

## **STUDY OF RISK FACTORS FOR BREAST CANCER AMONG WOMEN IN GWALIOR, MADHYA PRADESH**

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### **ABSTRACT**

**Overview:** Breast cancer is the most widely recognized cancer in females around the world, and the subsequent driving reason for cancer deaths in ladies. The rate is on the ascent in India, and breast cancer is the second most regular malignancy in Indian ladies. **Objective:** To evaluate the hazard factors for breast cancer patients living in Gwalior. Study Design and Method: This case-control study was directed in Gwalior urban agglomerate for a time of a year from October 2008 to August 2009. Segment information and conceptive hazard factor related data was gathered utilizing an organized poll with investigations by Epi-information and SPSS 16. **Results:** A past filled with oral contraceptive pill use (OR=2.77, 95% CI: 1.15-6.65), history of not having breastfeeding (OR=3.49, 95% CI:1.22-9.97), over weight (OR=0.11, 95%CI:0.02-0.49), corpulent ladies ( OR=0.24, 95%CI: 0.06-0.88) and family ancestry of breast cancer (OR=3.89, 95% CI: 1.01-14.92) were related altogether with the event of breast cancer on multivariate investigation. **Conclusion:** The discoveries of the present study recommends that positive family ancestry of breast cancer and history of utilizing OCP might be the epigenetic factors advancing the event of breast cancer while breastfeeding diminishes the plausibility of gaining breast cancer.

**Keywords:** Breast cancer, breast feeding, oral contraceptive pills,



## Overview

Geological variety in rate and death paces of breast cancer (BC) propose that the realized hazard factors for breast cancer may shift in various pieces of the world and that ecological elements are of more noteworthy significance than hereditary elements (McPhersonk et al., 2000). Overall more than one million new patients are identified every year who are experiencing breast cancer. In created nations, breast cancer is the most widely recognized malignancy analyzed in ladies, and in creating districts, it positions second to cervical cancer.

Presently, in India, the occurrence of breast cancer has relentlessly expanded throughout the years and upwards of 100,000 new patients are being distinguished each year (Zeleniuch, 2005). Patterns in breast and cervical cancer in six populace based cancer vaults (Mumbai, Bangalore, Chennai, Delhi, Gwalior and Barshi) were assessed in the course of the most recent two decades. This methodology indicated a diminishing pattern for cancer of the cervix and expanding patterns for cancers of the breast all through the whole time of perception in the vast majority of the vaults (Yeole, 2008). Meshram et al. (2009) recommended that changes in menstrual and regenerative examples among ladies for example early age at menarche and late age from the start labor and some ecological factors in Central India may have added to the expansion in breast cancer hazard, especially Among more youthful ladies. Most huge investigations have discovered that ladies who are overweight or large, particularly the individuals who put on weight all through adulthood, are at an expanded danger of BC after menopause (Friedenreich, 2002; Vainio and Bianchini, 2002; Carmichael and Bates, 2004) . Urbanization, industrialization, changes in way of life, populace development and maturing has all contributed for epidemiological progress in the nation. Without a doubt the quantity of new cancer cases is expanding quickly, because of development in the size of the populace and increment in the extent of older people as a result of improved future after control of transmittable illnesses. In this manner, study of hazard factors for breast cancer in Gwalior ladies is significant and might add to current information on this significant theme. The point of the present study was to discover the connection between regenerative hazard factors for breast cancer in Gwalior ladies.

