

Relationship between Educational and Socioeconomic Status and Early Diagnosis of Carcinoma Breast in Females

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Abstract

Introduction: Breast cancer is the most common site-specific cancer in women and is the leading cause of death from cancer in women age around 22-59 years. It accounts for 26% of all newly diagnosed cancers in females and is responsible for 15% of cancer-related deaths in females. The incidence of breast cancer varies in different countries in the world. Women residing in industrialized countries tend to have a higher incidence than women residing in less industrialized countries.

Aim: To analyze the relationship between socioeconomic and educational status and early diagnosis of carcinoma (CA) breast. To emphasize the need for early detection of breast cancer.

Materials and Methods: Patient from any age group presenting with the lesion suspected of breast CA and proved by fine needle aspiration cytology and Tru-Cut biopsy and all relevant investigations to stage the disease such as chest X-ray, ultrasound abdomen, liver function test, mammography, and skeletal survey done for advanced cases to rule out metastasis were included.

Results: CA breast was found to be more common among females in the age group of 40-60 years (70%). Out of 150 patients, 92 patients (61.3%) were illiterate, 48 (32%) were educated up to primary level, 10 patients (6.7%) with secondary education. Out of 150 patients, 140 patients (93.3%) belonged to low socioeconomic status and 10 patients (6.7%) belonged to middle class. Impact of social inequality in cancer is not being given adequate attention in this country. Lower and middle-income group constitutes the majority of the population in our country. Hence, socioeconomic study of cancer is important for preventive measures and therapeutic action plans.

Conclusion: Impact of social inequality in cancer is not being given adequate attention in this country. Lower and middle-income group constitutes the majority of the population in our country. Hence, socioeconomic study of cancer is important for preventive measures and therapeutic action plans.

Key words: Breast carcinoma, Fine needle aspiration cytology, Mammography, Tru-Cut biopsy

INTRODUCTION

Breast cancer is the most common site-specific cancer in women and is the leading cause of death from cancer in women age around 22-59 years. It accounts for 26% of all newly diagnosed cancers in females and is responsible for 15% of cancer-related deaths in females.¹ The incidence

of breast cancer varies in different countries in the world. Women residing in industrialized countries tend to have a higher incidence than women residing in less industrialized countries. Breast cancer distribution differs by geography, regional lifestyle, racial, or ethnic background. In general, both breast cancer incidence and mortality are relatively lower among the female populations of Asia and Africa, relatively underdeveloped nations, and nations that have not changed to the westernized reproductive and dietary patterns. In contrast, European and North American women from heavily industrialized or westernized countries have a substantially higher incidence of breast cancer. A comprehensive breast history, a thorough breast examination, and a clear record of findings and follow-

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up can detect cancer in early stage.² Early diagnosis and proper referrals, availability of female doctors, facilities to detect breast cancer earlier by mammography as a tool for screening purpose, and availabilities of facilities for proper treatment can decrease the mortality rate in carcinoma (CA) breast.³ The Smith surgical papyrus (3000-2500 BC) is the first to document about, and this cancer occurred in men, and the author's conclusion about this cancer is that there is no treatment for breast cancer.⁴ In De Medicina Celsus quoted on the importance of operations for breast cancer of earlier stage. "None of these may be removed but the cacoethes (early cancer), the rest are irritated by every method of cure. The more violent the operations are, the more aggressive they grow."⁵ Rudolf Virchow found that CA breast arises from epithelial cells and then spreads along lymphatic vessels. He is considered as the architect of new cellular theory on pathogenesis of CA breast.⁶

Aims

To analyze the relationship between socioeconomic and educational status and early diagnosis of CA breast. To emphasize the need for early detection of breast cancer.

