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Review Article

QUALITY OF LIFE OF THE BREAST CANCER PATIENT WITH LYMPHEDEMA AFTER BREAST SURGERY

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ABSTRACT

Background: Breast cancer (BrCa) survivors face unique health challenges, such as lymphedema, that may impact their health-related quality of life (HRQOL)(Ahmed, Prizment, Lazovich, Schmitz, & Folsom, 2008).Post mastectomy lymphedema is common among breast cancer survivors. It leads to physical discomfort and functional impairment.

The objective of this review is to identify, summarize and critically appraise current evidence on the health-related quality of life in the patients (HRQOL) in the breast cancer patient with lymphedema after mastectomy

Methods: A thorough analysis of the literatures on the topic of quality of life of breast cancer patients after mastectomy. Data sources were follows: Pubmed, Medline, Google scholar.

This was a review of the literature covering all full publications that appeared in English language biomedical journals between 1998 and 20018. The search strategy included a combination of key words 'quality of life', 'breast cancer' and 'lymphedema in breast cancer after mastectomy' in title.

Results: Six studies included in this study aimed to investigate the quality of life of breast cancer patients with lymphedema after mastectomy. When the studies were reviewed, we were found that the majority of the patients were faced with the problem of lymphedema after mastectomy and have low quality of life.

Conclusions: After breast surgery patient develop lymphedema which makes patients suffer from many problems like pain, immobility and degrade quality of life.

Keywords: *Breast Cancer, lymphedema, mastectomy, quality of life, literature review.*

INTRODUCTION

Breast cancer is the most commonly diagnosed cancer among women both in developed and developing countries, and it is the major cause of death among those related to neoplasias. Around half a million women die worldwide as a consequence of the disease every year, making it a great concern for public health (Araújo Neto et al., 2017).

Lymphedema is one of the most common complications after BC surgery, and approximately 15% to 46% of patients with BC suffer this complication after BC treatment. It is caused by a build-up of lymph fluid in tissues after breast cancer (BC) surgery and radiotherapy. (Soran et al., 2011). Lymphedema remains a problem even with modern treatment modalities.(Harris, Hugi, Olivotto, & Levine, 2001). With a growing number of breast cancer survivors and an enhanced focus on survivorship and QOL after treatment, it is increasingly important to fully understand the impact of BCRL on daily function.(O'Toole et al., 2015)

The quality of life as a term is generally described as "being goodness", including happiness and being satisfied with life. Although there are many different definitions, "Health-related Quality of Life (HRQOL)"can be defined as the being satisfied with oneself in terms of various aspects of life or the difference between expectations about life and what one can obtain. On the other hand, the World Health Organization defines the quality of life as a perception of people about their place in the culture and values system in relation to their aims, expectations, standards and concerns.(Aygin & Cengiz, 2018)

The aim of this study is to systematically review the data obtained by examining the studies about the quality of life of breast cancer patient with lymphedema after the mastectomy.

MATERIALS AND METHODS

Academic publications published between 1996 and 2018were scanned. "breast cancer, mastectomy, lymphedema, and quality of life", keywords were searched in the databases of Pub Med and Google scholar.

Inclusion criteria:

- To be published between 2001 and 2019
- Written in English
- To be a research article
- Accessibility to full text

RESULTS

An initial literature search with key words was conducted and 1541 related publications were scanned. In the second stage of the literature review, a total of 119 studies were included in the study, which met the inclusion criteria. In the third stage of the literature review, the titles and abstracts were examined and non-relevant studies, reviews and meta-analyses were excluded from the study. At the final stage of literature review, the remaining 18 studies were read in full, and 12 were excluded that did not meet the inclusion criteria. As a result, it was decided to make systematic review with 6 studies.

General features of the studies:

The studies included in the systematic review were made between 2009 and 2014 which were written on 2009, 2011, 2011, 2012, 2013 and 2014 respectively. Lymphedema development, which affects the quality of life negatively, is defined as interstitial tissue effusion rich in protein as a result of failure in the lymphatic system in patients who undergo surgical treatment and radiotherapy (RT) for breast cancer. To evaluate the quality of life of the patients Disability of the Arm, Shoulder and Hand questionnaire (DASH),SF-12, SF-36, FACT-B, Simplified Water Displacement Instrument (SWDI), visual analogue scales (VAS) The Core Quality of life Questionnaire of the European Organization for Research and Treatment of Cancer (EORTC QLQ-C30, version 3.0), ‘‘shoulder, elbow, and wrist movement impairment ’’The Impact of Cancer scale (IOC), (FACT-B) , (Quick DASH) scales were used when studies are examined.

A prospective study of A ˚SE SAGEN 2009 included 204 women aged 55±10 years who had primary breast cancer surgery with axillary node dissection. The subjects were examined for arm volumes and arm lymphedema, arm pain, sensation of heaviness, shoulder function, physical activity level, and HRQoL, prior to surgery, and six months and five years after surgery. Several dimensions of HRQoL temporarily declined after surgery, but significantly improved in the period from six months to five years after surgery. The overall HRQoL improved significantly from baseline to five years, despite the chronic arm pain and increase in ALE.

