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Study of Factors affecting stage of diagnosis of breast cancer in patients presenting in a tertiary care hospital

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Abstract:
Aim and objective: *To study the factors affecting stage of diagnosis of breast cancer*
Methodoly: Descriptive observational study was carried out in a tertiary care center for the period of a whole year. Patients were interviewed using a semi structuredquestionnaire by the researcherhimself. Data was analyzed using SPSS v 20 software. Results and Discussion:More than 90% cases presented at stage 2and three .and only 3.3 % of cases presented at stage 1.which is considered as a stage at which cancer can be completely cured. When stage at presentation is categorized according to age of patient in our study, mean age at diagnosis is 54.71 years, 48.96 years, 52.43 years and 48.2 years at stage I, II, III and IV simultaneously.ANOVA test applied to compare Age of diagnosis of breast cancer with stage of presentation does not show any significant association between the two. (p=0.104, df=3, 206, F=2.080)One way ANOVA applied to compare no of pregnancies with stage at diagnosis it was found to besignificant. (P=0.036, DF=3 206, F=2.904).On post HOC Bonferroni test we found significant difference between stage 1 and stage 3(P=0.027) when compared according to number of pregnancies.In our study there is positive correlation between stage at diagnosis and number of pregnancies.(Spearman's rho=0.148 P=0.05) i.e stage at diagnosis increases with increase in number of pregnancies.Conclusion:Stage of breast cancer at the time of presentation is the most important determinant of survival of patients of breasr cancer .so age of patient and no of pregnancies are the factors affecting stage of breast cancer at the time of presentation.

I. Introduction

Cancer is a noun, but, in the body, it acts like a verb. ~ (Tom McLain**, American attorney journal)**

Breast cancer is one of the most common malignancies, affecting about one woman in nine[(1)]. It is probably the most Feared cancer in women because of its psychological impacts. It affects the perception of sexuality and self-image to a degree far greater than any other cancer. Breast cancer is most curable when detected at its earliest stage[2].

Epidemiology of breast cancer has been described long before with large number of established and possible risk factors has been identified .molecular biology of cancer has been area of interest in recent times. in developing countries like India although westernization trends are being linked to possible cause of increased incidence of breast cancer, patients attending a government tertiary care center are not expected to be exposed to risk factors similar to western world. This study was carried out to explore the epidemiology of breast cancer cases presenting in government tertiary care Centre.

Although this center was established as a first institute providing the most advanced treatment facilities for cancer cure, patients attending this Centre are at often at advanced stage of disease so that treatment option almost remain to palliative care .late stage presentation of any cancer is an established factor which increases mortality and morbidity related to cancer. This study also highlights the factors responsible for late stage presentation of cancer patients.

II. Methodology

This is a hospital based descriptive observational study conducted to explore the epidemiological profile of breast cancer patients attending a regional tertiary care center.
Permission was obtained from institutional ethical committee of hospital.

Study Period: 1 year
Study design: The study was planned and conducted as a hospital based cross sectional study.
Sampling method: All patients registered in hospital registry with confirmed diagnosis of breast cancer during the year 2012 were included in the study. Total 254 cases were registered in the year 2012.Out of those 254 only 210 patients could be traced for face to face interview. Others could not traced because of improper contact details or some of those died and some have not given consent for interview. So present study is presentation of total 210 cases of breast cancer **Exclusion Criteria**Patients who have not given consent for interview only were excluded from study. **Data collection**the study was conducted at preventive oncology outpatient department in government tertiary care centre. The respondents were introduced to the topic of the study. The objectives of the

study were clearly explained to her. Anonymity and confidentiality were assured. Then respondent was interviewed after obtaining consent. The respondent was free to leave the study at any stage without any explanation. The questions were asked in a language and manner that the respondent understood. The questions were asked in local language. Adequate time was given in-between the questions to think, understand and answer. Privacy was maintained through the interview. Queries, if any, were answered to ensure participant's complete understanding and satisfaction. ANOVA was performed for differences in outcome measurements in >2 categories. Post Hoc Bonferroni test was used to compare difference between groups individually.

III. Results and discussion:

Table .1 Distribution of cases according to stage at diagnosis.

