



## COMPARISON OF CARCINOMA OF BREAST IN RURAL AND URBAN COHORT : A RETROSPECTIVE HOSPITAL BASED STUDY FROM JULY 1992 TO DECEMBER 2006)

### Surgery

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### ABSTRACT

Breast Cancer is increasing s all over the world. Its incidence is much higher in developed countries than developing countries like India, which indirectly suggest that cause of breast cancer is beyond ageing women. Aims : to evaluate and compare various risk factors which may increase risk of breast cancer amongst rural and urban women of southern Rajasthan; a tribal belt. Material and Method: we analyzed, retrospective data of breast cancer patients of M.B. Hospital from 1992 to 2006, relevant to age, residential status, age of menarche/ menopause, parity, age at 1st child birth and menstrual status. Results: Rural breast cancer patients are younger (<45) than urban women, and majority rural patients were from low socio economic strata (62%). Percentage of 1st delivery after 30 years was almost double in urban patients. We didn't find any difference in menstrual status and parity between two groups.

### KEYWORDS

(1). Breast cancer, (2).Risk factors, (3). Rural , (4). Urban .

#### Introduction:-

It is now well known that cancer is essentially an age related disease. Since average age span in India is increasing, the increase in incidence is expected to be inevitable. In 2012, 1.7 million women suffered with breast cancer and prevalence was 6.3 million living in previous 5 Years with this dreaded disease.(1) Many Researches and publications indicated that in India there are differences in the incidence of breast cancer in rural and Urban population which is suggestively attributed to western Urban life style(2).Breast cancer Risk factors study, amongst Indian rural, population are still inadequate and fragmentary. This southern part of Rajasthan has large tribal population (47 %) and is beset with poverty, primordial socioeconomic living and in clement environment, which make them susceptible to many adverse health problems. interestingly majority of Urban population still follow many traditions which are common in rural and urban population and living life styles is still not very westernized. Looking to above facts, we plan to evaluate various risk factors, influencing breast cancer in rural and Urban women.

#### Material and method :-

We obtained retrospective data of Breast cancer patients of Breast-clinic in M.B. Hospital Udaipur, from period as 1992 – 2006. Total data of 863 patients were registered. we analyzed these data on residential basis ie. Urban/Rural patient, these patients were further analyzed on various breast cancer risk factors like age, socioeconomic status, age at menarche, age at menopause, age at 1st child birth, parity, menstrual status.

#### Result :-

Statistical analysis was carried out using Chi-square test within 95% confidence interval. The statistical significant level was established at p-value <0.005.

**Table 1 Distribution of Breast cancer according to residential status total no. of patients is 863**

Residential status	Percentage	Cum %	95% C L Low	95% C L upper
Rural=505	58.52%	58.14%	55.14%	61.82%
Urban=358	41.48%	100.0 %	38.18%	44.86%

**Table 2 Distribution of risk factors amongst breast cancer patient. Total number of Breast cancer patient is n = 863**

Sr. No.	Factors	Rural		Urban		P - value
		n = 505	%	n=358	%	
1.	Age n=863	<45	259	51.3	137	0.000155
		>46	246	48.7	221	
2.	Social status n=815 R = 43 unknown 48 < U = 5	Medium	146	28.9	220	0.000
		Poor	157	31.1	98	
		Very poor	159	31.5	35	
3.	Age of menarche n=663 unknown 200 < Rural=150, urban=50	<12	9	1.8	27	0.000
		13+14	61	12.1	99	
		>15	285	56.4	182	
4.	Age of 1 <sup>st</sup> child birth n=578, Unknown 285, rural=172, urban=113	<20	239	47.3	128	0.000
		>21-29	87	17.2	100	
		>30	7	1.4	17	
5.	Parity n=818, Unknown=45 rural=33, Urban=12	0	38	7.5	37	0.1126
		<2	144	28.5	102	
		>3	290	57.4	207	
6.	Age of menopause n=474, Unknown 389, rural=24, urban=145	<45	161	31.9	98	0.0002
		>46	100	19.8	115	
7.	Menopausal status n=832, Unknown rural =20, urban=11	Pre	222	44.0	138	0.178
		Post	263	52.1	209	

