepatitis B virus (HBV) infection tend to have an earlier tumor stage and higher histological grade but there was no correlation with disease free-survival of BC.

CONCLUSIONS

Incidence of breast cancer in females is increasing in India. This study explains that several factors such as education, lifestyle, age are important factors which affect the incidence of breast cancer. There is need to implement the prevention strategies and also early detection tools of breast cancer. There should be a proper training for breast self-examination, also should be awareness of education. These awareness programme will support in prevention of breast cancer in public. Cancer inflicts a large burden on people around the world. Our study identified the epidemiological aspect and risk factors associated with breast cancer in India.

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