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COMPARE THE BREAST CANCER RISK AMONG PREMENOPAUSAL AND POSTMENOPAUSAL WOMEN.

Authors:

1.Mr. Muhammed Rishad EK

2. Mr.Muhammed Sherbin CP

3.Ms.Muhsina

4.Ms.Nasla A

3rd Year BSc Nursing

Alshifa College of Nursing (KUHS), Perinthalmanna, Malappuram, Kerala

Co Author :

Mrs. Sinitha KB

Assistant professor

Department of Medical Surgical Nursing

Abstract

The present study entitled "A study to compare the breast cancer risk among Premenopausal and postmenopausal women residing at Perinthalmanna municipality" is based on the objectives: Assess the breast cancer risk among premenopausal and postmenopausal women residing at selected wards of Perinthalmanna, compare the breast cancer risk among premenopausal and postmenopausal women residing at selected wards of Perinthalmanna and determine the association between breast cancer risk among premenopausal and postmenopausal women with selected demographic variables. **Methodology**: Quantitative research approach was used for the study and comparative research design was selected. The study was conducted in 32&34 wards of Perinthalmanna municipality using non probability convenient sampling technique. In this study the investigator has used Modified Gail score to compare the lifetime breast cancer risk among premenopausal and postmenopausal women. **Analysis:** Data were analysed by using descriptive and inferential statistics. **Result:** Among 30 premenopausal women 83.3% (25) women are having less than 5% of lifetime breast cancer risk. 13.3% (4) are having 5 – 10% of lifetime breast

cancer risk and 3.3% (1) are having 10 – 20% of lifetime breast cancer risk. In postmenopausal women 90% (27) women are having less than 5% of lifetime breast cancer risk and 10% (3) are having 5 – 10% of lifetime breast cancer risk and the demographic variables Body mass index, number of pregnancies and personal habits of smoking and alcoholism have no association with lifetime risk of breast cancer risk. **Conclusion:** From the study it is evident that premenopausal women have the higher lifetime breast cancer risk than postmenopausal women. The investigator found that there was no association between demographic variables and breast cancer.

Key words: Compare, Breast cancer risk, Premenopausal women and Postmenopausal women

INTRODUCTION

Breast cancer is a group of diseases in which cells in breast tissue change and divide Uncontrolled, typically resulting in a lump or mass. Most breast cancers begin in the lobules (milk glands) or in the ducts that connect the lobules to the nipple. It is the most common cancer among women worldwide, accounting for about 30% of all new female cancer diagnoses and 15% of all cancer deaths.1 However, not all women have the same risk of developing or dying from breast cancer. Several factors, such as age, genetics, lifestyle, and reproductive history, can influence the likelihood of developing this disease. One of the most important factors is menopausal status, or whether a woman has stopped having menstrual periods due to hormonal changes.

Premenopausal women are those who still have regular or irregular menstrual cycles, While postmenopausal women are those who have not had a period for at least 12 months. Menopause usually occurs around age 50, but it can vary depending on individual factors. The average age of menopause in the United States is 51 years.

The purpose of this study is to compare the risk of breast cancer among premenopausal And postmenopausal women in a large cohort of women from diverse backgrounds and regions. The investigators will examine how menopausal status influences the incidence, mortality, stage at diagnosis, subtype distribution, and survival outcomes of breast cancer among these women. The investigators will also explore how other factors, such as race/ethnicity, family history, body mass index (BMI), physical activity, alcohol consumption, smoking status, oral contraceptive use, hormone therapy use, parity (number of births), breastfeeding duration, and mammography screening frequency, interact with menopausal status to affect breast cancer risk. The investigators hope that this study will provide valuable insights into the biological and behavioral mechanisms underlying the association between menopause and breast cancer, as well as inform prevention strategies and clinical guidelines for women at different stages of life.

In our community there is a statement that postmenopausal women have higher chance of lifetime risk of breast cancer than premenopausal women. In our study we are checking whether there is any change in the current scenario of our community as the cases of breast cancer in premenopausal women were increasing dramatically, and we are providing awareness regarding breast cancer risk and the importance of early identification and treatment of breast cancer.