- Majority of rural breast cancer women were young 51.3 % (< 45 years) than urban women 38.27 % where as urban women were found to be aged (> 45 years) 61.3 %, This difference was statistically significant (p - 000153)
- Analysis on socio-economic bifurcation indicated that 61.45 % Urban patient belonged from middle class where as more than 62 % rural women were poor / very poor category. (P=0.000).
- Age at menarche varied considerably amongst rural and urban breast cancer patients. Urban patient started their menarche earlier (12 years of age) . where as age at menarche got delayed >15 years) in majority of rural patients and it was statistically significant.
- First child in late age increases the risk of breast cancer. In our study 47.3 % of rural women delivered their 1st child before 20

years of age while it was 35.75 % in urban patients. Percentage of delivery after 30 years was almost double s rural women. This difference was found to be significant (p - 0.000).

- We did not find any difference in parity and menstrual status bifurcation between two groups, but rural patient had menopause at early age i.e. < 45 (31.9 %) where as Urban women had menopause after 45 in 32.12 % , which was statistically significant (p-0.0002).

#### Discussion:-

Breast cancer is omni -present in the world and captain of death. Although breast cancer incidence is low in India but is showing typical trend of rising with increasing age in all population. Epidemiological –studies help us to study variation in disease frequency and pattern in various sub –groups, that indicates few risk factors, specially environment and diet Michels KB et al(3). Breast cancer is the commonest cancer in urban Indian women and second commonest in rural ones. Breast cancer is considered a disease of” western Life style “ of opulence world wide4 , where as India is essentially a rural majority population. It is evident by many studies that in more than 50% of women suffering with breast cancer, do not have identifiable risk factors which are commonly found in western women suffering with breast cancer.

In our study data from a breast clinic from 1992 to 2006 were taken and analyzed to compare convergence of Rural and Urban women registered and treated in M.B. Hospital R.N.T. Medical College Udaipur. Breast cancer was more frequent in Rural than Urban women (Rural 505, 58.52 % verses 358 (41.48 %) of Total 863 breast cancer women got registered in this breast clinic. Out of this 51.3 % of Rural patients were young belong to < 45 years where as 61.3 % in Urban women of breast cancer were more than 46 years of age which was found statically significant (p – value 0.000155)

An increasing age of women is well established risk factors. Similar to our study, Monica et al in 2009, estimated that 18640 invasive duct cancer and 2820 breast cancer death occurred in USA women under age of 45 years and compared with 173730 cancers and 37350 death in women aged 45 years and above (5).

Population of Rural Tribal in this area is generally very poor with age old primitive social customs and they largely thrive on scarcely productive agriculture and these rural women frequently suffer from poor and imbalance- nutrition. In present study majority of urban breast cancer {61.45%} belonged to middle class comparing to rural women , where high proportion (63.5%) of patient were from poor & very poor families which was highly significant (P-value 0.000). Along with poverty, illiteracy gets related secondary place in this region. In our previous study 71.4% breast cancer women were illiterate .

An American cancer society Carol 2015 , published convergence of incidence rates of breast cancer between black and white women (6) .The study showed that breast cancer incidence rates increased among non-Hispanic Black and Asian /pacific Islander women and were stable in non Hispanic white women. Although this may not be comparable to our rural population, but American Black and White population differ in their living style and prosperity.

A meta analysis of three large case control studies suggest that relative risk factors of breast cancer increased by 20 to 30% in women who had early menarche relative to women with menarche age 15 or over(7) . It showed that urban women who menstruate early (10 to 14 years of age), than rural women which can be due to poor nutrition and strenuous work. Early menarche opens the door to exposure to endogenous estrogen and stimulate progesterone on exposure to increase risk of breast cancer (8).

When we analyzed our data age at menstrual status, urban breast cancer patients had their menarche < 12 in 7.54% than rural patients (1.8%). When we calculated this in > 15 years of age, Rural patients had late menarche than in urban patients , which was statistically significant P value - 0.000. Higher proportion of rural breast cancer patients(31.9%) attain menopause before age of 45 years as compared to urban patients where 32.12% attain menopause after age of 45 years , this was found to be statically significant (p value 0.002).

