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Awareness and Practice of Lymphedema Prevention among Women with Breast Cancer at Tertiary Cancer Hospital, Chitwan, Nepal

Mina Kumari Ranabhat,[1] **Sarmila Neupane,**[1] **Sushila Koirala**[1]

[1]Department of Nursing, B.P. Koirala Memorial Cancer Hospital Nursing College, Bharatjpur, Chitwan, Nepal.

ABSTRACT

Background

Breast Cancer Related lymphedema (BCRL) is the most common complication of breast cancer treatment. It can be prevented by early awareness of BCRL and its risk factors and continuing exercise after surgery and treatment. The objective of this study is to identify the awareness and practice of lymphedema prevention among women with Breast Cancer at Tertiary Cancer Hospital, Chitwan, Nepal.

Methods

Cross-sectional study design was used, with the sample of 115 breast cancer women who were attending at B.P.Koirala Memorial Cancer Hospital. A non-probability purposive sampling technique was used for sample selection. Data were collected between February 2024 to August 2024 using semi structured interview schedule after obtaining the ethical approval from Institutional Review Committee of B.P.Koirala Memorial Cancer Hospital (BPKMCH-IRC). Data were entered into IBM SPSS version 16. Data was analyzed using descriptive and inferential Statistical tools. p-value <0.05 was considered as Statistically significant.

Results

The study revealed that out of 115 respondents, only 20% demonstrated fair level of awareness and 73% displayed a fair level of practice towards awareness and prevention breast cancer related lymphedema. Regarding practice 77.3% had continue exercise of arm according to advice of health-persons. Level of awareness of lymphedema prevention is statistically significant with age (P=0.038) and family history (P=0.026).

Conclusions

The findings indicate that a substantial percentage of respondents possess a fair level of awareness and more than half have practice of prevention of lymph edema of arms. Therefore, the need for awareness programs concerning prevention of breast cancer related lymphedema.

Keywords: breast cancer women; lymphedema; awareness and practice.

Correspondence: Mrs. Mina Kumari Ranabhat, Department of Nursing B.P. Koirala Memorial Cancer Hospital Nursing College, Bharatpur, Chitwan, Nepal. Email: minaranabhat@gmail.com, Phone: +977-9845082000. **Article received**: 2024-12-01 **Article accepted**: 2025-05-25. **Article published**: 2025-06-30.

INTRODUCTION

Lymphedema is the excessive fluid accumulation in soft tissues. Various risk factors surgery, radiation, chemotherapy, diagnostic period, pathological lymph node, infection, and weight gain are breast cancer related lymphedema.[2] Prevention of risk factors, exercise, weight balance is an important part of lymphedema management.[3,4] Approximately 20% of women developed lymphedema after breast cancer treatment, they are risk for up to 20 years after surgery. The incidence of lymphedema after breast cancer treatment had been in a wide range from 6% to30%. This may be radical mastectomy, high axillaries lymph node metastasis and high number of dissected lymph nodes as well as lack of awareness and practice are causes of arms lymphedema.[5,6] Currently no medical cure for lymphedema, therefore, prevention and avoidance of risk factors is the important[7,8] Similarly, awareness of health professionals as well as combined dynamic exercise therapies, physiotherapy and kinesiotherapy can prevent and help to minimize the morbidity of lymphedema.[9,10] The objective of this study is to identify the awareness and practice of lymphedema prevention among women with Breast Cancer at Tertiary Cancer Hospital, Chitwan, Nepal.

METHODS

An analytical cross-sectional study was conducted in B.P.Koirala Memorial Cancer Hospital, Bharatpur, Chitwan, Nepal. Ethical approval from Institutional Review Committee of B.P. Koirala Memorial Cancer Hospital (Ref. No. 119) from February 22/ 2024 to August 30/2024. Written informed consent was taken from respondents before conducting interview. The study participants were 115 breast cancer women who had done breast cancer operation at least three months ago and they were selected by using non-probability purposive sampling technique. Data was collected by researcher herself face to face using semi structured interview schedule after obtaining the. Questionnaire consisted were used for data collection. Each correct answer was given a score of 1, and incorrect answers received a score of 0. The level of knowledge and practice was classified into three categories based on Bloom's cut of points: good knowledge >80%, moderate knowledge 60-80%, and poor knowledge <60%.[1] Data were entered using the software Statistical Package for Social Science (SPSS-16 version). Collected data was analyzed by using descriptive (frequency, percentage, mean and standard deviation) and inferential (Chi-squire) Statistics.