NEED AND SIGNIFICANCE

Premenopausal women have lower incidence rates of breast cancer than postmenopausal women across all racial/ethnic groups. However, the difference between premenopausal and postmenopausal rates varies by race/ethnicity. Black women have the smallest difference (19%), while Asian/Pacific Islander women have the largest difference (67%). White women have the highest incidence rates among both premenopausal and postmenopausal women. Premenopausal women have higher death rates of breast cancer than postmenopausal women across all racial/ethnic groups. This may reflect the higher proportion of aggressive breast cancers among premenopausal women, as well as the lower effectiveness of screening and treatment for this group. Black women have the highest death rates among both premenopausal and postmenopausal women, while Asian/Pacific Islander women have the lowest death rates.In our community there is a statement that postmenopausal women have a higher chance of lifetime risk of breast cancer than premenopausal women. In our study we are checking whether there is any change in the current scenario of our community as the cases of breast cancer in premenopausal women were

increasing dramatically, and we are providing awareness regarding breast cancer risk and the importance of early identification and treatment of breast cancer.

Review of literature :

A population-based study of breast cancer prevalence in Australia, predicting the future health care needs of women living with breast cancer. The study was conducted by Xue Qin Yu, Roberta De Angelis, et al in the year of 20092019. The aim of the study is to estimate future health care requirements the projected prevalence was then divided into phases of care according to the different stages of the survivorship trajectory. The method which is used in the study is the PIAMOD. Breast cancer data from the New South Wales (NSW) Central Cancer Registry and PIAMOD (Prevalence and Incidence Analysis MODEL) software were used to project future breast cancer prevalence in NSW. Parametric models were fitted to incidence and survival data and the modeled incidence and survival estimates were then used to estimates current and future prevalence. The result of the study is the number of women NSW living with a breast cancer diagnosis had increased from 19,305 in 1990 to 48,754 in 2007. This number is projected to increase further to 68,620 by 2017. The majority of these breast cancer survivors will require continued monitoring (31,974) or will be long-term survivors (29,785). About 9% will require active treatment (either initial therapy, or treatment for subsequent metastases or second cancer) and 1% will need end of life care due to breast cancer.

The cross-sectional study was conducted by Padmavati, Dyavarishetti in Mumbai in the year 2017. The study using convenience sampling of all women aged 30 years and above was conducted in Mumbai of the 2430 women enumerated in the study area 1158 women participated in the study. The objective of the study was, to assess the prevalence of various risk factors of breast cancer in women aged 30 year and above. The result of the study 15.5% women had at least one risk factor for breast cancer. The prevalence of individuals risk factor was below 6% prevalence of the risk factor for was not even high but never the less. The increasing trend of breast cancer in the country makes it imperative to introduced population-based screening for all women with or without risk factor.

Statement of the problem :- A study to compare the breast cancer risk among premenopausal and postmenopausal women

OBJECTIVES

1. Assess the breast cancer risk among premenopausal and postmenopausal women residing at selected wards of Perinthalmanna
2. Compare the breast cancer risk among premenopausal and postmenopausal women residing at selected wards of Perinthalmanna
3. Determine the association between breast cancer risk among premenopausal and postmenopausal women with selected demographic variables

Operational definition

1. Compare: Measure the similarity and dissimilarity of breast cancer risk between premenopausal and postmenopausal women
2. Breast cancer risk: Possibility of a woman to develop breast cancer during her lifetime among premenopausal and postmenopausal women residing at selected wards of Perinthalmanna
3. Premenopausal women: Women who have not yet attained menopause but succeeding to menopause and between the age group of 40-50 years
4. Postmenopausal women: Women who have attained menopause and between the age group of 50-60 years

HYPOTHESIS

H1: There is significant difference in breast cancer risk between premenopausal and postmenopausal women residing at selected wards of Perinthalmanna

H2: There is significant association between breast cancer risk and selected socio – demographic variable among premenopausal women and postmenopausal women.

Conceptual frame work of the study:-

The study was based on the modified transition theory of afaf ibrahim malaise

RESEARCH METHODOLOGY

Research approach : Quantitative approach

Research design : descriptive research design

Variables

Research variable - Breast cancer risk

Demographic variable – Age, History of family with Breast cancer, BMI, Personal habits, Number of pregnancies

Setting of the study : selected wards of Perinthalmanna

Population : Premenopausal and Postmenopausal women

Sample : premenopausal and postmenopausal women residing In selected wards of Perinthalmanna who adhere to eligibility criteria.

