

Assessment of Incidence of Various Types of Breast Cancer According to Age

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ABSTRACT

Introduction: The mortality rate of breast cancer varies proportionally with age. In India, the average age of developing breast cancer has shifted over the last few decades and younger women are being affected. In view of the above, present study was undertaken to study the incidence of various types of breast cancer according to age and histopathological grade was noted at the time of diagnosis of breast cancer.

Materials and Methods: The present retrospective study was comprised of 100 cases of breast cancer reported at GSVM Medical College, Kanpur. The material was derived from the files of the department. The information comprised of demographic characteristics, such as age, site of lesion and histo-pathological characteristics. The specimens were selected from mastectomy specimens received from surgical department for routine histopathological examinations. Data so obtained was analyzed and expressed as number and percentage as required.

Results: Peak incidence of breast carcinoma was during fifth decade of life, followed by fourth decade of life. Mean age at diagnosis of breast carcinoma was 45.66 years. Age of youngest patient was 25 years (2 cases), whereas oldest patient was 72 years of age. Most common carcinoma of all age groups was infiltrating duct carcinoma. All cases of 3rd, 7th and 8th decade of life were of infiltrating duct carcinoma. Infiltrating duct carcinoma was most common in 5th decade. Infiltrating lobular carcinoma was most common in 4th

decade. Infiltrating duct carcinoma and lobular carcinoma was most common in 5th decade. One case of infiltrating duct carcinoma and mucinous carcinoma was present in 5th decade (age 42 years) One case of papillary carcinoma was present in 6th decade (age 55 years). Most of breast carcinomas were of G₂ histopathological grade (65%). G₁:G₂:G₃ ratio was about 1:5:1.5 i.e. 2:10:3.

Conclusion: The present study concludes that the peak incidence of breast cancer is in the 5th decade followed by 4th decade. Mean age of developing breast cancer revealed was 45.6 years. Infiltrating duct carcinoma was the most common histological type, comprising of 86% of all cases. Most common histopathological grade was G₂.

Keywords: Breast Cancer; Female; Indian Women.

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Article History:

Received: 01-02-2018, **Revised:** 05-03-2018, **Accepted:** 21-03-2018

Access this article online	
Website: www.ijmrp.com	Quick Response code 
DOI: 10.21276/ijmrp.2018.4.2.030	

INTRODUCTION

Breast cancer is an adenocarcinoma that starts in the breast cells. Women make up more than 99% of patients in this cancer. Breast cancer is less prevalent in the age of 30 and is the second leading cause of cancer deaths after lung cancer. Incidence rate is the most important in cancer registry. Trend analysis is a technique that aims to identify a pattern of changes, or trend, in a series of observations.¹

The mortality rate of breast cancer varies proportionally with age. It also depends on the stage of disease diagnosis, the speed of management, type and extent of the tumour, complacency and response to initial treatment. The main risk factors related to breast cancer are hormonal factors related to pre-menopausal

estrogenic impregnation, genetic predispositions, related factors behaviours and environmental factors.² In India, the average age of developing breast cancer has shifted over the last few decades and younger women are being affected. Epidemiological studies at regional and global levels suggest that this cancer occurs at a younger premenopausal age in Indian and Asian women compared to western women who get it more than a decade or more later. The stage of disease at the time of reporting is worse in younger patients. Literature shows that in India majority of new cases are advanced stage-locally advanced or higher stage at the time of diagnosis. According to various studies majority of carcinoma breast cases in the west report in Stages I and II of

disease, whereas in India 45.7% report in advanced stages.³ In view of the above, present study was undertaken to study the incidence of various types of breast cancer according to age and histopathological grade was noted at the time of diagnosis of breast cancer.