Stage of Breast cancer		Frequency	Percent	Cumulative Percent
	1	7	3.3	3.3
	2	94	44.8	48.1
	3	99	47.1	95.2
	4	10	4.8	100.0
	Total	210	100.0	

More than 90% cases presented at stage 2and three .and only 3.3 % of cases presented at stage 1.which is considered as a stage at which cancer can be completely cured .

Table2.Age wise distribution of cases according to stage at diagnosis

		AGE				
		Mean	Maximum	Median	Minimum	Standard Deviation
STAGE	1	54.71	70.00	51.00	41.00	11.69
	2	48.96	75.00	48.00	22.00	9.91
	3	52.43	75.00	50.00	29.00	11.36
	4	48.20	72.00	45.00	36.00	10.96

When stage at presentation is categorized according to age of patient in our study ,mean age at diagnosis is 54.71 years,48.96 years,52.43 years and 48.2 years at stage I,II,III and IV simultaneously.

Table 3.Analaysis of variance among age groups and multiple comparison among groups at various stage at diagnosis.

ANOVA

Age wise distribution

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	8.101	3	2.700	2.080	.104
Within Groups	267.466	206	1.298		
Total	275.567	209			

ANOVA test applied to compare Age of diagnosis of breast cancer with stage of presentation does not show any significant association between the two. (p=0.104,df=3,206,F=2.080)

Table4. ANOVA to compare between stage at diagnosis and number of preganancies

ANOVA

NO OF PREGNANCIES

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	27.852	3	9.284	2.904	.036
Within Groups	658.572	206	3.197		
Total	686.424	209			

One way ANOVA applied to compare no of pregnancies with stage at diagnosis it was found to be significant .(P=0.036,DF=3,206 ,F=2.904).

Table4. Within group Analysis according to stage with no of pregnancies

(I) STAGE	(J) STAGE	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-1.810	.701	.063	-3.68	.06
	3	-2.007*	.699	.027	-3.87	-.14
	4	-2.214	.881	.076	-4.56	.13
2	1	1.810	.701	.063	-.06	3.68
	3	-.197	.257	1.000	-.88	.49
	4	-.404	.595	1.000	-1.99	1.18
3	1	2.007*	.699	.027	.14	3.87
	2	.197	.257	1.000	-.49	.88
	4	-.207	.593	1.000	-1.79	1.37
4	1	2.214	.881	.076	-.13	4.56
	2	.404	.595	1.000	-1.18	1.99
	3	.207	.593	1.000	-1.37	1.79

0*. The mean difference is significant at the 0.05 level.

On post HOC Bonferroni test we found significant difference between stage 1 and stage 3(P=0.027) when compared according to number of pregnancies.

Table.5.Correlation between stage at diagnosis to no of pregnancies

Correlations				
			STAGE	NO OF PREGNANCIES
Spearman's rho	STAGE	Correlation Coefficient	1.000	.148*
		Sig. (2-tailed)	.	.032
		N	210	210
	NO OF PREGNANCIES	Correlation Coefficient	.148*	1.000
		Sig. (2-tailed)	.032	.
		N	210	210

*. Correlation is significant at the 0.05 level (2-tailed).

In our study there is positive correlation between stage at diagnosis and number of pregnancies.(Spearman's rho=0.148 P=0.05) i.e stage at diagnosis increases with increase in number of pregnancies. Findings in our study revealed that 47% of cases presented at stage 3 followed by 44% of cases in stage 2. More than 90% cases presented at stage 2 and 3 and only 3.3 % of cases presented at stage1 which is considered as a stage at which cancer can be completely cured.

When stage at presentation is categorized according to age of patient in our study,mean age at diagnosis is 54.71 years,48.96 years,52.43 years and 48.2 years at stage I,II,III and IV respectively.

ANOVA test applied to compare age at the time of diagnosis of breast cancer with stage of presentation does not show any significant association between the two.

One way ANOVA applied to compare no of pregnancies with stage at diagnosis it was found to be significant (F (3,206) =2.904, p=0.036). On post hoc Bonferroni test we found significant difference between stage 1 and stage 3(P=0.027) when compared according to number of pregnancies. In our study there is positive correlation between stage at diagnosis and number of pregnancies (Spearman's rho=0.148 P=0.05) i.e. stage at diagnosis increases with increase in number of pregnancies.

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