Sample size : 60

Sampling Technique : Purposive sampling technique

Criteria for sample selection :

Inclusion criteria
Premenopausal and postmenopausal women

- Who are willing to participate in the study.
- Who are available during data collection

Exclusion criteria
Premenopausal and postmenopausal women

- Who had a history of breast cancer
- Who have breast cancer
- Premenarchal stage

Tool / instruments : Gail scale

Description of Tool :

Gail score: This model incorporates a series of questions related to breast cancer risk factors. Answers to the questions are calculated into a Gail risk score. Gail model incorporates six breast cancer risk factors, namely: age, age at menarche, age at first live birth, number of breast biopsies, history of atypical hyperplasia, and number of first-degree relatives with breast cancer.27

Data Analysis :

Descriptive statics: -

- Measure of central tendency, to find the average score of the test result
- The selected socio demographic data was analysed by using frequencies and percentages

Inferential statics: -

- Unpaired t test, to compare the results of premenopausal and postmenopausal women
- Chi square test, to determine the association between the dependent variable and the selected demographic characteristics under study

Ethical consideration:-

Ethical clearance was taken from institutional authorities and ethical committee.

Analysis:

Section A – Distribution of demographic variable

Section B–Assessment of breast cancer risk among premenopausal and postmenopausal women

Section C– Comparison of breast cancer risk among premenopausal and postmenopausal women

Section D–Association between breast cancer risk among premenopausal and postmenopausal women with selected demographic variables

Section A – Distribution of demographic variable

Sl no	Variable	Category	Frequency	Percentage
1	Age	40-44	18	30
		45-49	7	11.67
		50-54	8	13.33
		55-59	4	6.67
		60-64	10	16.67
		65 above	14	21.67
2	BMI	<18	1	1.66
		18-24.9	31	51.67
		25-29.9	19	31.67
		30-34.9	9	15
		35-39.9	0	0
		>40	0	0
3	No. Of Pregnancies	0	6	10

		1	4	6.67
		2	24	40
		3 more	26	43.33
4	Personal history of smoking/alcoholism	Yes	0	0
		No	60	100

Section B: Assessment of breast cancer risk among premenopausal and postmenopausal women

Table 1: Life time breast cancer risk among premenopausal and postmenopausal women

Gail Scale Life time risk	**Premenopausal**		**Postmenopausal**	
	No	**%**	**No**	**%**
< 5	25	83.3	27	90
5-10	4	13.3	3	10
10-20	1	3.33	0	0
>20	0	0	0	0

Section C: Comparison of breast cancer risk among premenopausal and postmenopausal women

Table2**:** Comparison of breast cancer risk among premenopausal and postmenopausal women

Group	**Number**	**Mean**	**S.D**	**S.E**	**t value**
Premenopausal	30	4.217	1.744	0.440	4.0383
Postmenopausal	30	2.440	1.663		

Section D: Association between breast cancer risk among premenopausal and postmenopausal women with selected demographic variables

Table 3: Association between breast cancer risk among premenopausal and postmenopausal women with BMI

PREMENOPAUSAL							
BMI/Risk	<5	5-10	10-20	>20	df	chi square	p value
<18.5	0	0	0	0	4	1.19583	0.878784
18.5-24.9	15	2	1	0			
25-29.9	7	1	0	0			
30-34.9	3	1	0	0			
35-39.9	0	0	0	0			
>40	0	0	0	0			
POSTMENOPAUSAL							
<18.5	1	0	0	0	3	0.753691	0.860508
18.5-24.9	12	1	0	0			
25-29.9	10	1	0	0			
30-34.9	4	1	0	0			
35-39.9	0	0	0	0			
>40	0	0	0	0			

Table 4: Association between breast cancer risk among premenopausal and postmenopausal women with number of pregnancies.