Renata Freitas-Silva2010 used cross-sectional to study and compare the QOL of women who underwent breast-conserving therapy (n=44) or modified radical mastectomy and immediate breast reconstruction (n=26).The two groups were compared, and found a statistically significant difference for the prevalence of restricted internal rotation, which occurred in 32% of women in the breast-conserving therapy group and 12% of those in the modified radical mastectomy and immediate breast reconstruction group (OR: 7.23; p=0.03 following adjustment for potential confounding factors). No difference in quality of life or satisfaction with surgery was found between the two groups.

In 2010 Inger-Lise Nesvold included 187 breast cancer survivors in his cross-sectional and longitudinal study to examine the associations between arm/shoulder problems (ASPs), which consist of pain, restricted mobility and lymphedema, and different aspects of quality of life (QoL). This study shows not only

lymphedema, but pain and restricted mobility in the arm/shoulder are significantly associated with poor QoL in BCSs at long- term. These problems should be diagnosed and treated in order to improve QoL.

In 2012 Amy C. Degnim's prospective survey enrolled 38 breast cancer patients with lymphedema and 86 breast cancer patients without lymphedema. Breast lymphedema occurs in approximately one-half of women who undergo breast surgery with axillaries node removal. The condition is characterized by diffuse skin edema and erythema as well as self-reported symptoms with a low level of distress. FACT-B subscale and total scores during follow-up did not differ significantly between patients with and without breast lymphedema.

M. PINTO 2013 divided 100 women into 2 group, group A -50 women with lymphedema and group B -50 women without lymphedema. Disability of the Arm, Shoulder and Hand questionnaire (DASH) was used to assessed arm function and the perceived. HRQoL was evaluated with SF-12. The study finds out the presence of comorbidities and radical mastectomy had an influence on the extent of the functional limitation, linked to the presence of the lymphedema. There were no statistically significant differences for SF-12.

SN	Study of year	Name of author	Research design	Sample	Age	Surgical procedure (n)	Time interval in which patients are assessed	The scale used for quality of life / Test	Results
1	2009	Ase Segan, Rolf Karesen, Leiv Sandvik, May Arsa Risberg	Prospective study	204	Age 50±10	Primary breast cancer surgery with axillary node dissection	6 months and 5 year post surgery	Simplified Water Displacement Instrument (SWDI), visual analogue scales (VAS) The Core Quality of life Questionnaire of the European Organization for Research and Treatment of Cancer (EORTC QLQ-C30, version 3.0), the "shoulder, elbow and wrist movement impairment".	ALE (13%), pain (36%) and sensation of heaviness (21%) in the upper limbs were present five years after surgery. ALE was the only morbidity that continued to increase over time. Several dimensions of HRQoL temporarily declined after surgery, but significantly improved in the period from six months to five years after surgery.
2	2010	Renata Freitas-Silva, De 'lio Marques Conde, Ruffo de Freitas-Junior, Edson Zangiacomi Martinez	Cross-sectional	70	Mean age 60.09	Breast-conserving therapy, modified radical mastectomy, immediate breast reconstructio n	6 months after surgery assessed for 1 year	Medical Outcomes Study 36 – item Short-Form Health Survey (SF-36) questionnaire.	The two groups were compared and found a statistically significant difference for the prevalence of restricted internal rotation, which occurred in 32% of women in the breast conserving therapy group and 12% of those in the modified radical mastectomy and immediate breast reconstruction group (OR: 7.23; p=0.03 following adjustment for potential confounding factors)

3	2010	Inger-Lise Nesvold, Kristin Valborg Reinertsen, Sophie D. Fossa and Alv A. Dah	Cross-sectional and Longitudinal study	187	Unspecific	Axillary lymph node dissection	4 year post surgery assessed for 3 years	EORTC QLQ-BR23 (BR23) a specific breast cancer module of QoL.	Lymphedema, pain and restricted mobility in the arm/shoulder are significantly associated with poor QoL in BCSs at long-term.
4	2012	Amy C. Degnim, Joyce Miller, DNP, Tanya L. Hoskin, Judy C. Boughey, Margie Loprinzi, Kristine Thomsen, Shaun Maloney, Larry M. Baddour, Andrea L. Chenille	Prospective study	124	Unspecific	Non-mastectomy breast procedures (excisional biopsy or wide local excision ± lymphnode removal)	1, 3, 6 and 12 months post-operatively	FACT-B, DASH	Breast lymphedema was more frequent after breast surgery with axillary node removal (49%) compared to breast surgery alone (0%).
5	2013	M. Pinto, F. Gimigliano, F. Tatangelo, M. Megna, F. Izzo, F. Gimiglano, G. Iolascon	Cross-sectional survey	100	Age less than 65 years	(Quadrantectomy or wide excision) with unilateral axillary lymphade-nectomy	6 months after surgery assessed for 1 year	Disability of the arm, shoulder and hand questionnaire (DASH), SF-12, SF-36	The presence of co-morbidities and radical mastectomy had an influence on the extent of the functional limitation, linked to the presence of the lymphedema. There were no statistically significant differences for SF-12 scores.
6	2014	Renata Cristina, Martins da Silva and Laura Ferreira Rezende	Cross-sectional study	82	Unspecific	Unilateral breast cancer surgery-breast conserving surgery – quadrantec-tomy or tumorectomy and axillary lymphnode dissection at 3 levels.	At least 1 year since surgery	FACT-B (Functional Assessment of Cancer Therapy – Breast) and Quick DASH	Range of motion in the ipsilateral shoulder was limited: shoulder flexion range of motion reached a mean value of 155.44° (±28.31), mean abduction was 149.05° (±29.51) and mean external shoulder rotation was 58.44° (±29.17). These limitations had a negative impact on functional capacity and global quality of life. Lymphedema was present in 28.04% of women assessed and did not impair quality of life or functional capacity.