RESULTS

The study out of 115 breast cancer patients regarding sociodemographic characteristic 56.5% participants were 30-50 years old age. The Mean ± SD were 48.83±10.887 with minimum age 22 and maximum age 79 years. Similarly, most (91.3%) were married and 53% belongs to joint family with 34.8% Madesi, 88.7% were Hindu religion. Among them 47.0% were illiterate, 58.3% were homemaker, 42.6% participants income was enough for >12 months and 90.4% had no any family history of breast cancer (Table 1).

The awareness of participants regarding (BCR) Lymphedema, was 41.7% as lymphedema is the impaired flow of lymphatic fluid in the system, 31.3% answered breast cancer related surgery, radiation and family history are risk for lymphedema, 56.5% answered heavy sensation in the limb, decreased flexibility or mobility and numbness are symptoms of lymphedema, 69.6% answered Lymphedema most likely occur after operation and radiotherapy, in a few months or years of breast cancer treatment,73.9% answered early detection and intervention is the best way to reduce and manage the lymphedema and 17.4% answered lymphedema cannot be cured. Regarding risk factors of BCR lymphedema 25.2% respondents answered obesity, 71.3% axillary lymph node dissection, 17.4% radiotherapy, 18.3%wound infection, 36.5% accidental trauma like cut, burn, trauma and 53.0% answered breast cancer patient is risk for lymphedema over life time. As regard preventive measures of lymphedema, 29.6% answered that keep nail short, 26.1% keep affected arms above the level of heart, 53.9% do not wear tight clothing and ornaments, 90.4% moving the arm and exercise regularly after surgery, 62.6% use sunscreen, avoid blood pressure and injection in affected arm,

Table 1. Socio-demographic characteristic of the participants. (n=115)	
Variables	**Frequency (%)**
Age	
<30	3(2.5)
30-50	65(56.5)
>50	47(40.9)
(Mean ± SD 48.83±10.887, min=22, max=79)	
Marital status	
Married	105(91.3)
Unmarried	1(0.9)
Widow	7(6.1)
Divorced	2(1.7)
Type of family	
Nuclear	54(47.0)
Joint	61(53.0)
Ethnicity	
Brahaman/Chhetri	26(22.6)
Adibasi/ Janajati	14(12.2)
Madesi	40(34.8)
Dalit	22(19.1)
Others	13(11.3)
Religion	
Hindu	102(88.7)
Buddhism	7(6.1)
Islam	4(3.5)
Christian	2(1.7)
Education Status	
Illiterate	54(47.0)
basic education	28(24.3)
Secondary education	21(18.3)
Bachelor or above	12(10.4)
Occupation	
Service holder	7(6.1)
Business	5(4.3)
Labour	2(1.7)
Agriculture	30(26.1)
Homemaker	67(58.3)
Others	4(3.5)
Family Income (Months)	
<3	29(25.2)
3-6	13(11.3)
6-12	24(20.9)
>12	49(42.6)
Family history of breast cancer	
Yes	11(9.6)
No	104(90.4)

47.8% do not carry heavy objects on affected side and 67.8% known that if there is swelling of arm, hand, fingers and difficulty in arm movement should notify the health care providers. Regarding Source of information to prevent lymphedema, 40.9% physiotherapist and 38.3% were nurses (Table 2).

Table 2. Awareness of Participants regarding (BCR) Lymphedema (n=115)	
Awareness	**Correct response Frequency (%)**
Lymphedema is the impaired flow of lymphatic fluid in the system	48(41.7)
Breast cancer related surgery, radiation and family history are risk for lymphedema	36(31.3)
Heavy sensation in the limb, decreased flexibility or mobility and numbness are symptoms of lymphedema	65(56.5)
Lymphedema most likely occur after operation and radiotherapy, in a few months or years breast cancer treatment	80(69.6)
Early detection and intervention is the best way to reduce and manage the lymphedema	85(73.9)
Lymphedema cannot be cured	20(17.4)
Risk Factors of BCR Lymphedema*	
Obesity	29(25.2)
Axillary lymph node dissection	82(71.3)
Radiotherapy	20(17.4)
Wound infection	21(18.3)
Accidental trauma like cut, burn, trauma	42(36.5)
Breast cancer patient is risk for lymphedema over life time	61(53.0)
Awareness regarding Preventive Measures of Lymphedema after breast surgery*	
keep nail short	34(29.6)
keep affected arms above the level of heart	30(26.1)
Do not wear tight clothing and ornaments	62(53.9)
Moving the arm and exercise regularly after surgery	104(90.4)
Use sunscreen, avoid blood pressure and injection in affected arm	72(62.6)
Do not carry heavy objects on affected side	55(47.8)
If there is swelling of arm, hand, fingers and difficulty in arm movement should notify the health care providers	78(67.8)
Source of information to prevent lymphedema*	
Doctors	34(29.6)
Nurses	44(38.3)
Physiotherapist	47(40.9)
Family	6(5.2)

*Multiple response**

Practice regarding lymphedema Prevention 69.6% of participants got advice from health workers, 6.1% before treatment and 63.5% after treatment. Hundred percent participants performed exercise. Among them 47.0% perform according to their interest, 36.5% three times a day and 16.5% two times a day. About exercise Up to 2 to 3 days of operation, gripping, dumbelling, milking, squeezing and hair combing are 79.1%, 7.0%, 7.8%, 54.8% and 37.4% respectively. Regarding practice after 2 to 3 days of operation, clasp, lift and stretch, support shoulder movement with deep breathing, wall hand climbing and all of the above, 69.6%, 56.5%, 68.7% and 39.1% respectively (Table 3).