MATERIALS AND METHODS

The present retrospective study was comprised of 100 cases of breast cancer reported at GSVM Medical College, Kanpur. The material was derived from the files of the department. The information comprised of demographic characteristics, such as age, site of lesion and histo-pathological characteristics. Ethical clearance was obtained from the institute. The specimens were selected from mastectomy specimens received from surgical department for routine histopathological examinations. From the fixed mastectomy specimen, representative tissue blocks were taken. Usually taken standard blocks were from tumor, deep resection line, skin overlying the tumor, the resection edges of the specimen, nipple other additional block for any lesion. A block from relatively normal breast tissue was also included. All these blocks were subjected to the routine processing procedures and paraffin blocks were made. Sections of 3-4 µm were cut from the paraffin blocks. These sections were mounted on glass slides and stained with haemotoxylin and eosin routinely. The sections were studied histopathologically. Data so obtained was analyzed and expressed as number and percentage as required.

RESULTS

Peak incidence of breast carcinoma was during fifth decade of life, followed by fourth decade of life (table 1). Mean age at diagnosis of breast carcinoma was 45.66 years. Age of youngest patient was 25 years (2 cases), whereas oldest patient was 72 years of age. Carcinoma of breast was slightly more common in left sided breast. (table 2)

Most common carcinoma of all age groups was infiltrating duct carcinoma (table 3). All cases of 3rd, 7th and 8th decade of life were of infiltrating duct carcinoma. Infiltrating duct carcinoma was most common in 5th decade.. Infiltrating lobular carcinoma was most common in 4th decade. Infiltrating duct carcinoma and lobular carcinoma was most common in 5th decade. One case of infiltrating duct carcinoma and mucinous carcinoma was present in 5th decade (age 42 years). One case of papillary carcinoma was present in 6th decade (age 55 years).

Most of breast carcinomas were of G₂ histopathological grade (65%). GI:G₂:G₃ ratio was about 1:5:1.5 i.e. 2:10:3 (table 4). Both IDC and mucinous carcinoma and papillary carcinoma were in G₁ histopathological grade.

Table 1: Breast carcinoma according to age

Age (years)	Total no. of cases	Percentage (%)
21-30	5	5 %
31-40	33	33%
41-50	41	41%
51-60	15	15%
61-70	5	5%
71-80	1	1%
Total	100	100%

Table 2: Incidence of carcinoma breast according to site of lesion

Site of lesion	Total no. of lesions	%
Left sided	49	49%
Right sided	41	41%
Total	100	100

Table 3: Frequency distribution of various types of breast carcinoma with age

Age (years)	IDC (Infiltrating duct carcinoma)	ILC (Infiltrating lobular carcinoma)	IDC& ILC	IDC & Mucinous	Papillary	Total
21-30	5	-	-	-	-	5
31-40	27	5	1	-	-	33
41-50	37	1	2	1	-	41
51-60	11	2	1	-	1	15
61-70	5	-	-	-	-	5
71-80	1	-	-	-	-	1
Total	86	8	4	1	1	100

Table 4: Distribution of histopathological grading in various types of breast carcinoma

Type	Histopathological grading		
	G ₁	G ₂	G ₃
Infiltrating duct carcinoma (IDC)	10	57	19
Infiltrating lobular carcinoma (ILC)	2	5	1
IDC and ILC	0	3	1
IDC and Mucinous	1	0	0
Papillary	1	0	0
Total	14	65	21

DISCUSSION

The survey carried out by Indian Council of Medical Research (ICMR) in the metropolitan cities during 1982 to 2005 has shown that incidence of breast cancer has almost doubled. Indian women having breast cancer are found a decade younger in comparison to western women suggesting that breast cancer occurs at a younger premenopausal age in India. Cancers in the young tend to be more aggressive.⁴

