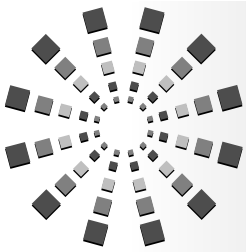

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Postlymphadenectomy Complications and Quality of Life Among Breast Cancer Patients in Brazil

KEY WORDS
Axillary lymph node dissection
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Sentinel lymph node biopsy

This descriptive, cross-sectional, correlational study with a convenience sample of 96 women treated for breast cancer at an outpatient service in Brazil was designed to investigate postlymphadenectomy complications after axillary lymph node dissection (ALND) and sentinel lymph node biopsy and explore the associative relationships between the complications and quality of life. Clinical evaluations using perimetry, goniometry, and muscle strength test were used to evaluate the complications. Pain and quality of life were assessed by the Short-Form McGill Pain Questionnaire and the Functional Assessment of Cancer Therapy–Breast. All participants had at least one complication. Incidence was higher for pain (57%), impaired shoulder strength (57%), and fibrosis (54%), followed by impaired shoulder range of motion (46%) and lymphedema (17%). The incidence of impaired shoulder flexion ($P = .01$) and lymphedema ($P = .002$) was higher in ALND group. Winged scapula (8.4%) only occurred in the ALND group. Quality of life was significantly correlated with pain ($r = -0.53$, $P = .000$) and impaired shoulder strength in flexion ($r = 0.4$; $P = .000$) and abduction ($r = -0.5$, $P = .000$). Future studies are needed to prospectively investigate the onset of the complications and identify appropriate interventions to promote quality of life in women treated for breast cancer.

In Brazil, more than 48,900 new cases of breast cancer are expected annually.[1] Breast cancer is an important public health problem and one of the main causes of death among women in Brazil. Delayed detection, diagnosis, and treatment are the factors leading to higher mortality from breast cancer in Brazil.[1] Delayed detection and diagnosis usually require more aggressive treatments that possibly lead to more treatment complications and compromise quality of

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life in patients treated for breast cancer. Postlymphadenectomy complications occur in approximately 20% to 60% of patients treated for breast cancer.[2,3] Studies have shown that women who have postlymphadenectomy complications tend to develop psychological, social, sexual, and functional problems.[4–6]

Axillary lymph node dissection (ALND) remains the major contributing factor for the development of postlymphadenectomy complications.[2,7,8] Axillary lymph node dissection has been the standard of care in the management of women with invasive carcinoma of the breast.[4,9] Complications after ALND have led to the demand for sentinel lymph node biopsy (SLNB) in breast cancer patients. Sentinel lymph node biopsy is a procedure used to stage a disease by assessing lymph node involvement without clearing or dissecting the lymph nodes of axilla while potentially decreasing the risk for postlymphadenectomy complications. Conflicting results[3,7,8,10,11] have been presented in researches concerning postlymphadenectomy complications when comparing ALND to SLNB. Although SLNB has been introduced in Brazil since the late 1990s, limited evaluation has been carried out in Brazil to determine whether SLNB does decrease the risk of postlymphadenectomy complications as compared to ALND.

The purpose of the study was to examine the incidence of postlymphadenectomy complications, including ALND and SLNB, and explore the relationship between postlymphadenectomy complications and quality of life among women treated for breast cancer in Brazil. The research questions were (1) what is the frequency of postlymphadenectomy complications in Brazilian women who undergo either ALND or SLNB? (2) What is the relationship between postlymphadenectomy complications and quality of life in Brazilian women who undergo either ALND or SLNB?

