DURATION OF POST PARTUM AMENORRHOEA: SHORT IN BREAST CANCER

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ABSTRACT

Objective: To assess association between duration of post partum amenorrhea (PPA) and occurrence of breast carcinoma. Design: A case-control study. Setting: Out patient department, Division of Surgical Oncology, S.S. Hospital, Institute of Medical Science, Banaras Hindu University, Varanasi. Participants: Clinically and histopathologically proved hundred incident cases of breast carcinoma in premenopausal age group, hundred matched controls suffering from some other disease during the same period, were the subjects of study. Main outcome measures: Adjusted Odd’s Ratio (AOR) and Confidence Intervals (CI) for various risk factors for breast carcinoma focused in present research revealed increased risk of cancer breast associated with taller women (p= 0.02, AOR= 2.14 CI =1.10-4.14). Irregular menstrual cycles were associated with increased breast malignancy (p= 0.03, AOR= 3.16, CI= 1.14-8.77). Decreased proportion of lactational amenorrhea to total menstrual duration was associated with increased breast carcinoma (p= 0.01, AOR = 3.23, CI = 1.38-7.59). Results: Logistic regression analysis carried out on some modifiable and non-modifiable risk factors for carcinoma breast revealed that if duration of PPA was than 33% of their total reproductive period from first full term delivery, there was 3.23 times more risk of developing breast cancer.

Conclusion: The risk of carcinoma breast gets reduced in those cases where the period of post partum amenorrhea is increased.

Key words: Post partum amenorrhea, lactational amenorrhea, breast cancer.

INTRODUCTION

Breast cancer is one of the commonest cause of female morbidity and mortality and ranks second to carcinoma cervix uteri². Although the disease burden due to cervical cancer is low in developing countries, the cancer breast stands out an important cause of female morbidity². The age standardized annual incidence rate per 1,00,000 women³ in majority of developed countries like USA, Scotland, Australia, Canada and Switzerland are higher except Japan. The risk is high with positive family history in the form of carcinoma breast of mother or sister when they were premenopausal⁷. An early first full term pregnancy seems to have a protective effect⁶. Unmarried and nulliparous women tend to have more breast tumors than multiparous women. Taller women, obesity and high fatty diet all show positive association with cancer breast.

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Indexed in: Index Medicus (IMSEAR), INSDOC, NCI Current Content, Database of Alcohol & Drug Abuse, National Database in TB & Allied Diseases, IndMED, Entered in WHO CD ROM for South East Asia.
The modifiable risk factors for carcinoma breast includes weight body mass index (BMI), diet, age at first full term delivery, number of live births and PPA. Among these, PPA stands out to be an important modifiable factor as it is associated with promotion of breast-feeding. However, controlling the other factors like promoting the family size or reducing maternal age at first full term delivery will lead to other unacceptable effects like population increase, problems of malnutrition and cancer cervix uteri. During PPA prolactin level remains at increased level within the physiological limit. This in turn helps in adequate birth spacing and provides for adequate nutrition to the newborn. The present investigation aims to study the effect of prolonged PPA in risk reduction of breast carcinoma in women.

PARTICIPANTS AND METHODS

A case control study design was adopted. 100 incident cases of breast cancer of per-menopausal age group attending S.S. Hospital, Institute of Medical Sciences, Banaras Hindu University, Varanasi (U.P.), India during September 1998 to August 1999 were taken. Similarly 100 controls, suffering from other diseases matched for age groups of interval 5 years, religion and residential status were selected from the same hospital during the same period. Information pertaining to age at menarche, age at menopause, period of lactational amenorrhea, diet duration of menstruation, regularity of the cycle, quantity of bleeding age at first full term live birth, parity, past obstetric history, family history, history of use oral pill and socioeconomic status were carefully elicited from the cases and controls and noted on a pre-designed and pre-tested schedule. Each study subject was subjected to weight and height recording adopting standard technique.

\[
\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height}^2 (mtr)}
\]

Proportion of lactational amenorrhea was calculated as the proportion of total lactational amenorrhea to the total menstrual duration from first full term delivery to the date of interview. History of abortion and use of oral contraceptives, duration of menstruation more than 5 days and non-vegetarian diet were not included in the logistic regression analysis as they do not show association in univariate analysis. This study focused on the following as the risk factors:

\begin{itemize}
  \item $\xi$ Height more than 150 cm
  \item $\xi$ BMI more than 25
  \item $\xi$ Age at menarche more than 12 years
  \item $\xi$ Irregular menstrual cycle
  \item $\xi$ Severe bleeding (more than 4 sanitary napkin per day)
  \item $\xi$ First full term delivery after 20 years of age
  \item $\xi$ Number of live births less than 3 (None of the subject was nulliparous)
  \item $\xi$ Proportion of lactational amenorrhea to total menstrual duration after first live birth less than 33%
\end{itemize}

Data Analysis: Logistic regression analysis was carried out on the modifiable and non-modifiable risk factors using SPSS, Version 10.0 software.
RESULTS

Adjusted Odd's Ratio (AOR) and Confidence Intervals (CI) for the various risk factors of breast carcinoma are shown in the table.

