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ANTHROPOMETRIC FACTORS AND BREAST CANCER RISK AMONG WOMEN IN SOUTHERN RAJASTHAN, INDIA

Mukul Dixit, Hemlata Mittal

Department of Community Medicine, Geetanjali Medical College and Hospital, Geetanjali University, Udaipur, Rajasthan, India

E-mail of Corresponding Author: mukuldixit16@yahoo.in

ABSTRACT

Background: Breast cancer one of the most common cancer affecting women health worldwide cancer and cause of death from cancer. Obesity has been related with breast cancer risk.

Materials and Methods: For the present study patients of breast tumours who attended surgical outdoor or breast clinic or patients admitted to the surgical wards of Maharana Bhopal Hospital, Udaipur from Jan'97 to Jun'97 were included. A complete clinical examination and of the patients was done to see the symptoms, clinical manifestations, involvement of tissues etc. Anthropometric measurements of weight and height were measured by the standard equipments and methodology.

Results: It was observed 9.57 percent patients were obese and 90.42 percent patients were not obese among benign group, whereas 5.31 percent were obese and 94.11 percent patients were not obese among malignant group.

Conclusions: The results of the present study had shown a negative association of overweight and obesity with breast cancer in the southern Rajasthan, India population.

Keyword: Breast cancer, Obesity, BMI, Height.

INTRODUCTION

A variety of cancers can affect women but breast has highest incidence and a common cause of death in women from cancer. (1) Breast cancer has a complex pathology and we cannot say true that there is any one single etiological or risk factor that is blame for causing it. Anthropometric factors such as weight, height, and body mass index (BMI) have been predicted as risk for breast cancer.(2) Obese females have high level of free estrogen , particularly in those with abdominal obesity.(3) High estrogen is explained as body fat provide a place for production and storage.(4) Also, It increases bioavailability of estrogen which further may prop up the growth of tumor and has been implicated as a risk factor for breast cancer. (5) Overweight and obesity have now become foremost community health problem in both developed and developing countries. (6,7) The causative relation between obesity and Breast Cancer have been observed in previous studies , Most of these conducted on the Western population, and there have been only a few studies in the Asian population, who might have a changed diet pattern, lifestyle, genetic background, and disease prevalence. (8). However, most previous studies on this issue have been conducted mainly on the Western population, and there have been only a few studies in the Asian population, who might have a different lifestyle, genetic background, and disease prevalence.

Although a large number of women are affected with breast cancer and obesity in India. To our knowledge, assessing the correlation between obesity and Breast cancer in Indian population is lacking in literature. We aimed to evaluate this

association in addition to other biological features of breast cancer in Indian women.

MATERIAL AND METHODS

For the present study patients of breast tumours who attended surgical outdoor or breast clinic or patients admitted to the surgical wards of Maharana Bhopal Hospital, Udaipur from Jan'97 to Jun'97 were included. A complete clinical examination of the patients was done to see the symptoms, clinical manifestations, involvement of tissues etc.

The diagnostic criteria were based upon the histopathological examination. Histopathological and Fine needle aspiration cytology (FNAC) reports were collected from the Department of Pathology, RNT Medical College, Udaipur. Anthropometric measurements of weight and height were measured by the standard equipments and methodology. (9)

RESULTS

Most of patients of benign group young age group while in patients with malignant tumours most of them were from higher age group suggesting an increased risk of benign breast tumour at a considerably younger age. Most of patients (75.53%) were in 26-45 age groups suggesting an increased risk of benign breast tumour at a considerably younger age.

Occupational status of cases in the present study indicates that majority (63.82%) were housewives, whereas small numbers of women were engaged in service (12.76%), agriculture (15.95%) and labourers (7.44%) in cases with benign tumours. Similarly in malignant group, 74.11 percent were housewives, 14.11 percent and 11.76 women were in service and in agriculture respectively.

Most of the patients (96.80 percent in benign and 94.11 percent in malignant group) gave history of regular menstrual cycles. The association between regularity of menstrual cycles of the patients and breast tumours was seen, which came out to be non significant. In case of patients with benign tumours, 5.31 percent and 3.19 percent patients complained of dysmenorrhoea and menorrhagia respectively. In malignant group, 3.52 percent and 2.35 percent patients suffered from dysmenorrhoea and menorrhagia respectively.

