Effects of Breast Feeding and Nutritional Habits on Breast Cancer in Females

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ABSTRACT

Background: Breast cancer arises from the uncontrolled and uncoordinated division of breast tissue. The formation of abnormal breast tissue is influenced by various risk factors.
Aim: To study the effects of breast feeding and nutritional habits on breast cancer in females.
Design: Case-control study
Place & Duration: Mayo Hospital. 2 months (April 05, 2013 – June 05, 2013)
Methods: With 1:1 case to control ratio was conducted. A total of 100 persons (50 cases and 50 controls) were recruited in the study. Selection was made on laid down criteria from adult population in Lahore, Pakistan after taking due consent. Data was analyzed through SPSS version 20.
Results: Out of 100 females, 51% were of <45 years of age and 49% were of ≥45 years of age. Out of 50 cases, 44% werepremenopausal and 56%were post-menopausal. According to multivariate logistic regression analysis, un-balanced diet (OR=15.517 CI=2.603-92.484) & ghee usage in cooking(OR=43.484 CI=8.111-233.113) were found to be statistically significant. However duration of breast feeding for less than 2 years was found to be statistically non-significant (OR=0.400 CI=0.100-1.597).
Conclusion: Coming to nutritional habits, unbalanced diet & use of Banaspati Ghee (saturated fats) in cooking and high fatty diets are found to have strong association with the development of breast cancer. Females with un-balanced diet have 15.5 times greater chance of getting the disease than those with balanced diet. Females who use banaspati ghee (saturated fats) in cooking have 43.4 times greater chance of getting breast cancer than those who use oils in cooking.
Keywords: Breast cancer, breast feeding, nutritional habits.

INTRODUCTION

Breast cancer arises from the uncontrolled and uncoordinated division and formation of breast tissue. Breast cancer is an emerging and one of the most prevalent cancers throughout the world. A lot of researchers are carrying out studies to correlate different protective and risk factors regarding the development of breast cancer. Many studies report a decreased incidence of disease with lactation and more predispositions to develop this disease with certain nutritional habits.

Researchers in western world have indicated that various factors including breast feeding and nutritional habits have their roles in the etiology of the disease[2]. Breast feeding for at least twelve months (one year) is associated with more than 30% reduction in risk[2].Breast feeding for 24 months (2 years) caused even greater reduction. To an estimate; the overall reduction in risk with each year of breast feeding is about 19%[2]. As far as diet is concerned, researches indicated that there is a strong inverse relation between vegetable diet and risk of getting breast cancer[5].

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Since cancer is a very dynamic subject and it is greatly affected by geographical distribution so to study the effects of breast feeding and nutritional habits affecting breast cancer in patients of Lahore, Pakistan is highly relevant. It will help us suggest any further preventive measures which can be adopted to prevent the problem.

SUBJECTS & METHODS

A case-control study was conducted to identify various factors associated with breast cancer in individuals presented to Mayo hospital in Lahore from April 5, 2013 – June 5, 2013.Study population was divided into two groups. The study included adult patients of breast cancer who were fulfilling the criteria laid down for case (confirmed by clinico-radiological investigations or by histopathology). The control group comprised of healthy adults who did not suffer from breast cancer. Uncooperative/uninterested individuals & critically ill patients were excluded. The study population was placed in two groups. Group 1 comprised of patients suffering from breast cancer. Total number of cases were 50(n=50).Group 2 also comprised of 50

individuals (n=50) who were healthy controls. All ethics were observed and confidentiality is maintained at all levels.Using PASS version 11 chi-square (multiple categories); with 95% confidence interval, 90% power of the test, and effect size of 0.5 Body Mass Index (BMI) (reference no. 1)

Under Weight (<18.5) 6 4.80%
Normal (18.5-24.9) 61   45.50%
Over Weight (25-29.9) 43   32.10%
Obese (30-39.9) 23   17.20%
Severely Obese >40 1   0.75%

Sample size calculated is 50 for cases. We are taking 50 as our control sample size. Total sample size is 100.

Anon-probability purposive sampling approach was used to recruit study cases and controls from all eligible individuals. Written consent was obtained from all selected study subjects. Data was collected by interviews, using pretested questionnaire, while keeping all ethical and social considerations in mind.Data entry and analysis was done by statistical software SPSS version 20 by students. Frequency tables, simple and multivariate logistic regression were used. Odds ratio and their 95% confidence intervals were also reported.