## Materials and Methods

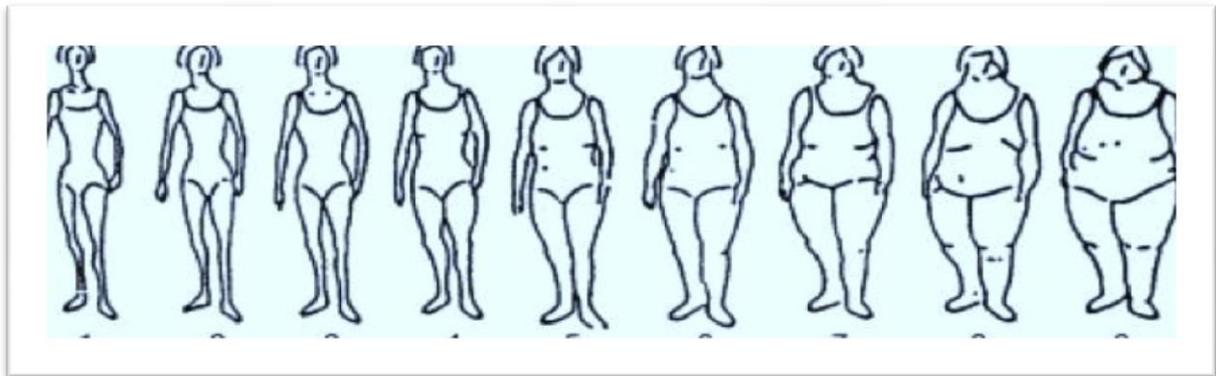
This case-control study was led at Gwalior urban agglomerate from October 2008 to August 2009. The case bunch was characterized as the ladies experiencing breast cancer and enrolled between January 2006 and December 2008 at Population-Based Cancer Registry (PBCR), Department of Pathology, Cancer Hospital and Research Institute, Gwalior MP. The addresses of such 465 patients were taken from the library office and the specialists at that point visited their home for meet. Out of these 465 cases, 226 cases could be followed and from these 226 cases, 215 cases gave assent for the meeting. A couple of patients and occupants wouldn't take an interest in our study. The control ladies were enrolled from a similar area as of cancer patients however with no history of breast issue or neoplastic ailments revealed before. All out 215 cases and 215 controls finished meeting. The proportion of case to control was kept at 1:1. Case and control were exclusively coordinated with age ( $\pm 2$  year), religion and financial status. Financial status was dictated by the adjusted Prasad grouping which depends on per capita every month pay of the family. (Parashars, 2009) Operationally slice off utmost to recognize early menarche was determined to 12 years dependent on a study done at Madhya Pradesh (that reports that the period of menarche shifts from 12 to 15 years) and another study that reports the mean time of menarche  $13.2 \pm 1.10$  (to incorporate the perceptions beneath 1SD as early menarche)(Biswas and Kapoor, 2004; Deo and Gattarji, 2004). Also late menopause was considered as age over 50 years and ladies were stratified into three gatherings in the wake of embracing the detailed mean time of menopause 44.7 years. (Sivkami and Syamala, 2005).The impact of age from the start pregnancy on breast cancer was controlled by separating the patients and control into two gathering according to age more than or under 25 years at the hour of first origination dependent on past study ( Ahmad, 2003).

#### *Information collection and measurable examination*

Educated assent was taken from the study subjects before the meeting. Data was gathered in respects with segment factors, financial status, tallness and weight, visual corpulence, menstrual history and history of conceptive factor, history of utilization of oral contraceptive pills, age from the outset pregnancy and equality, revealed premature births, constructive history and term of breast feeding, age at menopause and family ancestry of breast cancer through close to home meeting of subjects. Stature (without shoes in cm) and weight in light

apparel (in kg) of each subject was estimated utilizing crept tap and gauging machine. Weight list was determined and visual stoutness estimated by pictogram. Weight list (kg/m<sup>2</sup>) was gathered into three classes, in particular fit weight (BMI 25), overweight (25<BMI<30) and fat (BMI 30) (WHO, 1998) and visual heftiness into nine diverse body sizes (Figure 1) (Mathew et al., 2008).

Information passage and information investigation were finished with the assistance of Epi-data and SPSS 16 programming. Both bivariate and multivariate investigations were performed and balanced chances.



**Figure 1: Subclassification into Body Sizes with Regard to Obesity**

**Table 1: Bivariate Analysis of the Selected Reproductive Factors, Obesity & Body Size Distributions Among Case and Control Group**

