

Hormone Replacement Therapy And Breast Cancer- A Case Control Study

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Abstract

The present study was undertaken to assess any association between hormone replacement therapy (HRT) and breast cancer. This hospital based case-control study was conducted among sixty cases of diagnosed female breast cancer patients and age matched seventy controls of women without breast cancer and any breast complaints (pain or lump in the breast, any discharge through the nipple) during the period of January to June 2009. Data was collected at National Institute of Cancer Research, Hospital (NICRH), Mohakhali, Dhaka, Ahsania Mission Cancer Hospital, Mirpur, Dhaka, and Delta Medical college Hospital Mirpur Dhaka. Controls were selected from the women who attended those hospitals for other treatment and relatives of the breast cancer patients. The findings revealed cases (30%) took hormone

therapy in comparison to the controls (7.1%) and this difference was statistically significant (t test, $p < 0.01$). Users of hormone replacement therapy were more than five times more likely to develop breast cancer than the non-users. Majority of the cases (56%) and only 20% of the controls took combined form of HRT. On the contrary, 44% cases and 80% control took single form of hormone replacement therapy. The study found a significant association between hormone replacement therapy and occurrence of breast cancer. Odds ratio showed that the combined HRT users were more than 5 times more likely to develop breast cancer than the single form of HRT users. The Odds ratio also revealed that the HRT users were more than five times more likely to develop breast cancer than the HRT non-users. The study recommended specific measures and interventions to reduce the burden of breast cancers caused by HRT.

Key words: Case, Control, Breast Cancer HRT and Women replacement

Introduction

In the United States, breast cancer is the third most common cause of cancer death (after lung cancer and colon cancer. In 2007, breast cancer is expected to cause 7% of cancer death and almost 2% of all deaths in the USA.¹

In USA, breast cancer is the second-most common cause of cancer death among the women and they have 1 in 8 lifetime chance of developing invasive breast cancer and a 1 in 33 chance of breast cancer causing their death. A study conducted in 2005 by the Society for Women's Health Research indicated that breast cancer remains the most feared disease among women.²

The number of breast cancer cases has significantly increased world wide since the 1970s. Phenomenon partly blends on modern life styles in the western world. Estimated new cases were 1,82,460 females and 1990 males while death from breast cancer were 40,480 females and 450 males in the USA in 2008.³

Among the cancer patients 22-23 percents are HRT and breast cancer among women. Histopathologically diagnosed cases of breast cancer patients and the women who had no breast

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complaints were interviewed to collect relevant information. The histopathological types of breast cancer were confirmed by the biopsy reports done in the respective hospital.affected by breast cancer in Bangladesh. The incidence of breast cancer is rapidly increasing in women. This information was presented in the joint press conference prior to combined 8th conference of Society of Nuclear Medicine, Bangladesh and 2nd annual conference of Asian Regional Co-operative council for nuclear medicine.⁴

In Bangladesh, we do not know exactly, how many women are developing breast cancer. For this reason, it is difficult to know the actual number of women who died of breast cancer. It is estimated that, about 17% of the women suffering from cancer are breast cancer suffers.⁵1 in 1000 in Bangladesh is developing cancer in the breast and half of them expire after long suffering.⁶

Hormone replacement therapy (HRT) is known to increase the risk of breast cancer in healthy women.⁷ The randomized HABITS study, which compared to HRT for menopausal symptoms with best management without hormone among women with previously treated breast cancer, was stopped early due to suspicions of an increased risk of new breast cancer events following HRT.⁸

HRT 'doubles' women's risk of breast cancer development. US researchers discovered there was a 28% reduction in risk of breast cancer within one year of stopping HRT treatment with estrogen and progestin. The result showed women who spend at least five years on HRT double their risk of Ca breast each year.⁹

Materials and Methods

This hospital based case-control study was conducted to find out the association between Case selection

Inclusion criteria

- 1) Only histopathologically diagnosed breast cancer patients were included in the study.
- 2) Ca breast patient who gave informed consent were included in the study.
- 3) Breast cancer patients aged 35 to 60 years.

Exclusion criteria

- 1) Mentally ill patients.
- 2) Patient unwilling to participate in the study.

Control selection

Inclusion criteria

- 1) Age matched women free from breast cancer or lump or any discharge through nipple.
- 2) Women who gave informed consent.

Exclusion criteria

- 1) Mentally ill patients.
- 2) Patient unwilling to participate in the study.