Table 3. Practice Regarding Lymphedema Prevention. (n=115)	
Variables	**Frequency (%)**
Advice provided to prevent lymphedema from the health workers	80(69.6)
Advice before treatment	7(6.1)
Advice after treatment	73(63.5)
Practice of lymphedema Prevention	
Performed exercise to prevent lymphedema	115(100)
Perform arm exercise two times a day	19(16.5)
Perform arm exercise three times a day	42(36.5)
Continue exercise of arm according to advice	89(77.3)
according to interest	54(47.0)
Up to 2 to 3 days exercise*	
Gripping exercise	91(79.1)
Dumbelling exercise	8(7.0)
Milking exercise	9(7.8)
Squeezing exercise	63(54.8)
Hair combing	43(37.4)
After 2-3 days exercise*	
Clasp, lift and stretch	80(69.6)
Support shoulder movement with deep breathing	65(56.5)
Wall hand climbing	79(68.7)
All of above	45(39.1)

*Multiple response**

Regarding the exercise after 20 days of operation, 34.8% participant performing rod and broomstick lifting, 29.6% pulley tugging, 32.2% performing both (rod and broomstick lifting and pulley tugging), 81.7% protect the skin from sunburn and insect bite, 25.2% use of compression garments, 96.5% avoidance of blood pressure, trauma and vein puncture at affected limb, 33.9% maintained body weight, 94.8% wear loose fitting clothes, 65.2% avoided heavy lifting with the affected arm, 7.8% avoided tight jewelry and elastic band of affect fingers, 7.0% use of electric razor to remove hair of affected area and 77.3% continue exercise of arm according to advice (Table 4).

Table 4 Exercise perform after 20 days of operation. (n=115)	
Practice*	**Frequency (%)**
Rod and broomstick lifting	40(34.8)
Pulley tugging	34(29.6)
Both a and b	37(32.2)
Protect the skin from sunburn and insect bite	94(81.7)
Use of compression garments	29(25.2)
Avoidance of blood pressure, trauma and vein puncture at affected limb	111(96.5)
Maintained body weight	39(33.9)
Wear loose fitting clothes	109(94.8)
Avoid heavy lifting with the affected arm	75(65.2)
Avoid tight jewelry and elastic band of affect fingers	9(7.8)
Use of electric razor to remove hair of affected in area	8(6.9)

*Multiple response**

Regarding level of awareness and level of practice of lymphedema prevention 20% had fair and 80% had poor level of awareness and 73% had fair and 27% had poor level of practice (Table 5).

Table 5. Level of awareness and level of practice. (n=115)	
Characteristics	**Frequency (%)**
Level of awareness	
Poor	92(80.0)
Fair	23(20.0)
Level of practice	
Poor	31(27.0)
Fair	84(73.0)

The Association between level of awareness of lymphedema prevention and socio-demographic variables showed in (Table 6).

Table 6. Association between level of awareness of lymphedema prevention and sociodemographic variables. (n=115)				
Variables	**Fair n (%)**	**Poor n (%)**	***χ2***	***p-value***
Age				
<30	2(66.7%)	1(33.3%)	6.521	**0.038**
30-50	9(13.8%)	56(86.2%)		
>50	12(25.5%)	35(74.5%)		
Marital Status				
Married	20(19.0%)	85(81.0%)	1.75	0.625
Unmarried	-	1(100.0%)		
Widow	2(21.6%)	5(74.4%)		
Divorced	1(50.0%)	1(50.0%)		
Types of family				
Nuclear	12(22.2%)	42(77.8%)	o.314	0.575
joint	11(18.0%)	50(82.0%)		
Ethnicity				
Brhaman/Chhetri	5(19.2%)	21(80.8%)	2.96	0.398
Adibasi/Janjati	1(7.10%)	13(92.9%)		
Madeshi	11(27.5%)	29(72.5%)		
Dalit	6(17.6)	28(82.4)		
Education				
Illiterate	3(24.1)	41(79.9)	1.06	0.304
Literate	10(16.4)	51(83.6)		
Religion				
Hindu	20(19.7%)	82(80.3%)	0.878	8.31
Buddhist	2(28.6%)	5(71.4%)		
Islam	1(25%)	3(75.0%)		
Christian	-	2(100%)		
Occupation				
Service holder	3(25%)	9(75%)	2.6	0.273
House Maker	16(23.9)	51(76.1)		
Agriculture	4(11.1)	32(88.9)		
Family history				
Yes	5(45.5%)	6(54.5%)	4.92	**0.026**
No	18(17.3%)	86(82.7%)		

Level of significance < 0.05

The level of awareness of lymphedema prevention is statistically significant between age and family history of breast cancer. There is no statistically significant with marital status, type of family, ethnicity, education, religion and occupation.