		Cases (215)		Controls (215)		P value
		n (%)		n (%)		
Marital Status		8 (3.72)		4	(1.86)	0.243
	Unmarried					
Married		207	(96.3)	211 (98.1)		
Age of Menarche (Year)				6 (2.7)		0.629
	<12	50	(23.2)	209	(97.3)	
	>12	165	(76.8)			
Status of Menarche		(41.0)		76	(35.3)	0.234
	Irregular	88				
	Regular	127	(59.1)	139	(64.7)	
History of Oral Contraceptive pills				8 (3.8)		0.011*
	Yes	21	(10.1)	203	(96.2)	
	No	186	(89.9)			
Age of Marriage (Year)				19	(9.00)	0.227
	>25	38	(18.4)			
	<25	169	(81.6)	192	(91.0)	
Age at first pregnancy (Year)				60 (28.7)		0.017
	>25	67	(33.2)			
	<25	135	(66.8)	149 (71.3)		
Parity		5 (2.4)		2 (0.9)		0.220
	No					
	1-2	90 (43.5)		80 (37.9)		
	>3	112 (54.1)		129 (61.1)		
History of Abortion				193 (91.5)		0.214
	No	172 (86.0)				
	Induced	17	(8.5)	10	(4.7)	
	Spontaneous	11 (5.5)		8	(3.8)	
History of Breastfeeding				5	(2.4)	0.011*
	No	16 (7.9)				
	Yes	186 (92.1)		206 (97.6)		
Duration of breastfeeding (Month)						0.478
	<12	159 (48.5)		169 (51.5)		
	>12	27 (43.5)		35 (56.5)		
Age of Menopause (Year)				24 (17.6)		0.107
	<45	45 (36.0)				
	45-50	30 (24.0)		83 (61.0)		
	>50	50 (40.0)		29 (21.3)		
Family History of Breast Cancer				3 (1.4)		0.006*
	Yes	14 (6.5)				
	No	201	(93.5)	212 (98.6)		
Body mass index				34(15.8)		0.000*
	Normal	14(6.5)				
	Over weight	186 (86.5)		176(81.8)		

	Obese (>30.00) 5(6.9)	3(1.4)		
Visual obesity	212(98.6)	201(93.5)		
>5			0.006*	
<5	3(1.4)	14(6.5)		

## Results

Out of the 465 members, we could follow the location of 226 (48.6%) breast cancer patients and 215 (46.2%) gave their assent for meet. The purposes behind non-recognizability were movement to different spots (49/339, 20.5%), inadequate locations (118/239, 49.4%), death (29/239, 12.13%), and non-indicated reasons (43/239, Cases were 51.1±10.8 years old going from 28 to 78 years and controls were 51.0±10.7 years old going from 28 to 78 years. Tables 1 and 2 demonstrate the dispersion of concentrated free factors on the off chance that and control gatherings, balanced chances proportions and related 95% certainty interims. Strategic relapse indicated that history of utilizing OCP (p=0.023), history of not having breast feeding (p=0.020), family ancestry of breast cancer (p=0.048), over weight (p=0.004) and corpulent ladies (p=0.032) were seen as essentially connected with breast cancer; also balanced chances proportions (AOR) for history of OCP (OR=2.77, 95% CI: 1.15-6.65), history of not having breastfeeding (OR=3.49, 95% CI:1.22-9.97), over weight (OR=0.11, 95%CI:0.02-0.49), fat ladies ( OR=0.24, 95%CI: 0.06-0.88) and family ancestry of breast cancer (OR=3.89, 95% CI: 1.01-14.92), demonstrated positive relationship with the event of breast cancer.

**Table 2: Multinomial Logistic Regression for Variables Found Significant in Univariate Analysis Showing Adjusted Odd Ratios (ORs) with 95% Confidence Interval**



## **Discussion**

Breast cancer rate rates are expanding around the world. In India, it is the most well-known cancer among ladies in numerous areas and has overwhelmed cervical cancer. The consistent rising breast cancer rate has made a pressing need to create procedures for anticipation. Despite the fact that the quantity of old ladies with breast cancer is expanding, information in regards to the attributes and science of this malady in mature age is restricted. Decreased accessibility of screening mammography is a case of the impassive mentality towards the older. A ton of concentrates led about breast cancer with affiliation, chance components and etiology, especially regenerative and physiological variables like age at menarche, conjugal status, OCP, age at menopause, age from the outset pregnancy and equality

have been found to alter the danger of breast cancer (Oran et al., 2004; Anderson et al., 2007). In our study calculated relapse examination found that age from the outset pregnancy, history of OCP use, history of breast feeding, overweight ladies and a positive family ancestry were related with danger of breast cancer.

Relationship of conceptive factors and breast cancer is identified with the impact of ovarian hormones, which start at the period of adolescence, proceed with month to month cycles and finish at menopause event (Willett et al., 2000). In the present study, we didn't discover any distinctions in the different menstrual hazard factors. A few examinations have indicated that the danger of breast cancer among ladies had been diminished with expanding equality (Russo et al., 2001; Yavari et al., 2005). A few examinations have thought about the job of full term conveyance (Brinton et al., 1982). In the present study, the defensive impact of equality and the quantity of full term conveyance on the danger of breast malignancy were watched. This study didn't quantify hormonal swap treatment for unpredictable menses and menopause.

