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CORRELATION BETWEEN BREAST CANCER AND RISK FACTORS

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ABSTRACT

To evaluate the correlation between breast cancer and many risk factors which include family history of breast cancer, history of benign breast disease, obesity, age at menarche, menopause, abortions, older ladies at first full-term pregnancy, parity, lactation. 328 females, all originating from the Sudanese, were eligible for analysis. An age-stratified random sample of 100 women was used as a control group. The interview followed a structured questionnaire.

153 (47%) of patients their age <50 years, 175 (53%) age >50 years, 148 (45%) of the patients from rural areas, while 180 (55%) from urban areas. There is association between breast cancer and residence. Premenopausal patients were 158 (48%) and postmenopausal patients were 170 (52%), there is statistically significant difference. There is no statistically significant difference observed between patients approaching menopause at an age of >50 years and those approach it at age <50 years. The study revealed statistically significant difference between breast cancer and age at menarche less than 12 years, history of breast cancer in a first degree relative, parity and body mass index, whereas, no significant difference was noticed with history of abortion or miscarriage, lactation, use of medication to suppress lactation. The study confirmed an etiological association between breast cancer and Many risk factors have been identified either genetic factor which include family history of breast cancer, obesity and high fat diet or hormonal factors which include female sex, risk increasing with age, long interval between menarche and menopause and older ladies at first full-term pregnancy have resulted in several aetiological hypotheses.

Keywords: Breast cancer, risk factors, menopause.

INTRODUCTION

The American cancer society estimates that about 30% of Americans will get cancer at some point during their lives and about 40% of those in whom cancer is diagnosed will be alive five year later. Currently in the United States, one death in five is from cancer.

Breast cancer is the most frequently diagnosed cancer among women in the United States and is the second leading cause of cancer deaths among women today (American Cancer Society).

Although breast cancer continues to be a leading cause of cancer morbidity and mortality today, the death rates have drastically decreased due to earlier detection and more effective treatment methods (Connor CS, et al, 2002).

Breast cancer is the commonest cancer in women in the world; it is rising at, a rate of approximately 2% per year in all population (Parkin, et al, 1992). The number of annual deaths from breast cancer has remained about the same for the past 50 years, although the number of cases is increasing. This

shows the benefits of early detection, which impacts survival. Also, effective treatment is increasing survival in all breast cancer patients. One in nine women will get breast cancer in the U.S.A. during their lifetimes.

In U.K it accounts for 20% of all cancer, and 25% of all deaths and it is the commonest cause of death amongst women in the 35-55 age group. They are 24.000 new cause each year it is estimated, in the high risk area, that any individual women has 1 in 10 - 12 chance of developing the disease in her life time (Underwood JCE, 1996).

According to data from UK at 2001 the breast cancer is most common (29% of all cancers) (Souhami R, et al, 2001).

In the Sudan breast cancer accounts for 34.5% of all female cancer. The alarmingly high frequency of women presenting with advanced breast cancer to the Radiation Isotope Center Khartoum (RICK record) (Hidytalla, 1988).

Breast cancer rates vary widely amongst the world's populations, with incidence in most Asian and developing countries traditionally being less than one-fifth as that in affluent Western countries. Moreover, populations migrating from low to high incidence areas adopt the rates of the new environment in two to three generations, indicating that genetic differences cannot explain the high rates in the west (Jemal A, et al, 2007).

Dietary factors and dietary fat in particular, have been hypothesized to account for the large variation in breast cancer incidence around the world and the increases amongst migrants. Belief that dietary fat is a major cause of breast cancer has had important implications for dietary guidelines, and this has been the primary justification for recommendations to reduce total fat intake (Willett WC, 2001).

Many risk factors have been identified either genetic factors which include family history of breast cancer, obesity and high fat diet or hormonal factors which include female sex, long interval between menarche and menopause and

older ladies at first full-term pregnancy (Underwood JCE, 1996).

Several well-established factors have been associated with an increased risk of breast cancer. These include family history, nulliparity, early menarche, advanced age, and a personal history of breast cancer (in situ or invasive).

Since criteria for menopausal status vary widely, some studies have substituted age greater than 50 years as a surrogate for the postmenopausal state.

Depending on the results of the mammograms and/or ultrasounds, doctor may recommend that a biopsy has to be taken. Biopsy allows cells to be examined under a microscope and it the only way to confirm cancer (Chaney AW, et al, 2000).

MATERIALS AND METHODS

328 females, all originating from the Sudanese, were eligible for analysis.