The present study found that peak incidence of breast carcinoma was during fifth decade of life, followed by fourth decade of life. Mean age at diagnosis of breast carcinoma was 45.66 years. Most common carcinoma of all age groups was infiltrating duct carcinoma. Paymaster JC et al⁵ studied epidemiology of breast cancer in India and reported that among the females suffering from cancer, the cervix was affected in 40%, whereas the breast was affected in 18%. Similar to present study, the most common histologic type of breast cancer was the infiltrating duct carcinoma. The histopathological gradings found in this study was 14 cases of Grade I, 65 cases of Grade II and 21 cases of Grade III out of a total number of 100 cases. These incidences are quite different from those of Fishers et al⁶ and Joshi et al.⁷ Fisher et al⁶ found 2.4, 28, 69.6 and Joshi et al⁷ found 3, 44, 53 of Grade I, II, III respectively. In both these studies grade III formed the predominant group, whereas in the present study grade II formed the predominant group.

The relationship of the histologic grade with the aggressiveness of the tumour or the patient survival rate have been emphasized by many investigators (Black and Speer,⁸ Fisher et al,⁹ and Elston et al¹⁰). According to these workers relatively less malignant tumours were associated with the more well-differentiated nuclei and the more well differentiated the tumour, the better was the prognosis. In another study by Fisher et al,¹¹ suggested that there were two types of tubule formation, one having a single layer of well-differentiated malignant cells whereas in the other the appearance was more like that of glands with less well-differentiated stratified cell lining. They had observed better survival rate and longer disease interval with those well-differentiated tubular structures. In the present study, the tubules were of less well-differentiated type, the well-differentiated type was seen in the tumours with grade I histopathological grading (14%). Freedman et al¹² paid more attention to histopathological grading than to clinical staging.

The ratio of the three histological gradings found by Bloom et al¹³ were in the ratio of 1: 2: 1 of grade I:II:III respectively. Grade II was of higher percentage than Grade I and Grade III, and is similar to the present study. Freedman et al¹² found the ratio to be of 3:5:6 which is more like that of Fisher et al⁶ and Joshi et al⁷ where in all three series, the percentage of grade III was the highest.

It is noteworthy to mention here that Fisher et al⁶ in analysis of 1000 cases failed to find any correlation between the histologic grading and the prognosis. In this study, tumour with G₂-degree of differentiation showed metastasis to regional lymph node in 47.

A variety of risk factors for breast cancer include nonmodifiable factors such as race, ethnicity, and genetics, as well as modifiable exposures related to diet, physical inactivity, exogenous hormones, and certain female reproductive factors. Circulating levels of endogenous sex steroid hormones such as estradiol have been associated with increased risk of breast cancer among postmenopausal women. Sex hormone levels are strongly

associated with some risk factors for breast cancer (for example, obesity and higher alcohol consumption) and may mediate the effects of these factors on breast cancer risk.¹⁴ Personal risk factors for the early onset of breast cancer differ in interesting ways from those for postmenopausal breast cancer. A positive family history of cancer is a very strong risk factor for women under 35 years of age (RR = 3.22)⁴ and suggests the presence of a familial cancer syndrome. Breast cancer at an early age is more likely to be associated with an increased familial risk, especially in women harboring a germline BRCA1 mutation.¹⁵ Family history is an important and well established risk factor for breast cancer, and its importance in breast cancer screening and prevention extends beyond mammography.¹⁶

CONCLUSION

The present study concludes that the peak incidence of breast cancer is in the 5th decade followed by 4th decade. Mean age of developing breast cancer revealed was 45.6 years. Infiltrating duct carcinoma was the most common histological type, comprising of 86% of all cases, followed by infiltrating lobular carcinoma comprising of 8% of all cases. Of all breast cancer cases 95% were of pure type. Infiltrating duct carcinoma was the most common histological type in all age groups. Most common histopathological grade was G2.

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Source of Support: Nil.

Conflict of Interest: None Declared.

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Cite this article as: Kumar Vaibhaw, Sunita Rathi. Assessment of Incidence of Various Types of Breast Cancer According to Age. *Int J Med Res Prof*. 2018 Mar; 4(2):140-43.

DOI:10.21276/ijmrp.2018.4.2.030