Intriguing discoveries were the nonattendance of huge contrasts among cases and controls for conjugal status and age from the outset pregnancy. In numerous examinations an abundance of single ladies among the cases has been an overwhelming element, they have watched factually noteworthy distinction and related high hazard impact (Ebrahimi et al., 2002; Yavari et al., 2005; Iwasaki et al., 2007). Another study appears (ORs= 2.62, 95% C.I; 1.11–6.19) danger of breast cancer yet was not measurably noteworthy (Gajalakshmi et al., 1991).

There was noteworthy relationship between the breastfeeding practices and breast cancer in this study. A few creators found defensive impacts of breast-feeding on breast cancer chance (Newcomb et al., 1999; Daud, 2004; Al-Saad et al., 2009). The disappointment of breastfeeding as a hazard factor and to discover no relationship with breast cancer in this study might be identified with the delayed breastfeeding rehearsed by most ladies as a custom in India. Breast-feeding can keep from breast cancer (Romieu et al., 1996; Gupta et al., 2002; Naieni et al., 2007). This point was likewise seen in the present study and by expanding the total breastfeeding length; the breast cancer extent has diminished. One prior study from Delhi detailed the mean span of the entirety breastfeeding for all youngsters as 6.58 years in patients and 7.4 years in controls (OR=1.91; 95% CI, 1.17–3.13) (Pakseresht et al., 2009).

This study recognized a huge relationship between OC use and breast cancer, predictable with another study which discovered affiliation and was factually critical (Jick et al., 1980; Daud et al., 2004; Norsa'adah et al., 2005; Beji and Reis, 2007). A few investigations have

discovered no noteworthy relationship between history of oral contraceptive use and breast cancer (Brinton et al., 1982; Reid, 2007). This study couldn't gauge the relationship of breast cancer with length, type, measurement and example of OC utilization in light of the fact that a large portion of the subjects didn't have the foggiest idea or couldn't review the subtleties. The questionable impacts of oral contraceptives on breast cancer have been considered widely.

In this study there was no pattern of expanded hazard with number of premature births, nor was there predictable proof of an expanded danger of breast cancer a specific subgroup. Another study likewise shows premature birth was not identified with breast cancer hazard, OR being 0.92 for any unconstrained, 0.97 for any instigated and 0.77 for 2 all out premature births contrasted with none (Fioretti et al 1999) . In some different investigations unconstrained premature birth was not related with expanded danger of breast cancer. There are evaluating 1.3 OR (95 % CI = 0.9-1.9) for prompted fetus removal (Palmer et al., 1997). We additionally saw about less chances of breast cancer chance in the menopausal ladies, which is concordant with prior investigations (Yavari et al., 2005) . The present study didn't locate the quantity of fetus removal, period of first and last premature birth.

Norsa'Adah (2005) saw that high BMI had expanded danger of breast cancer just as overweight ladies (OR of 2.1; 95% CI of 1.1-3.9). Also, a few examinations have demonstrated a relationship with weight file (Must et al., 1999; Zhu et al, 2003), yet in this study calculated relapse shows no hazard in over weight and hefty ladies, however a factually noteworthy distinction was seen among cases and controls. As visual stoutness expanded the danger of breast cancer additionally expanded in two before reports (Mathew et al., 2008; Wilder Smith, 2009) yet in this study any relationship with breast cancer demonstrated no noteworthy distinction. Family ancestry of breast cancer in various examinations has demonstrated the expansion of breast cancer hazard around 2-3 times (Gajalakshmi et al., 1991; Ebrahimi et al, 2002).

All in all, our study uncovered jobs for some modifiable determinants of breast cancer that can be focussed by general wellbeing intercession in Gwalior. In like manner, the ladies who have at least one of the accompanying danger components should take the extraordinary

consideration regarding moderate danger of breast cancer: According to this study, open mindfulness ought to be expanded with respect to the job of history of OCP use, over weight, family ancestry of breast cancer and defensive impact of full term pregnancy, longer length of breast feeding and higher equality in creating breast cancer.

On account of case control nature of the study, certain predisposition emerges in the study. Significant is review inclination, which was limited by including just episode cases. Restorative records were checked to affirm previous history of favorable breast maladies. Hereditary changes, wholesome components, corpulence, radiation presentation and natural introduction couldn't be determined on account of absence of office. Choice predisposition and bewildering inclination was limited by choosing controls from comparable age gathering and financial gathering. These plainly should be prescribed for thought in future investigations.

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