An age-stratified random sample of 100 women was used as a control group, derived from the Breast Unit's database of screened patients who had not developed breast cancer after a median follow up period of 40 months (range 12–92 months). Personal interviews were conducted with each woman during her first visit (both patients and controls) by a consultant or a senior resident. The interview followed a structured questionnaire, which did not change during the study period. Anthropometric measures were also made during the first visit.

Females were classified as postmenopausal if their menstrual cycles had ended naturally at least 12 months before the interview or from surgery or radiation therapy at any age. Those who reported not having menstrual cycles for the last 10 months were considered as perimenopausal and were combined with premenopausal women for the purpose of analysis.

The following variables were analyzed for all patients and controls:

residence (rural/urban), age at interview (≤ 50 and >50 years), age at menarche (≤ 12 and >12 years old), age at first full birth (<23 vs. ≥ 23 years old),

parity (nulliparous, 1 or 2, and >3), lactation (yes/no), use of medications to suppress lactation (yes/no), abortions and miscarriages (yes/no), age at menopause for postmenopausal women (≤ 50 and >50 years old), use of HRT for more than 2 months (yes/no), use of oral contraceptives for more than 2 months (yes/no), family history of breast cancer in a first degree relative (yes/no), history of benign breast disease (yes/no), obesity on the day of the interview (BMI ≤ 29 kg/m² vs. BMI >29 kg/m², median value for the study population) and radiation history of the chest (yes/no).

RESULT

The breast cancer Patients having age less than 50 years are 153 (47%) while more than 50 years are 175 (53%). breast cancer Patients coming from rural area are 148 (45%) whereas, those coming from urban area are 180 (55%). The Pre/per menopausal patients are 158 (48%) which is less than Postmenopausal patients who comprises 170 (52%). The breast cancer Patients who become postmenopause at an age more than 50 years are 166 (98%), while those become postmenopause at an age less than 50 years are 4 (2%). The breast cancer Patients having menarche at an age more than 12 years are 187 patients (58%). Among the study group patients not using oral contraceptive were 309 (94%), while those using oral contraceptives were 19 (6%). The number of breast cancer patient who did not use HRT is 166 (98%), while those used HRT are 4 (2%). Patients with no history of cancer in a first degree relative are 298 (91%) while those with history of cancer are a first degree relative is 30 (9%). The breast cancer patients who have a first full pregnancy at an age less than 23 years are 77 (38%) which is less compared to patients having the first full pregnancy at an age more than 23 years, the figure for the last group is 125 (62%). Breast cancer patients having no children (nulliparous) are 126 (38%) of the cases, patients having one to two Childs are 24 (12%) and those having three

children or more are 178 (88%) of the cases. The breast cancer patients not having a history of abortion or miscarriage are 233 (71%), which is more than the breast cancer patients who have a history of abortion or miscarriage giving the number of 95 (29%). The breast cancer patients not having history of lactation are 8 (4%), which is less than the breast cancer patients having history of lactation which constitutes 194 (96%). The breast cancer patients not having used medication to suppress lactation are 198 (98%), which is more than breast cancer patients having used medication to suppress lactation who are 4 (2%). The breast cancer patients not having exposed to radiation to the chest are 321 (98%), which is more than the breast cancer patients group having exposed to radiation to the chest, the last group constitutes 3 (2%). The breast cancer patients with body mass index less than 29 kg/m² are 288 (88%) which is more than the breast cancer patients with body mass index more than 29 kg/m² who are 40 (12%) of the cases. The breast cancer patients not having history of benign breast disease are 282 (86%), which is more than the breast cancer patients with history of benign breast disease the numbers for the last group are 46 (14%).

DISCUSSION

The interview was conducted during the subjects' first visit to the unit and before clinical examination or any other intervention took place. This constitutes an advantage, because there was no chance that the subjects (both cases and controls) would be influenced by the diagnosis and might therefore falsely inflate the relative risk. Thus, the likelihood of recall bias is not high; improving the comparability of several covariates in both groups, and the selection bias is lessened since all subjects had taken the same route through the Breast Unit's standard routine procedures. Since each case group was compared with the same control group, any selection bias would be expected to have a similar effect on the estimates in the tumor subgroups.

CONCLUSION AND RECOMMENDATION

Their findings will provide us with greater insight into breast cancer aetiology and will help us identify any association that would help discriminate subgroups of women at higher risk.

Further innovative studies with larger sample sizes are needed to examine how the status of this potentially modifiable breast cancer risks factors.

Lastly, we recommend further studies in this field with wider scope.

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