MATERIALS AND METHODS

This study was conducted in 150 patients who were admitted in the Department of General Surgery, Government Rajaji Hospital, Madurai. This study which was undertaken was a prospective case series study and was started after getting due clearance from the Institute of Ethical Committee, Government Rajaji Hospital, Madurai Medical College. Inclusion criteria for patients in this study consist of patient of any age presenting with the lesion suspected of breast CA and proved by fine needle aspiration cytology (FNAC) and Tru-Cut biopsy and all relevant investigations to stage the disease such as chest X-ray, ultrasound abdomen, liver function test, mammography, and skeletal survey done for advanced cases to rule out metastasis. Patients excluded where those who presented with symptoms of the breast on clinical examination but on investigation there was no malignant pathology of breast and male patients with breast CA excluded. Patient's data were collected in standardized pro forma which included age, socioeconomic status, level of education, duration of symptoms, and detection of lump by the patient or medical practitioner, into three class lower, middle, and upper any previous visit to local doctor for this illness, any prior investigations performed and stage of tumor at time of presentation. Socioeconomic status defined by Kuppusamy scale was used in this study which was based on three major variables contributing to socioeconomic status which included education, occupation, and income. Based on these three variables score given and socioeconomic status classified into five class (Table 1).

In this study, upper middle and lower middle combined as middle class and upper lower and lower combined as lower class. Hence, in this study socioeconomic status classified into three class lower, middle, and upper. Literacy status classified into illiterate and educated which is further classified into primary (I-IV), secondary (high school and higher secondary), and higher education (graduate and above). People belonging to higher socioeconomic status or with higher education were not admitted in our hospital during the period of this study.

RESULTS

In our study among 150 patients 34% presented in early stage and 66% presented in late stage.

In 50-60 years; 32 patients are in Stage III, followed by 40-50 years (Table 2). Among the patients who presented in early stage, 15.2% belonged to illiterate 62.5% belonged to patients educated up to primary level and 70% of patients educated up to secondary level. In remaining 66% who presented in advanced stage of cancer 84.8% were Illiterate, 37.5% were primarily educated, and 30% were secondarily educated (Table 3). In 150 patients, 30.7% of low socioeconomic status and 80% of patients belonging to middle class presented in early stage (Stage I and II) and remaining 69.3% of low socioeconomic status and

Table 1: Classification of socioeconomic class

Score	Economic class
26-29	Upper
16-25	Upper middle
11-15	Lower middle
5-10	Upper
<5	Lower

Table 2: Age distribution in the study

Age in years	Stage I	Stage II	Stage III	Stage IV
20-30	-	1	1	-
30-40	2	9	5	-
40-50	2	20	29	2
50-60	-	16	32	4
60-70	-	1	16	2
70-80	-	-	7	1

Table 3: Distribution of stage of tumor based on literacy status of patients

Stage of tumor	Illiterate	Primary	Secondary	Higher education
I	1	2	1	-
II	13	28	6	-
III	70	17	3	-
IV	8	1	-	-

20% belonging to middle class presented in late stage (Stage III and IV) (Table 4). Patient of about 32.7% who presented before 6 months of initiation of symptom were found in early Stage I and II and patients of about 67.3% who presented after 6 months of initiation of symptom were found in late stage (Stage III and IV) (Table 5). About 62.5% of patients with primary education, 70% of secondary education and 13.4% of illiterate patient presented before 6 months and were found in early Stage I and II and remaining 84.7% of illiterate, 37.5% of primary education and 30% of secondary education presented after 6 months and found to be in Stage III and IV (Tables 6-9). Only 29.2% of low socioeconomic status but 90% of the middle class presented before 6 months and were found in Stage I and II. Remaining 70% of low socioeconomic status and 10% of the middle class presented after 6 months of initiation of symptom were found in Stage III and IV (Tables 10 and 12).

Majority of the patients belonging to low socioeconomic and illiterate group presented in advanced stage of breast cancer due to patient's negligence and lack of awareness about breast cancer. Delayed presentation of female breast cancer has a strong and significant attribution to patient delay which will definitely have a worse impact on stage of breast cancer.