Meshram et al found that women with age of menopause after 50

years have increased risk compared to women who had menopause before 45 years of age (9). The similar results were also published by Kelse et al (10). Who suggested that prolonged menstrual span are reported to increase risk of cancer breast (11). Some studies suggested that fewer births and single marital status have strong risk factor for premenstrual breast carcinoma (12, 13,14).

In present study we bifurcated age at first child birth basis and found that very low proportion (1.41%) of rural women had their first child after age of 30 than urban women (4.75%) however 47.3% of rural women delivered their first child<20 years of age. This difference was found statically significantly (p value 0.000)Many studies have shown that the risk of breast cancer was twofold higher in women having 1st child birth at more than 21 years of age(15, 16) and after 27years risk increases 2.15 to5.02 folds. Women who had first pregnancy after age of 35 years had 40% increased risk compared with women who had 1st pregnancy before age of 20 years (17). Similar result have noticed by others also(18,19,20) found that unmarried women were at higher risk. We did not find that in our study.

We did not find any significant difference of breast cancer patients between rural & urban area on the basis of parity & menstrual status. Although many other studies have noticed that increased in parity (>5) reduces the risk of breast cancer, than those who have 1-2 children (Helmrich et al). Some studies suggested that fewer births and single marital status have strong risk factor for premenstrual breast carcinoma (21,22,23).

In our previous study from this region (Mehta G et al 2001-20) looked in to mortality data amongst poor pts which suggested that 43.9% dead pts. were from very poor / poor status. 40% of these poor pts. were under nourished. This brings on scene the possible & magnitude of environment of nutrition of nutrition in Breast Cancer.( Jatoi A and Lopruzic 1999 -21) , stressed on rate of fat and nutrition on Breast Cancer in arrest of cancer. Issues on fat intake& high caloric diet still remain unsettled. It was observed that lower incidence of breast cancer in Asian population where intake of animal products is lower than that of western population. In India substantial population (perhaps as high as 35%) follow vegetarian diet for many generations. Although few specific Indian (Mumbai) studies did not find association with vegetarian diet and breast cancer risk .Where as Indian Kerala study showed that an increased risk of breast cancer is associated with non-vegetarian diet(Toral et al& Vinod raina AIIMS et al Indox cancer research work 2010 -22).

Breast cancer has gained urban profile women with many new cases seen in middle age working women with urban life-style. Largest estimated number of breast cancer deaths world-wide are from India which is supposed to be due to late presentation of disease(Gross PE et al 23) . Most of the research data which influenced guiding principles of breast cancer management has been generated in the western-countries. Indian breast cancer patients are different from western patient with regards to socio-economical and biological pattern. There for guidelines for breast cancer management of those guidelines may not be applicable to Indian Breast cancer patients. This difference might become more wide when we try to see Rural and Urban Indian population separately. According to Rajaraman P et al (24) . study on developing population breast cancer, lack of research in Indian women signifies a knowledge gap which can only be bridged by undertaking India specific research program ,which is essential for local population.

Result and Conclusion:-Rural breast cancer patients were younger (<45years) than urban women, and majority of rural patients were from low socio-economic strata (62%). Percentage of delivery after 30 years was almost double in urban patients. We did not find any difference in menstrual status and parity between rural and urban groups. Age at menarche varied considerably amongst rural and urban breast cancer patients. Urban patient started their menarche earlier(12 years of age) . whereas age at menarche got delayed >15 years) in majority of rural patients and it was statistically significant. Age at menarche varied considerably amongst rural and urban breast cancer patients. Urban patient started their menarche earlier(12 years of age) . whereas age at menarche got delayed >15 years) in majority of rural patients and it was statistically significant. Age at menarche varied considerably amongst rural and urban breast cancer patients. Urban patient started their menarche earlier(12 years of age) . whereas age at menarche got delayed >15 years) in majority of rural patients and it

was statistically significant. Age at menarche varied considerably amongst rural and urban breast cancer patients. Urban patient started their menarche earlier (12 years of age), whereas age at menarche got delayed (>15 years) in majority of rural patients and it was statistically significant.

Concluding, above study clearly suggest that it is not always hormonal environment in women that has an impact on breast cancer but we also need to address other factors, like lack of nutrients and proteins in causation and progression of breast cancer.

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