Dependant variable: Nature of individual (case/control)

Independent variables: age of the individual, duration of breast feeding, problem with lactation, diabetes mellitus, hypertension, ghee/oil use, diet, personality, age at first pregnancy.

RESULTS

Out of 100 females, 51% were of less than 45 years of age and 49% were of more than or equal to 45 years of age. Out of 50 cases, 44% were premenopausal and 56% were post-menopausal. Out of total individuals, 50% were cases,50% were control,51% were of age <45 years and 49% were ≥45 years of age.7% were unmarried and 93% were married, 47% were premenopausal and 53% were menopausal.95%were having menarche age ≥12 years and 5% were having menarche age at ≤11 years.29% were having their 1st pregnancy age at >25 years and 71% at ≤25 years.69% were having < 5 or no children and 31% were having ≥5 children. 28% were having a history of abortion and 72% were having no history of abortion. 5% were using drugs for preventing miscarriages while 95% were not. 6% had history of still birth while 94% had no history of still birth.4% had history of pre-term delivery while 96% hadno history of pre-term delivery.3% had history of post-term delivery while 97% had no history.71% had breast fed to their every child either for <2 years or never while 29%had breast fed for ≥2

years to every child. 90%had no problem with lactation while 10% had.86% had no history of previous breast disease while 14% had.41% werepost-menopausal while 59%werepre-menopausal.77% had menopause at ≤45 years while 23% had menopause at >45 years of age.93% had not used contraceptives while 7% had used.66% had no co-morbid condition while 34% had.15% were diabetic while 85% were non-diabetic.19% were hypertensive while 81% were non hypertensive.16% had a history of Hakeem medication while 84 % had no history of Hakeem medication.17% had previous chemo/radio therapy while 83% had not. 98% had either no x-rays exposure or had exposure less than 5 times while 2% had x-rays exposure greater than 5 times.11% had a history of mastectomy/lumpectomy while 89% had not. 61% were using un-boiled water were 39% were using boiled water.32% used bottled water while 67% used tap water.13% ate smoked food while 87% did not. 51% used spicy food while 49% used non-spicy/normal food.39% used Ghee in cooking while 61%used oil. 36%were apparently malnourished and 64%were apparently healthy.39%used rich fatty diet quite often while 61% used fatty diet in normal amounts.64% had daily intake of milk while 36%did not.34% had daily intake of eggs while 66% did not.34% had 2 cups/day of vegetables while 66% had <2cups/day.92% used to eat red meat <4 times /week while 8% used to eat ≥4 times/week.66% used to eat white meat < 4times/week while 34% used to eat ≥4 times/week.12%had <2cups /day of tea while 88% had ≥2 cups of tea. 76%had no daily intake of fruits while 24% had daily intake. Diet of 31% was balanced/ close to balanced while that of 69% was not balanced.99% were not addicted while only 1% were addicted. BMI of 64% was <25while that of 36% was ≥25. 58% had never been obese in life while 42% had been obese once or more in life.28% had family history of cancer while 72% had no history of cancer. 36% were poor while 64% werenot. 51% had history of stress/depression while 49% hadno history. 50%had awareness about disease while 50% did not.

The risk factors found statistically significant are given below along with their odds ratios and 95% confidence intervals: In bivariate analysis: breast cancer was found to be significantly associated with females who never got pregnant or became pregnant less than 5 times(OR=9.333 CI=3.367-25.870), no or less than 5 number of children(OR=19.939 CI=5.468-72.714),hypertension(OR=3.500   CI=1.152-10.636),Hakeem medication(OR=5.505 CI=1.460-20.755),tap water(OR=3.407 CI=1.401-8.285),poor socio-economic status(OR =20.444 CI=6.322-66.109),stressed/depressed personality(OR=3.451 CI=1.517-7.852). However, breastfeeding for about 2

years or less than 2 years for every child has been found to be statistically non-significant.