Data were collected by face to face interview with the help of a semi-structured questionnaire. Data were entered in the computer after preparing a format according to the coding mentioned in the questionnaire. Thorough editing of the data were performed before analysis. Data were analyzed in the computer using SPSS program. After cross-tabulation, 2 test was done between discrete and qualitative variables to check for statistically significant association. All the tests were two tailed and $p < 0.05$ was considered to be statistically significant. Odds Ratio was calculated where Chi-square tests were significant to find out the strength of association.

Result

Table:1 Distribution of the respondents by use of HRT

Use HRT					Total	
	Case		Control			
	No	%	No	%	No	%
Yes	18	30.0	5	7.1	23	17.7
No	42	70.0	65	92.9	107	82.3
Total	60	100.0	70	100.0	130	100.0

$$\chi^2 = 11.59, df = 1, p = .001, OR = 5.57$$

During the study period (January to June 2009) about 30% of the cases took HRT in contrast to 7.1% in the control group and this difference was statistically significant ($\chi^2 = 11.59; df = 1; p = .001, OR = 5.57$). Odds ratio showed that, the Replacement HRT users were more than five times more likely to develop breast cancer than the group did not use HRT (Table: 1)

Table: 2. Distribution of the respondents by HRT type and duration

Type of HRT	Case		Control		Total	
	N	%	N	%	N	%
Combined	10	55.6	1	20.0	11	47.8
Single	8	44.4	4	80.0	12	52.2
Total	18	100.0	5	100.0	23	100.0
Duration of HRT used						
1yr	5	27.8	1	20.0	6	26.1
>1 yr	13	72.2	4	80.0	17	73.9
Total	18	100.0	5	100.0	23	100.0

Around 56.6% cases took combined form of HRT while in control this percentage was quite less (20%); about 44.4% of cases took single form of HRT while 80% of the controls took this form. . Among the HRT users, 26.1% took the HRT for at least one year and 73.9% took for more than a year. Mean duration of HRT use was 2.06 (SD±.802) and 2.00 (SD±.707) years among the cases and controls respectively. Odds ratio (OR=5.0; 95% CI 0.462-54.046) showed that the combined HRT users were five times more likely to develop breast cancer than the single form of HRT users (Table: 2).

Discussion

The findings of the current study revealed a significant association between the breast cancer and Hormone Replacement Therapy (HRT). About 30% of the cases took HRT in contrast to 7.1% of the control group and this difference was statistically significant ($\chi^2=11.59$; $df=1$; $P=0.001$, $OR=5.57$). Odds ratio showed that the HRT users were more than five times at greater risk of developing breast cancer than the group of HRT non-users.^{10,11} Around 56% of cases took combined form of HRT while 20% of controls took this form (Table-2).¹² About 44% of cases took single form of HRT but only most 80% of controls took single form of HRT. Among the HRT users, 26.1% took HRT for at least one year and 73.9% took for two years. Mean duration of HRT use was 2.06 (SD±.802) years among the cases while it was 2.00 (SD±.707) years among the controls. Odds

ratio (OR=5.0) showed that the combined HRT users were more five times at greater risk of developing breast cancer than the group used single type of HRT. (Table: 2) This findings is similar to that of the randomized HABITS study, which found there was a clinically and statistically significant increased risk of a new breast cancer event in survivors who took HRT.⁶ The Stockholm trial reported in 2005, after a median of 4.1 years of follow up (HR= 0.82, 95% CI=0.35 to 1.9; $P=.02$ in a two sided likelihood ratio test).¹⁴

Conclusion

The case-control study explored a significant association between HRT use and development of breast cancer. It showed that the HRT users were more than five times more likely to develop breast cancer than the group did not use HRT. The study also showed that the combined HRT users were more five times at greater risk of developing breast cancer than the group used single type of HRT. So, regular and planned awareness program about uses, adverse effect, forms and crucial side effects of HRT and seminar on HRT should be arranged in community level and at women's work places. As many of the risk factors are difficult to modify such as age at menarche, age at menopause, family history of breast cancer, screening program should be available to the population for early detection. Early detection of breast cancer is the only way to live long and may eliminate death in many cases. Ignorance, innocence, negligence and shyness make the women victims of breast cancer and keep them away from modern treatment. So building massive awareness is the best way to prevent breast cancer. Further in depth and large scale study is essential in our country to establish the extent of association of HRT on the development of breast cancer and to prevent breast cancer caused by HRT.

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