Life Style and Dietary Factors Influencing Breast Cancer

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ABSTRACT *Breast cancer (BC) is one of the leading causes of cancer mortality in female in the world. It is the second most common cancer among Indian women. Study critically reviews the literature which includes the factors that influence BC viz. life style and dietary factors. Under the head lifestyle, studies emphasizing on stress, obesity, physical activity, smoking and alcohol etc. are considered. In the next section, studies dealing with consumption of olive oil, dairy products, vegetables, fruits and meat are entertained. In the beneath, discussion is made in the light of present Indian Scenario.*

Discussion

Life style and dietary habits have their roots in disease occurrence; it may play a protective role against a disease. Considered evidences suggest that environment, life style and diet affects a healthy life. There is a need to study these different factors in Indian prospectus; a study is needed answering the question whether Indian culture is more protective against the disease. If it is so adaptation of Westernization may be dropped out.

Introduction

Since 1964, considerable increases have been observed in BC mortality rate and dietary fat intake in different countries (D.P.Rose etal,1986). Epidemiologic, experimental and geographic evidences had also indicated that dietary factors influence the incidence of mammary gland cancer. (E.G.Snyderwine,1994 ; P.G. Moorman etal,2004).In this review, considered studies emphasize on life style and various dietary factors. The paper is organized first considering the studies concentrated on life style and thereafter studies dealing with different dietary factors have been considered.

Influence of life style

Individual health conditions are affected by healthy lifestyles (Kushi et al., 2006). . According to P.Anand etal, lifestyle factors include cigarette smoking, fried foods, red meat, alcohol, sun exposure, environmental pollutants, infections, stress, obesity, and physical inactivity. This study indicated percentage of deaths due to different factors e.g.25–30% deaths are due to tobacco, 30–35% are linked to diet, 15–20% are due to infections, and the remaining percentage are due to other factors like radiation, stress, physical activity, environmental pollutants etc. Study suggested smoking cessation, increased ingestion of fruits and vegetables, moderate use of alcohol, caloric restriction, exercise, and avoidance of direct exposure to sunlight, minimal meat consumption, use of whole grains, use of vaccinations, and regular check-ups can be preventive. (P.Anand etal,2008).Some studies of cancer survivors were also observed with low physical activities(Holmes et al., 2005; Meyerhardt et al., 2006; Holick et al., 2008; Irwin, 2008).

In one of the studies healthy lifestyle changes during the period before and after BC diagnosis were investigated. The mean values of 235 BC survivors before and after BC diagnosis of the participants were found 3.27 and 3.73. Study concluded that healthy life style play important role in disease occurrence and recovery. (**H.H.Wang,2012**)

One of the studies provided an overview of lifestyle chang-es after BC diagnosis and examined the relationship between dietary and physical activity changes with weight changes in BC patients by recruiting 368 women with BC in Malaysia. In this study mean duration since diagnosis were found 4.86±3.46 years. Study reported that majority of the respondents had decreased their intake of high fat foods (18.8-65.5%), added fat foods (28.3-48.9%), low fat foods (46.8-80.7%), red meat (39.7%), pork and poultry (20.1-39.7%) and high sugar foods (42.1-60.9%) but they increased their intake of fish (42.7%), fruits and vegetables (62.8%) and whole grains (28.5%). In the same study 22.6% percentage of the women were pinpointed with an increased physical activity since diagnosis (Y.H.Yaw,2014)

Influence of Olive oil and Dairy Products Consumption

Earlier per capita fat consumption had been shown highly correlated with incidence and mortality of BC, all around the world (Carrol, 1975; Armstrong and Doll, 1975).Olive oil is also reported as a major source of fat, but diets with olive oil were found associated with reduced BC risk (D.Rose,1986). BC incidence rates were observed low in Mediterranean countries, where olive oil consumption was reported more, compared with Western countries (Cohen and Wynder, 1990). We came across a study in which 8984 females were recruited during 1987 to 1992 and 207 incident cases of BC were analyzed with an average follow-up of 9.5 years. Study outcome that raw vegetables and olive oil protects against BC (Sieri et al., 2004). In another study an inverse association between olive oil intake and BC risk was revealed, when a population of 2564 women with histologically confirmed BC and 2588 matched hospital controls were studied(LVecchia etal.,1995). Similarly, lower risk of BC was observed with a higher consumption of olive oil (M.Moreno etal,1994).