N = 60

PREMENOPAUSAL							
Pregnancy /Risk	<5	5-10	10-20	>20	df	chi square	p value
No birth	3	0	0	0	6	4.58824	0.597599
1	2	0	0	0			

2	12	4	1	0			
3 or more	8	0	0	0			
POSTMENOPAUSAL							
Pregnancy /Risk	<5	5-10	10-20	>20	df	chi square	p value
No birth	2	0	0	0	3	2.57496	0.461897
1	2	1	0	0			
2	6	1	0	0			
3 or more	17	1	0	0			

From table 4 the chi square value of df6 is 4.588 which is less than the tabulated value of df 6 with a significance level 0.05 (12.59), so there is no significant association between number of pregnancies and breast cancer among premenopausal women. And the chi square value of df 3 is 2.57 which is less than the tabulated value of df 3 with a significance level 0.05 (7.82), so there is no significant association between number of pregnancies and breast cancer among postmenopausal women

Result:

Section A – Distribution of demographic variable

- Out of 60 women from selected wards of Perinthalmanna, in premenopausal and postmenopausal women 30% women belongs to 40-44 years, and 11.67%belongs to 45-49 years, 13.33% belongs to 50-54 years, 6.67% belongs to 55-59 years, 16.67% belongs to 60-64 years, 21.67% belongs to 65 years above.
- Out of 60 women from selected wards of Perinthalmanna in premenopausal women 60% belongs to 18.5 – 24.9 BMI, 26.7% belongs to 25 – 29.9 BMI and 13.3% belongs to 30-34 BMI. In postmenopausal women 3.33% belongs to less than 18.5 BMI, 43.3% belongs to 18.5 – 24.9 BMI, 36.67% belongs to 25 – 29.9 BMI and 16.67% belongs to 30-34 BMI.
- Out of 60 women from selected wards of Perinthalmanna in premenopausal women 10% belongs to no number of pregnancies, 6.67% belongs to one number of pregnancies, 56.7% belongs to two number of pregnancies, and 26.7% belongs to three or more number of pregnancies. In postmenopausal women 10% belongs to no number of pregnancies, 6.67% belongs to one number of pregnancies, 23.33% belongs to two number of pregnancies, and 60% belongs to three or more number of pregnancies.
- Out of 60 women from selected wards of Perinthalmanna in premenopausal and postmenopausal women 60 (100%) women have no personal history of smoking and alcoholism.

Section B – Assessment of breast cancer risk among premenopausal and postmenopausal women

The breast cancer risk of study population is as follows

Among 30 premenopausal women 83.3% (25) women are having less than 5% of lifetime breast cancer risk. 13.3% (4) are having 5 – 10% of lifetime breast cancer risk and 3.3% (1) are having 10 – 20% of lifetime breast cancer risk. In postmenopausal women 90% (27) women are having less than 5% of lifetime breast cancer risk and 10% (3) are having 5 – 10% of lifetime breast cancer risk.

Section C – Comparison of breast cancer risk among premenopausal and postmenopausal women

In premenopausal women the mean value is 4.217, Standard deviation is 1.744 and number of samples are 30. In postmenopausal women the mean value is 2.440, Standard deviation is 1.663 and number of samples are 30. From these values the calculated standard error is 0.440. By substituting these values in t test, we will get the value 4.0383. And the degree of freedom for the unpaired t test with a sample of 60 is 58.

So, the calculated t-value is 4.03. Which is more than tabulated t-value (2.003) at 58 degrees of freedom, thus we reject null hypothesis and infer that there is a significant difference in breast cancer risk among premenopausal and postmenopausal women.

Section D – Association between breast cancer risk among premenopausal and postmenopausal women with selected demographic variables

- Chi square value for BMI and life time breast cancer risk in premenopausal women is 1.19, which is less than table value (9.49). Hence, we rejected H_1 which implies there is no significant association between BMI and life time breast cancer risk
- Chi square value for BMI and life time breast cancer risk in postmenopausal women is 0.7536, which is less than table value (7.82). Hence, we rejected H_1 which implies there is no significant association between BMI and life time breast cancer risk
- Chi square value for number of pregnancy and life time breast cancer risk in premenopausal women is 4.5882, which is less than table value (12.59). Hence, we rejected H_1 which implies there is no significant association between number of pregnancy and life time breast cancer risk
- Chi square value for number of pregnancy and life time breast cancer risk in postmenopausal women is 2,574, which is less than table value (7.82). Hence, we rejected H_1 which implies there is no significant association between number of pregnancy and life time breast cancer risk
- There is one more demographic variable such as personal habit of smoking and alcoholism that affecting breast cancer risk. The sample who participated in this study did not have any history of smoking or alcoholism. And hence there is no association can be found between lifetime breast cancer risk and this variable.