DISCUSSION

The cross-sectional study design was used to identify the level of awareness and practice of lymphedema prevention among 115 breast cancer women attending at B.P.Koirala Memorial Cancer Hospital. Breast cancer-related lymphedema is one of the most common complications seen in breast cancer patients.[11] In this study 41.7% answered lymphedema is the impaired flow of lymphatic fluid in the system. Similar study of Saudi Arabia 29.6% of the participants had answered of lymphedema. Regarding risk factors of BCR lymphedema answered 25.2%, Obesity 71.3%, axillary lymph node dissection17.4%, radiotherapy 18.3%, wound infection 36.5%, accidental trauma like cut burn, trauma and 53.0% breast cancer patient is risk for lymphedema over life time. Similarly finding showed that, 67.4% of them said that it is possible that trauma of an upper limb can increase the risk of lymphedema occurrence, 54.8% of them said that it is possible that constriction of an upper limb by bracelet or tight shirt, 70.4% of them said that weight gain can increase the risk, 91.1% of them think that lymphedema is a disease that should be treated, and 11.1% of them said that lymphedema is a disease that cannot be completely cured.[12,13] Similar study of Koria said that 72.41% trauma of an upper limb can increase the risk of lymphedema.[13] In this study 7.8% women avoid tight jewelry and elastic band of affected finger similarly study of Koria result was 71.55% answered constriction of an upper limb by a bracelet or tight shirt can increase the risk of lymphedema occurrence.[13] A meta-analysis also supported of risk factors of BCR lymphedema the result showed that axillary surgery type largely determines an individual's risk for developing lymphedema. Both ALND and the less invasive sentinel lymph node biopsy (SLNB) had patients at life-long risk for developing lymphedema due to the removal of either many axillary or regional nodes.[14] Practice regarding lymphedema Prevention, 69.6% of participants got advice from health workers among them 6.1% before treatment and 63.5% after treatment and only 17.4% of participants answered that lymphedema cannot be cured. Similarly, study of Saudi Arabia result showed that 11.9% of them received information by medical persons prior to surgery regarding the lymphedema.[12] Similar study of Koria result that 25.86% had received explanations about the possibility of lymphedema before surgery and 58.62% after surgery. Only 17.25% knew that

lymphedema is not a completely curable disease.[13] Protecting the arm from injury and infection on the side of the surgery is very important after breast surgery. In this study about protective measures to prevent of lymphedema, 29.6% answered keep nail short, 26.1% keep affected arms above the level of heart, 53.9% do not wear tight clothing and ornaments, 90.4% moving the arm and exercise regularly after surgery, 62.6% use sunscreen, avoid blood pressure and injection in affected arm, 47.8% do not carry heavy objects on affected side and 67.8% known that if there is swelling of arm, hand, fingers and difficulty in arm movement should notify the health care providers similar findings is revealed on study of Johns Hoplins Medicine Breast Cancer.[15] Similar finding showed these precautionary guidelines range from minimally burdensome (like good skin care) to potentially demanding (like potential use of a compression garment during air travel, avoidance of blood pressure cuffs and other forms of limb constriction, and reduction of trauma to the at-risk limb by avoiding vein puncture) lifestyle alterations. Practice of these guidelines may not significantly reduce a patient's risk of developing BCRL.[14]

In this study regarding level of awareness and level of practice of lymphedema prevention had 20% had fair and 80% had poor level of awareness and 73% had fair and 27% had poor level of practice. A study showed similar finding that breast cancer operation survivors have a good knowledge of breast cancer and lymphoedema, but shortcomings in practical issues.[16] Another study showed that practice helps lymphatic flow, as well as increasing tissue flexibility, muscle strength and muscle functions, the maintenance of activities of daily living, sports and controlled exercise help to reduced risk of lymph edema.[17]

CONCLUSIONS

In this study concluded that a substantial percentage of respondents possess a fair level of awareness and more than half have practice of prevention of lymph edema of arms. Given these findings, there is a clear need for awareness programs concerning that prevention of BCR lymphedema information must give before treatment or surgery.

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