■ Background

Lymphadenectomy

For more than a century, surgery has been used as the first weapon against breast cancer. Lymphadenectomy or the surgical removal of lymph nodes has been the sole approach to provide information about the status of lymph nodes. Lymph node status has been an important indicator for breast cancer diagnosis, disease staging, prognosis, recurrence, and treatment choice.[4,9] Unfortunately, complications after lymphadenectomy have been associated with poor quality of life among the women treated for breast cancer.[12,13] Traditional ALND has been commonly performed as part of breast cancer treatment in which some or all lymph nodes of the axilla are removed. Postlymphadenectomy complications occurred in 40% to 60% of patients who had ALND as part of their treatment for breast cancer.[2] Concerns about post-ALND complications and unnecessary ALND led to the introduction of SLNB in the last decade. Sentinel lymph node biopsy removes only a few lymph nodes by using lymphatic mapping to localize and analyze the sentinel lymph node, the first lymph nodes most likely to drain the primary tumor in a regional lymphatic area.[3] The advent of SLNB has been an alternative to ALND for patients with node-negative disease to decrease the morbid complications.[7] Studies have shown contradictory findings when patients underwent SLNB in terms of postlymphadenectomy complications. Some studies[7,8] revealed nearly an absence of postlymphadenectomy complications in patients who underwent SLNB, whereas others reported significant incidence of post-SLNB complications.[3,10,11,14] Furthermore, the risk for a false-negative SLNB and a possible low incidence of post-ALND complications continuously stimulates the discussion about the safe indication for SLNB instead of ALND.

Postlymphadenectomy Complications

Postlymphadenectomy complications refer to complications that possibly lead to long-term impairment, such as lymphedema, chronic pain, paresthesis, loss of function, and decreased strength and mobility in the affected limb.[15] Lymphedema has been considered one of the most debilitating postlymphadenectomy complications. Arm lymphedema is a severe complication, leading to physical and psychosocial problems and poor quality of life.[7,13,16] Studies have revealed a wide range of lymphedema incidence, varying from 6% to 80%, depending on the time of postsurgery follow-up, adjuvant radiotherapy, or definition of lymphedema.[9,17] There are few published studies in Brazil on the incidence of lymphedema. A published study on lymphedema incidence was conducted by Bergmann and colleagues[16] who reported an incidence of 16.2% to 30.7% among 651 women treated for breast cancer. Voogd and colleagues[13] found that even mild lymphedema was associated with important functional limitation and psychosocial problems among breast cancer patients. Approximately 15% of the women in their study complained about moderate to severe pain despite the slight difference in arm circumference and the absence of impaired range of motion.[13] Lymphedema and pain are considered to be the complications that have great impact on the daily lives of breast cancer patients.[15]

Chronic pain and sensory changes after breast cancer surgery also create physical and psychological distress in breast cancer patients. Chronic pain after breast cancer surgery has been associated with reduced quality of life and increased psychosocial stress.[18,19] Many factors contribute to chronic pain after the surgical treatment of breast cancer, including radiotherapy, edema, nerve lesions, muscular alterations, and even emotional and functional variables.[20] It is estimated that 4% to 20% of breast cancer patients start to suffer some degree of pain on their arms or armpits 2 to 6 months after surgery.[20] In a study by Wilke and colleagues,[21] axillary paresthesia was significantly more common among women who underwent ALND than those who underwent SLNB ($F = 15.4$, $P < .001$). Wilke and colleagues found that only 8.6% of patients ($N = 3573$) experienced axillary paresthesia after SLNB.[21] In another study,[15] the researchers found that 16% of SLNB patients ($n = 48$) experienced arm

numbness, whereas 81% of ALND patients (n = 48) experienced such a complication.

Although winged scapula occurs less commonly after lymphadenectomy, it influences greatly the quality of life of women treated for breast cancer. Scapular winging often results from injuries to the long thoracic nerve which causes hypotony of the serratus anterior muscle, causing severe functional and sensorial limitations, especially pain and reduced range of motion in the shoulders.[22] It should be noted that scapular winging is not simply an aesthetic issue; the compensatory muscular activity required to improve shoulder stability is associated with secondary pain and spasm due to muscle imbalances, tendonitis around the shoulder joint, and other anomalies.[23] Other postlymphadenectomy complications include lymphangitis and phlebitis, which also significantly comprises quality of life in women treated for breast cancer.[15,24,25]