Table 4: Distribution of stage of tumor based on socioeconomic status of patient

Stage of the tumor	Lower class	Middle class	Upper class
I	1	3	-
II	42	5	-
III	88	2	-
IV	9	-	-

Table 5: Distribution of stage of tumor based on duration of illness

Stage of tumor	<3 months	3-6 months	6-12 months	>12 months
I	4	-	-	-
II	12	32	3	-
III	-	1	68	21
IV	-	-	3	6

Table 6: Distribution of duration of illness according to literacy status of patients

Literacy	<3 months	3-6 months	6-12 months	>12 months
Illiterate	2	12	55	23
Primary	10	20	13	5
Secondary	4	3	3	-
Higher education	-	-	-	-

DISCUSSION

CA breast was found to be more common among females in the age group of 40-60 years (70%). This compares favorably with studies done by Bibb⁷ in which a maximum number of cases among African women and white women were around the age of years and 59 years, respectively. Out of 150 patients admitted, 4 patients (2.7%) presented in Stage I, 47 patients (31.3%) in Stage II, 90 patients (60%) were in Stage III, and 9 (6%) were in Stage IV. These results were not too dissimilar from a study done by Lodhi *et al.*⁸ where 25% of patients presented in Stage I and II. 62.7% were in Stage III, and 12% were in Stage IV. Out of 150 patients, 92 patients (61.3%) were illiterate, 48 (32%) were educated up to primary level, and 10 patients (6.7%) with secondary education. Out of 150 patients, 140 patients (93.3%) belonged to low socioeconomic status and 10 patients (6.7%) belonged to middle class. According to educational status out of 92 illiterate patients only one patient presented in Stage I, 13 patients (14.1%) presented in Stage II, 70 patients (76.1%) in Stage III, and 8 patients (8.7%) in Stage IV. Out of 48 patients who were educated up to primary

Table 7: Distribution of stage of tumor according to duration of symptoms in illiterate patients

Stage of tumor	<3 months	3-6 months	6-12 months	>12 months
I	1	-	-	-
II	1	10	2	-
III	-	2	50	18
IV	-	-	3	5

Table 8: Distribution of stage of tumor and duration of illness in patients with primary education

Stage of tumor	<3 months	3-6 months	6-12 months	>12 months
I	2	-	-	-
II	8	20	-	-
III	-	-	13	4
IV	-	-	-	1

Table 9: Distribution of stage of tumor and duration of illness in patients with secondary education

Stage of tumor	<3 months	3-6 months	6-12 months	>12 months
I	1	-	-	-
II	3	3	-	-
III	-	-	3	-
IV	-	-	-	-

Table 10: Distribution of duration of illness according to socioeconomic status of patients

Socioeconomic status	<3 months	3-6 months	6-12 months	>12 months
Lower	11	30	71	28
Middle	5	4	1	-
Higher	-	-	-	-