Multivariate analysis

Risk factor	Case	Control	Odds Ratio	95% CI		P Values	Model P-value
	n=50	n=50	(Exp B value)	Lower	Upper	(sig. value)	
Breast feeding							
<2 years	34 (68%)	37 (74%)		0.1	1.597	0.194	
≥2 years	16 (32%)	13 (26%)	0.4				
Age							
<45 years	22 (44%)	29 (58%)		0.295	3.164	0.961	
≥45 years	28 (56%)	21 (42%)	1.032				
1st pregnancy age							
>25 years	12 (24%)	17 (34%)	2.067	0.495	8.625	0.319	
≤25 years	38 (76%)	33 (66%)					
Problem with lactation							
No	44 (88%)	46 (92%)		0.554	40.199	0.156	
Yes	06 (12%)	04 (08%)	4.714				
Diabetes							<0.001
No	39 (78%)	46 (92%)		0.244	10.993	0.611	
Yes	11 (22%)	04 (08%)	1.639				
Hypertension							
No	36 (72%)	45 (90%)		0.727	15.999	0.12	
Yes	14 (28%)	05 (10%)	3.411				
Diet							
Not balanced diet	43 (86%)	26 (52%)	15.517	2.603	92.484	0.003**	
Balanced diet	07 (14%)	24 (48%)					
Oil/ghee use							
Ghee users	34 (68%)	05 (10%)	43.484	8.111	233.113	<0.001**	
Oil users	16 (32%)	45 (90%)					
Personality							
Not stressed/depressed	17 (34%)	32 (64%)		0.814	9.098	0.104	
Stressed/depressed	33 (66%)	18 (36%)	2.721				

[Multivariate logistic regression (enter method) was applied. Categories were made. Standardized and cook's were applied.*: significant at < or =0.05.   **significant at < or =0.01.

However in multivariate logistic regression analysis, un-balanced diet (OR=15.517 CI=2.603-92.484) & ghee usage in cooking(OR=43.484 CI=8.111-233.113) were found to be statistically significant. However duration of breast feeding for less than 2 years was found to be statistically non-significant (OR=0.400 CI=0.100-1.597).Multivariate logistic regression analysis suggests that females with un-balanced diet have 15.5 times greater chance of getting the disease than those with balanced diet. Females who use banaspati ghee (saturated fats) in cooking have 43.4 times greater chance of getting breast cancer than those who use oils in cooking. However breast feeding for 2 years or more has been found to be statistically non significant.

DISCUSSION

The objective of the present study was to determine the effects of breast feeding and nutritional habits on breast cancer in females. Whileinterpreting the between-study differences; the study suggested that breast feeding to every child for up to 2 years or less

than 2 years did not possess any significant role in reducing the chances of getting breast cancer (OR=0.400 CI=0.100-1.597), which was in accordance with the findings of Tryggvadottir L et al[3], Lee E et al[4] and Andrieu N et al[6]. On contrary, work of Kotsiopoulos et al[2] suggested reduction in risk of breast cancer after breast feeding.Moreover, present study indicated that consumption of fruits and vegetables less than recommended values (un-balanced diet) was also associated with increased risk of breast cancer, which was in accordance with the work of Freudenheim JL et al[5]. The present study suggested a very strong relation with the use of Ghee (saturated fats) in cooking with increased risk of development of the disease which was in accordance with the work of Carroll KK[7]. On contrary, according to work of Hunter DJ et al[9], there was no relation between total dietary fat intake and the risk of breast cancer. None of the 100 individuals in the present study was found to be lacking in the consumption of grains which in our opinion was reasonably true because of easy availability of grains in an agricultural country like Pakistan. BMI greater than 25

was found to be partially associated with breast cancer, which was in accordance with the work of de Waard F[8].

CONCLUSION

It appears that breast feeding does not have a significant role in breast cancer as most of the females who breast fed their children for 2 years each or less than 2 years also developed breast cancer. Coming to nutritional habits, use of Banaspati Ghee (saturated fats) in cooking and high fatty diets are found to have strong association with the development of breast cancer. Unbalanced diet also contributes to the development of the disease. Females with un-balanced diet have 15.5 times greater chance of getting the disease than those with balanced diet. Females who use banaspati ghee (saturated fats) in cooking have 43.4 times greater chance of getting breast cancer than those who use oils in cooking. Unawareness about the risk factors for the disease in general population also has a role in the occurrence of disease.

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