Quality of Life

Traditionally, evaluation of breast cancer often only focuses on tumor response to treatment and survival rate. However, quality of life has been recognized as an important datum to determine the evolution of cancer treatment in recent years.[26,27] Quality of life is a subjective, multidimensional concept which includes physical, emotional, social, and functional well-being.[18] According to the World Health Organization,[26] quality of life is the person's perception about his or her life position in cultural context in relation to his or her aims, expectations, and concerns. It is a complicated concept that incorporates individual's physical health, psychological status, level of independence, beliefs, and social and personal relationships.[26] Studies[11,25,28] have demonstrated a significant difference in the quality of life between ALND and SLNB patients, with results favoring the SLNB group.

■ Methodology

Design and Sample Size

A descriptive, cross-sectional, correlational design was used in this study. To determine the sample size, a totally random design[29] was used. The factorial totally random design used in this study was 2×2, meaning 2 groups at 2 times. The 2 groups were the ALND and SLNB groups, and the 2 times stand for the presence or absence of complications. Analysis of variance and χ^2 were used for this calculation,[29] and results indicated a minimum of 30 participants for each group, with a total of 60 participants to reach a power of 80% ($P < .05$).

Setting and Participants

The study was performed in an outpatient service at a university hospital in the city of Belo Horizonte, Brazil. A multidisciplinary team provides health services for women who had breast cancer surgery at the university hospital to prevent and treat postsurgical complications. Most of the women are poor and undergoing adjuvant therapy or ongoing recovery. At the time of the data collection, there were approximately 200 women attending the service. However, all participants in the study had not received any physical therapy since their breast cancer surgery. All participants received surgical treatment for breast cancer, including lymphadenectomy, of either ALND or SLNB.

Data Collection

The institutional review board at the hospital and university approved the study. Potential participants were informed about the study, and those who volunteered to participate in the study signed a consent form. The first author recruited the participants and completed all data collection. The first author, a physiotherapist, received an intensive training for perimetry (tape measurement of limb circumferences using a measuring tape) and goniometry (measurement of joint mobility using a goniometer). Intrarater and interrater reliability of these 2 clinical evaluations was ensured by professors from the department of physical therapy through multiple measurement practices during the training. Demographic information such as age, marital status, and education was collected. Data were collected from May to October in 2006.

Clinical evaluation. Perimetry was used to measure the circumferences of the affected and nonaffected limbs using a measuring tape according to the protocols developed by previous researchers.[17,30] In this study, we used the phalangial-metacarpal joint and the ulnar styloid process as the initial point (0 cm of circumference) from which circumferences were measured from arm distal region toward proximal at 5, 10, 15, 20, and 25 cm. The presence of lymphedema was confirmed if there was more than or equal to 1 cm difference between the circumferences in the affected limb in comparison to the nonaffected limb at any measuring points,[17,30] in addition to at least 2 or more lymphedema symptoms such as feeling of heaviness, swelling, tightness, or firmness according to the recommendations of the National Lymphedema Network.[31]

Goniometry was used to evaluate the mobility of joints, including shoulder joints flexion, extension, abduction, and rotation using a goniometer. Muscular strength test was accomplished through subjective evaluation of muscular strength graduated from 0 to 5. Table 1 provides information about classification of the levels of difficulty in accomplishing the joints movement for goniometry and degree of muscular strength.

Hypotonia or abnormally low tension of the serratus anterior muscle was assessed when the participants were standing, pushing the wall with their arms abducted at 90 degrees, bending their elbows, and resting their hands on the wall. It was considered as muscular hypotonia (winged scapula) when the scapula inferior angle was wider than normal.[23,32]

Subjective assessment of pain. To evaluate subjective pain, the Short-Form McGill Pain Questionnaire was used. This

Table 1 • Levels of Goniometry and Muscular Strength Test

Levels of goniometry
Level 1: angle ≤10°
Level 2: angle from 11°–25°
Level 3: angle from 26°–40°
Level 4: angle 41°–55°
Level 5: angle >55°
Muscular strength test
0—No contraction
1—Minimum contraction
2—Light contraction without strength
3—Contraction that shows strength to hold against gravity
4—Contraction that shows strength against light resistance
5—Normal contraction

questionnaire measures subjective pain perception. It has been used to evaluate pain among many patients with different diseases, especially among women with breast cancer.[33] Intensity of pain was verified on a scale graded from 0 to 10. This instrument was translated into Portuguese and validated by Varoli and Pedrazzi.[34] Cronbach α obtained from the current study is .74.