In a study of 820 women with BC and 1548 control women, it was found that increased olive oil consumption reduces BC risk (OR = 0.75 ,95% confidence interval = 0.57–0.98]. In the same study olive oil association was found concentrated among postmenopausal women (A.Trichopoulou etal,1995). Lower risk of BC was also re-

ported with use of olive oils for cooking and avoidance of mayonnaise as salad dressing.(MobarakehZS,2014)

If we put our concentration on fatty acids, we came across a study showing, lower intake of monounsaturated fatty acids in BC group as compared to controls (Landa et al., 1994). A study of postmenopausal women observed positive association between saturated fat intake and BC risk (Howe etal,1990).Whereas one of the studies reported no association between fat intake and BC (Smith-Warner et al., 2001). The relationship between individual polyunsaturated fatty acid (PUFA) intakes and BC risk was examined among 56,007 French women. This study reported that 1,650 women developed invasive BC, during 8 years of follow-up of the study. An inverse association between BC risk and -linolenic acid (ALA) intake from fruit and vegetables [highest vs. lowest quintile, hazard ratio (HR) 0.74; 95% confidence interval (CI) 0.63, 0.88; p trend < 0.0001], and from vegetable oils (HR 0.83; 95% CI 0.71, 0.97; p trend 0.017) was accounted.(A.C.M. Thiebaut,2009)

As far as dairy products are concerned, dairy products were observed strongly associated with reduced risk of BC (CS Publica,2008).A contradiction was appeared, when we came across a study conducted among 53 Iranian women with histological confirmed disease and 40 matched controls. In this study age, weight, body mass index, educational status, parity, lactation, marital status, menopause, history of estrogen therapy, and family history of breast disease were assessed. In this study the relationship between consumption of milk, cheese, use of frying oils for frying foods and the risk of BC was observed. The results of the study revealed that lower education and higher BMI were significantly associated with BC. An increased risk of BC was also reported in overweight women in comparison with normal weight (OR=2.91, 95%CI 1.24 to 6.82). In this study high intake of fat dairy products including milk and cheese were found statistically significant factors for increasing BC risk. (MobarakehZS,2014).

Influence of Vegetable and Fruit Consumption
One of the studies considered, revealed that vegetable consumption and fruit consumption were independently associated with statistically significant reductions of BC risk by 12% and 8%, respectively (ATrichopoulou,1995). It was also reported that consumption of higher levels of vegetables and fruit in raw form is associated with a reduced risk of cancer. (K.A. Steinmetz,1991). In one of the studies, butter, cheese, milk, milk products, and meat showed a weak, positive relation with BC incidence (LEVoorrips,2002).

In a case-control study, the association between fruit, vegetable and carbohydrate intake and the risk of BC among Polish women was evaluated, in this study physical activity level of 858 women with histological confirmed BC and 1,085 controls, aged 28-78 years was considered. Comparison of the highest vs lowest quartile of intake revealed a strong significant associations for total vegetables (OR=0.37, 95%CI=0.20-0.69 P for trend <0.01 and OR=0.53, 95%CI=0.29-0.96, P for trend <0.02), and total fruits (OR=0.47, 95%CI=0.25-0.87, P for trend <0.05 and OR=0.47, 95%CI=0.24-0.90, P for trend <0.02) among women characterized by the lowest and the highest quartile of physical activity. In this study no associations was observed for total carbohydrate intake whereas a positive association for sweets and desert intake among women in the lowest quartile of physical activity (OR=3.49, 95%CI=1.67-7.30, P for trend <0.009) were found. The study concluded that a higher consumption of vegetable

and fruit were associated with a decreased risk of BC, especially among women who were most physically active throughout their lifetimes (JKruk, 2014).

One of studies also suggested that the Mediterranean dietary pattern and diets composed largely of vegetables, fruit, were associated with a decreased risk of BC. However in this study, patients with BC were found with less frequency of vegetable and fruit consumption compared to healthy women (RCR.Albuquerque, 2013).Consumption of fruits and vegetables was also found significantly lower in BC cases. (Landa etal,1994)

Influence of Meat Consumption
If meat consumption is considered, one of the studies reported, positive correlations between foods and BC mortality rates.(DP.Rose 1986).

In a study of diet and BC, 200 Singapore Chinese women with histologically confirmed disease and 420 matched controls were studied and high intakes of animal proteins and red meat were reported associated with increased risk in premenopausal women. (H.P.Lee,1991).

The role of the consumption of fat, animal protein and vitamins on breast-cancer risk was accessed in one of the hospital-based case-control studies of 924 patients, in France, study investigated that all food items containing a high proportion of animal fat e.g. high-fat cheese, desserts and chocolate and processed pork meat, were significantly elevated odds ratio. No evidence of an increase of risk with the intake of animal protein was reported in the same study. (M.Gerber,1991).

In another hospital-based case-control study in Northeast Brazil, 89 women were studied with histologically confirmed BC (age 30-80 years) and matched for age with 94controls. It was revealed that intake of fruits and juices, beans, and dairy products were strongly associated with reduced risk of BC and consumption of red and fried meat was positively reported associated with risk of BC (red meat – OR = 4.30; 95%CI: 1.74- 10.67; p for trend = 0.00). (C.S.Publica etal,2008)

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