Table 1: Adjusted Odd's ratio and confidence interval of the risk factors of breast cancer for pre-menopausal females

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>β</th>
<th>S. E (β)</th>
<th>χ² at 9 df</th>
<th>p</th>
<th>AOR</th>
<th>ACI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (&gt;150cm)</td>
<td>0.76</td>
<td>0.34</td>
<td>5.06</td>
<td>0.02</td>
<td>2.14</td>
<td>1.10-4.14</td>
</tr>
<tr>
<td>Body Mass Index (&gt;25 Kg/m²)</td>
<td>-0.67</td>
<td>0.38</td>
<td>3.25</td>
<td>0.07</td>
<td>0.51</td>
<td>0.24-1.06</td>
</tr>
<tr>
<td>Age at menarche (30 years)</td>
<td>0.78</td>
<td>0.46</td>
<td>2.91</td>
<td>0.09</td>
<td>2.17</td>
<td>0.89-5.31</td>
</tr>
<tr>
<td>Length of Menstrual Cycle (&gt;26 days)</td>
<td>0.84</td>
<td>0.37</td>
<td>5.16</td>
<td>0.02</td>
<td>2.13</td>
<td>1.12-4.74</td>
</tr>
<tr>
<td>Quantity of bleeding (severe)</td>
<td>-0.67</td>
<td>0.46</td>
<td>2.10</td>
<td>0.15</td>
<td>0.51</td>
<td>0.21-1.26</td>
</tr>
<tr>
<td>Age at first full term delivery (after 20 years)</td>
<td>0.73</td>
<td>0.44</td>
<td>2.70</td>
<td>0.10</td>
<td>2.07</td>
<td>0.87-4.95</td>
</tr>
<tr>
<td>No. of live birth (&lt;3)</td>
<td>0.55</td>
<td>0.38</td>
<td>2.89</td>
<td>0.09</td>
<td>1.92</td>
<td>0.91-4.08</td>
</tr>
<tr>
<td>Proportion of PPA to total menstrual duration after live birth (&lt;33%)</td>
<td>1.17</td>
<td>0.44</td>
<td>7.25</td>
<td>0.01</td>
<td>3.23</td>
<td>1.38-7.59</td>
</tr>
</tbody>
</table>

The increased risk of breast carcinoma was associated with taller women (p = 0.02, AOR = 2.14, CI = 1.10-4.14) and irregular menstruation (p = 0.03, AOR = 3.16, CI = 1.14-8.77). Decreased proportion of lactational amenorrhoea (or PPA) to total menstrual duration was associated with breast cancer (p = 0.01, AOR = 3.23, CI = 1.38-7.59).

DISCUSSION

It has long been recognized that the female reproductive organs have a role in the genesis of breast cancer. In 1985 the worldwide incidence of breast cancer was estimated to be 72,00,000 new cases per year, corresponding to 16% of all cancers. The incidence rate of breast cancer is increasing all over the world particularly in areas of low incidence. Early menarche and delayed menopause are established risk factors since oestrogen and progesterone will have long duration of action on breast tissues with carcinogenic outcome. However, the findings of this study are not confirmative with this. During PPA these hormonal levels get suppressed physiologically by prolactin. Those on oral contraceptive pills are at increased risk due to exogenous hormonal influence. This is not supported by the present observation.

Although the benefits of breastfeeding are well recognized, many people are skeptical about its use as a family planning method. In cultures where prolonged and frequent breastfeeding is common, PPA and suppressed ovulation are the principle mechanisms that ensure suppressed levels of ovarian hormones viz. oestrogen and progesterone, thereby, conferring protection towards breast cancer. In Indian setup Prema et al. observed the median duration of post partum amenorrhoea to be 4.6 months in the non-lactating women as compared to 11.1 months amongst lactating women.

CONCLUSION

Logistic regression analysis carried out on modifiable and non modifiable risk factors for carcinoma breast revealed that mothers if protected through PPA less than 33% out of their total reproductive period from first full term deliver had 3.23 (CI = 1.38-7.59) times more risk of developing breast cancer. The risk of cancer breast gets reduced in those cases where the period of PPA is increased. PPA also keeps ovulation suppressed and thus natural family planning is also achieved, the present need of the developing countries to check the population explosion. Thereby consumption of hormonal pills becomes optional. Other risk factors such as age at menarche, BMI, age at first full term delivery and number of live births are seen to be insignificant at 5% level of significance, however, significant at 10%. This means perhaps a larger sample size may be required to establish the strength of association.

Thus among the few risk factors, which are modifiable for breast cancer only PPA can be advocated. Weight reduction, altering BMI, increasing age at first full term delivery and parity status is difficult to be advocated in developing countries such as India. In the present scenario promoting large family size or reducing maternal age at first full term live birth cannot be encouraged in view of the problems of population explosion and malignancies like uterine and cervical cancers. Thus lactational amenorrhoea, which is easy to advocate and generate psychological bonding between mother and child, offers the single most appealing choice for reducing the risk of breast carcinoma. In addition, exclusive, frequent and prolonged breast feeding gives adequate nutrition to the new born and also provides natural birth spacing as a family planning choice to the concerned women.

REFERENCES