Regarding dietary status, most of the patients were vegetarian 78.72 percent patients in case of benign group and In case of malignant group, 78.82 percent patients. No association between diet and breast tumours could be established.

Only 9.57 percent patients among benign group and 5.31 percent patients in malignant group were obese, but the association between obesity and breast tumours was insignificant.

Regarding the haemoglobin status, 74.76 and 25.53 percent patients of benign and 76.46 percent and 23.52 percent patients of malignant group were of 5-10, and more than 10 gm percent haemoglobin respectively. The association between the patients having haemoglobin (5-10 & >10) and breast tumours was found to be non-significant.

DISCUSSION

Continuous Change in lifestyle and diet pattern over the past few decades have been come in results in an increment of the proportion of obese people in both developed and developing countries. De Waard F et al initially observed a positive relation between obesity and increased risk of breast cancer. (10) Subsequent studies related with obesity and breast cancer have shown some diversity between premenopausal and postmenopausal women. (11) Premenopausal women do not show a high risk for breast cancer even they have a high BMI or gain weight during their adult life. (11)

Postmenopausal women have a high breast-cancer risk of about 40% for women whose BMI values are in the high. In prospective cohort studies, however, this increase in risk is more modest at around 20%. This association becomes stronger with increasing age and years after menopause, but is not affected by adjustment for reproductive and

lifestyle factors, including physical activity, which are known to affect risk estimates. (12) These findings are consistent with the protective effect of obesity against breast cancer in premenopausal years; the decreased risk associated with youthful obesity must be offset before a later.

Cole P et al observed that incidence rates of benign breast lesions are strongly and inversely associated with obesity. The trend is seen throughout the range of obesity and thus seems unlikely to be due to a greater difficulty of detecting lesions in markedly obese women. This inverse relationship of obesity to risk of benign breast disease is the reverse of the direct relationship usually seen in breast cancer.(13)

Other studies did not consider obesity, except the study by Fasal and Paffenbarger in which women with benign breast lesions were also lighter than controls.(14)

In our study, 9.57 percent patients were obese and 90.42 percent patients were not obese among benign group, whereas 5.31 percent were obese and 94.11 percent patients were not obese among malignant group. Obesity is not well correlated with breast cancer in our study because women in our region doing all house work which is comparable with moderate exercise and they were taking less diet and less fat. The low prevalence of obesity can be explained by a lifestyle characterised by less-consumption of energy combined with high to moderate physical activity. Most of the women in our study were vegetarians. Timothy J Key et al did not find any significant differences between vegetarians and non vegetarians in mortality from breast cancer. (15)The prevalence of vegetarian is high in study population that may a explanations of high number of vegetarian in breast cancer group.

Genetic risk factor may also be a causative risk factor for our study population. A study from north India showed that BRCA1 and BRCA2 mutations appear to account to some extent for breast cancer patients (6/204, 2.9%) (16) Some environmental factor may be related with breast cancer patients of this study. Some studies showed that some types of chemicals in the home that may be linked to a higher risk of breast cancer. It is important to find out the variety of chemicals easily available in the home environment. (17)

CONCLUSION

The results of the present study revealed a negative association of overweight and obesity with breast cancer in the Indian population. Hence, there might be some other factors may promote growth in breast which should be explored for Indian population they might be genetic and environmental.

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Table 1: Showing Clinical presentation of Breast Tumours patients

Clinical parameters		Benign (n =94)	Malignant (n =85)	χ^2	df	P
Menstrual History	Regular	91	80	0.258	1	> 0.05
	Irregular	3	5			> 0.05
Complained about **Menstruation**	Dysmenorrhoea	5	3	0.246	1	> 0.05
	Menorrhagia	3	2			
Dietary status	Vegetarian	74	67	0.028	1	> 0.05
	Non-vegetarian	20	18			
Haemoglobin	5-10	70	65	0.370	1	> 0.05
	> 10	24	20			
Obesity	Obese	9	5	0.840	1	> 0.05
	Non-obese	85	80			