In 2014 Renata Cristina Martins da Silva conducted cross-sectional study of 82 women with unilateral breast cancer surgery, at least1 year since surgery, breast-conserving surgery (quadrantectomy or tumorectomy), and axillary lymph node dissection at 3 levels. He found that Physical functional disabilities were present in the late postoperative period of breast cancer survivors and limited shoulder range of motion negatively influenced their functional capacity and quality of life. The presences of lymphedema didnot impair functional capacity or quality of life in the postoperative period.

DISCUSSION

This systematic review about the quality of life in patients who underwent breast mastectomy and other treatment for breast cancer resulted in the following results. In one study, the presence of comorbidities and radical mastectomy had an influence on the extent of the functional limitation, linked to the presence of the lymphedema. There were no statistically significant differences for SF-12 scores(Pinto et al., 2013). Hayes et al. (2010) found the similar findings. He found post mastectomy lymphedema (PML) is frequently encountered by breast cancer patients which in turn leads to poor functional recovery, chronic disability and impaired quality of life. Similarly, the cross-sectional study of Freitas-Silva et al. (2010), finds that breast cancer survivors experienced physical limitations in performing their daily activities regardless of the type of surgery.

Freitas-Silva et al. (2010) also reported there was no difference between the two surgical groups with respect to QOL. Findings from some previous studies are in agreement with the present results (Janni et al., 2001)(Cocquyt et al., 2003)(Fung, Lau, Fielding, Or, & Yip, 2001)(Janni et al., 2001)

Amy C. Degnim conducted the study prospectively that enhances the published literature by providing a combined evaluation of breast lymphedema and correlation with patients' symptoms, limb function, and QOL. Patient reported symptoms correlated strongly with signs of breast lymphedema. In most cases, signs and symptoms were mild, but women with more severe edema reported a higher level of distress. Although breast lymphedema occurs frequently after axillary surgery, most affected women have mild symptoms and very little distress, which likely explains why this condition has not been the focus of much systematic study. The two reports in the late 1980's mentioned breast edema after breast-conserving cancer treatment as a possible source of dissatisfaction.(MP et al., 1985)(McCormick B, Yahalom J, Cox L, Shank B, 1989)

In the study of Sagen, Åse HRQoL improved significantly from baseline to five years, despite the chronic arm pain and increase in Arm lymphedema (ALE).The HRQoLin his subjects was better than for theage-matched Norwegian female population(Sophie D. Fosså, Siri Lothe Hess, Alv A. Dahl, Marianne J. Hjermstad, 2007). and accordance with the previously reported increase in HRQoL in disease-free physical active BCS (Alfano et al., 2007).

(Nesvold et al., 2011) results where BCSs with other self-reported arm symptoms than lymphedema had significantly poorer QoL in more domains of IOCv1, complement the findings of Ahmed et al. reporting similar findings using SF-36.(Ahmed et al., 2008)who reported that self-reported ASPs were associated with low QoL 8 years after diagnosis. And in the study of (Nesvoldet al., 2011) the mean QoL scores did not change significantly from 2004 to 2007. This finding is in contrast to finding of(Engel, Kerr, Schlesinger-Raab, Sauer, & Holzel, 2003). The finding was a reduction of self-reported arm problems from year 1 to 5 after diagnosis, which indicated that QoL changes were more common in the first years after diagnosis.

(Martins da Silva & Rezende, 2014) observed in the study that women had physical functional disabilities including limitation of shoulder ROM ipsilateral to surgery and lymphedema. Further- more, ROM limitation directly influenced functional capacity and quality of life. Summarized that Physical functional disabilities were present in the late postoperative period of breast cancer survivors and limited shoulder range of motion negatively influenced their functional capacity and quality of life. Similarly the study of (Campbell et al., 2012), (J.S Rietman, P.U Dijkstra, H.J Hoekstra, W.H Eisma, B.G Szabo, J.W Groothoff, 2003) reported lower ROM on the side ipsilateral to surgery years after the procedure.

CONCLUSIONS

This systematic review about the quality of life of patients who underwent breast mastectomy with lymphedema shows that the patients with mastectomy breast cancer faced several problems which impair the quality of life. It is very important for patients to be informed about the problems that may be experienced after surgery and how to deal with these problems before the operation and education and support services should be continued in the whole treatment and rehabilitation process.

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