Discussion :

In this study Majority of the sample 18 (30%) belongs to 40-44 years,13(21.67%) belongs to above 65 years, 10(16.67%) belongs to 60-64years, 8(13.33%) belongs to 50-54 years, 7(11.67%) belongs to 45-49 years, 4(6.67%) belongs 55-59 years. Regarding BMI majority of premenopausal women 18 (60%) belongs to 18.5 – 24.9 BMI, 8 (26.7%) belongs to 25 – 29.9 BMI and 4(13.3%) belongs to 30-34 BMI. In postmenopausal women 13 (43.3%) belongs to 18.5-24.9 BMI, 11(36.67%) belongs to 25-29.9 BMI, 5(16.67%) belongs to 30-34 BMI, 1(3.33%) belongs to less than 18.5 BMI. Regarding number of pregnancies in premenopausal women majority 17(56.7%) belongs to two number of pregnancies,8 (26.7%) belongs to three or more number of pregnancies. 3 (10%) belongs to no pregnancies, 2 (6.67%) belongs to one number of pregnancies, in postmenopausal women majority samples 18 (60%) belongs to three or more number of pregnancies.7 (23.33%) belongs to two number of pregnancies,3 (10%) belongs to no pregnancies, 2 (6.67%) belongs to one number of pregnancies. Regarding personal habits of smoking and alcoholism in premenopausal and postmenopausal women 60 (100%) women have no personal history of smoking or alcoholism Based on the assessment, Among 30 premenopausal women 83.3% (25) women are having less than 5% of lifetime breast cancer risk, 13.3% (4) are having 5-10% of lifetime breast cancer risk and 3.3% (1) are having 10-20% lifetime breast cancer risk. In 30 postmenopausal women 90% (27) women are having less than 5% of lifetime breast cancer risk and 10% (3) having 5-10% lifetime breast cancer risk.The study findings reveals that there is a significant difference in breast cancer risk among premenopausal and postmenopausal women.This study raise awareness about cancer risk perception and the importance of early breast cancer risk estimation. Nurses can utilize breast cancer risk assessment as a simple tool to identify risk in early adult women. Nursing curricula should incorporate the Gail score and its interpretation to enhance students' awareness of their own breast cancer risk. Additionally, nursing administration support is crucial for integrating risk assessment into routine health assessments, facilitating early cancer detection among hospitalized women. Further research should focus on preventive measures and understanding breast cancer progression. The study's limitations include its focus

on women over 40 years and exclusion of those with previous breast cancer exposure. Recommendations include replication on a larger population and exploration of different research approaches. The chi-square test is used to find the association between breast cancer risk among premenopausal and postmenopausal women with selected demographical variable There was no association found between breast cancer risk of premenopausal and postmenopausal women with selected demographic variables such as BMI,Number of pregnancies, personal habits.

Summary:

The study was conducted to compare the breast cancer risk among premenopausal and postmenopausal women. After receiving the formal permission from the corresponding authority, a pilot study conducted and the study was found feasible. Afterwards the 30samoles of premenopausal women and 39 samples of postmenopausal women were selected for main study by non-probability convenient sampling technique. The study used a quantitative research approach and comparative research design. A standardized modified Gail score breast cancer risk evaluation tool was developed by the researcher to compare risk of breast cancer among premenopausal and postmenopausal women.

From the result of comparison, among 30 premenopausal women 83.3% (25) women are having less than 5% of lifetime breast cancer risk. 13.3% (4) are having 5 – 10% of lifetime breast cancer risk and 3.3% (1) are having 10 – 20% of lifetime breast cancer risk. In postmenopausal women 90% (27) women are having less than 5% of lifetime breast cancer risk and 10% (3) are having 5 – 10% of lifetime breast cancer risk. Findings of the study, from analysis the result shows some of the demographic variables like BMI, number of pregnancies and personal habits of smoking and alcoholism have no association with breast cancer risk.

Conclusion:

The present study concludes that comparative value is positively correlated to premenopausal women were negatively correlated with postmenopausal breast cancer risk

This study also concludes that Body mass index, personal habits and number of pregnancies are independent on breast cancer risk.

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