level only 2 patients (4.2%) presented in Stage I and 28 patients (58.3%) presented in Stage II, 17 patients (35.4%) presented in Stage III, and one patient (2.1%) presented in Stage IV. This is quite different from a study done by O'Malley *et al.*⁹ where 30% of women with a low education presented with late stage disease. Of 140 patients belonging to a lower socioeconomic status only one patient presented in Stage I, 42 patients (30%) in Stage II 88 patients (62.9%) in Stage III, and 9 patients (6.4%) in Stage IV. Out of 10 patients who belonged to middle class, 3 patients (30%) presented in Stage I, 5 patients (50%) in Stage II, and 2 patients (20%) in Stage III. Out of 150 patients only 49 patients presented to the hospital for treatment before 6 months of initiation of symptoms and the remaining 101 patients came to the hospital for the first visit only after 6 months of the appearance of initial symptoms. Among 49 patients who presented before 6 months of symptoms, 4 patients were in Stage I, 44 patients in Stage II, and 1 patient in Stage I. Among illiterate group 14 patients came for first visit before 6 months of initiation of symptoms 12 patients were in early stage and 3 patients in late stage of cancer and 78 patients presented after 6 months of initiation of symptoms out of which 2 patients were in Stage II, 68 patients in Stage III, and 8 patients in Stage IV. Among patients who were educated up to primary level 30 patients came to hospital for first visit before 6 months from initiation of symptoms out of which 2 patients in Stage I and 28 patients in Stage II. 18 patients came after 6 months of initiation of symptoms out of which 17 patients in Stage III, and one patient in Stage IV. Among patients who were educated up to secondary level, 7 patients came to the hospital before 6 months from initiation of symptoms, out of which one patient in Stage I and 6 patients in Stage II. Only 3 patients came after 6 months of initiation of symptoms and were found to be in Stage III. Out of 140 patients belonging to lower socioeconomic status 41 patients (29.3%) came to the hospital for first visit before 6 months from the appearance of symptoms. Among those 41 patients, one patient (2.4%) was found in Stage I, 39 patients (95.1%) in Stage II and 1 (2.4%) patient in Stage III. 99 patients (70.7%) came after 6 months from appearance of symptoms out of which 3 patients (3.1%) in Stage II, 87 patients (87.9%) in Stage III, and 9 patients (9.1%) in Stage IV (Table 11). The results were more or less similar to the study done by Lodhi *et al.*⁸ who found that

Table 11: Distribution of stage of tumor and duration of illness in low socioeconomic class of patients

Stage of tumor	<3 months	3-6 months	6-12 months	>12 months
I	1	-	-	-
II	10	29	3	-
III	-	1	65	22
IV	-	-	3	6

Table 12: Distribution of stage of tumor and duration of symptoms in middle-class patients

Stage of tumor	<3 months	3-6 months	6-12 months	>12 months
I	3	-	-	-
II	2	3	-	-
III	-	1	1	-
IV	-	-	-	-

64% of patients came after 6 months of symptom and out of it 60% found to be in advanced stage and only 4% in Stage II. Among 10 patients who were belonging to middle class, 8 patients presented to hospital before 6 months from initiation of symptoms out of which 3 were found in Stage I, 5 patients in Stage II and one patient in Stage III and only one patient came after 6 months of initiation of symptoms and was found to be Stage III. Among 150 patients about 5 patients came with prior investigations which included FNAC and biopsy, and they all belong to middle class and were educated. Among 150 patients lump was detected by the patient itself by 148 patients and 2 were detected by a medical practitioner. Out of 150 patients, 51 patients (34%) presented in early stage of cancer and 99 patients (66%) presented in late stage of cancer. 14 illiterate patients (15.2%), 30 patients (62.5%) of primary education and 7 patients (70%) of secondary education presented in early stage and remaining 99 patients (66%) presented in advanced stage of cancer and among them 78 patients (84.8%) were illiterate, 18 patients of primary education and 3 patients of secondarily educated presented in late stage of cancer. In 150 patients, 43 patients (37%) of low socioeconomic status and 8 patients of middle class presented in early stage (Stage I and II) and the remaining 97 patients (69.3%) of low socioeconomic status and 2 patients belonging to middle class presented in late stage

of cancer (Stage III and IV). Out of 150 patients, only 49 patients presented to the hospital before 6 months from initiation of symptoms. Patients who presented before 6 months were mostly found in early stage (Stage I and II) and patients presenting after 6 months of initiation of symptom were found to be in late stage (Stage III and IV).

CONCLUSION

Impact of social inequality in cancer is not being given adequate attention in this country. Lower and middle-income group constitutes majority of the population in our country. Hence, socioeconomic study of cancer is important for preventive measures and therapeutic action plans. Many studies on socioeconomic variation in western countries observed late stage presentation of cancer and decreased survival among poor population. This study clearly displays the necessity of early medical attention to symptoms of breast cancer by creating awareness about detection of breast cancer at earlier stage and thereby improve the survival rate of patients with breast CA.

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