Quality of life evaluation. The questionnaire Functional Assessment of Cancer Therapy–Breast (FACT-B)[27] was used to evaluate quality of life. This instrument is a multidimensional inventory designed to be used among breast cancer patients. It has 38 items distributed into subscales that assess the physical (7 items), emotional (6 items), social (9 items), and functional (7 items) well-being as well as additional concerns (9 items) specific for breast cancer patients. Participants choose a score from 0 to 4 in answering each item that explains the presence and level of each item. The instrument was translated into Portuguese and validated by Webster and colleagues.[35] Cronbach α obtained from the current study is .85. A factor analysis was conducted in the current study, and it revealed that each of the 38 items showing a factor load of more than .48 and a total variance of 70.18% was distributed in 10 factors, with the items well interrelated as the English version.[27]

Statistical Analysis

Data were entered in Excel and checked for accuracy. Data were analyzed using the statistical programs Sistema de Análises Estatísticas e Genéticas 9.0 and Science Analysis Software (version 8). Descriptive statistics, χ^2, Fisher exact test, and analysis of variance were computed. Although several statistical approaches can be used to minimize type 1 error and avoid spurious significant relationships from multiple comparisons such as the Bonferroni test and least significant difference test, any adjustments may produce new type 1 errors.[36] Therefore, a significance level of 1% ($P < .01$) was used in the study, with 99% confidence interval.[37] The dependent variable was quality of life, and the independent variable was postlymphadenectomy complications. For the χ^2, cells containing less than 5 subjects, a Yates adjustment was computed.[29]

■ Findings

Participants

The sample was composed of 96 women who had surgical treatment for breast cancer including lymphadenectomy. Among the 96 women, 48 had ALND, and 48 had SLNB. The 2 groups did not differ significantly in terms of age, postsurgery period, marital status, levels of education, size of the tumor, occupational activities, and numbers of patients who received radiation. The participants ranged in age from 29 to 88 years (mean [SD] = 53.5 [11.6]). Women in the ALND group ranged in age from 29 to 77 years (mean [SD] = 52.4 [11]), and those in SLNB group ranged from 31 to 88 years (mean [SD] = 54.6 [12.1]). Forty-five percent of the women (n = 43) were single (ALND = 21, SLNB = 22), whereas 28% (n = 27) were married (ALND = 15, SLNB = 12). Most participants had a very low level of education. Seven women (7.3%) were illiterate, and 55 (57.3%) had less than 8 years of education. Only 2 patients in ALND group and 1 in SLNB had college education. Most of the women (52%) had jobs requiring a lot of use of their arms and hands (such as house cleaning, cooking, or sewing), which might increase risk for lesions and infection.

Participants had postbreast cancer surgery from 6 to 60 months before this study. There was no statistically significant correlation between time since surgery and postlymphadenectomy complications. Most participants (62%) had their surgeries at least 19 months before the study (mean = 23). Fifty-four percent of the women in the ALND group (n = 26) and 66.7% in the SLNB group (n = 32) had breast cancer on their left breast. Fifty-one percent of the participants had breast conserving surgery. Total mastectomy predominated in the ALND group (ALND, n = 33; SLNB, n = 14). This is probably because more women in ALND group had advanced tumors, which also indicated the need for ALND. Chemotherapy was statistically significantly more frequently used among the ALND group, as explained by the higher prevalence of more advanced cases in this group.

Postlymphadenectomy Complications

All participants had at least one postlymphadenectomy complication. Incidence of complications was higher for pain (57%) and decreased shoulder strength (57%) followed by fibrosis on surgical scar (54%), shoulder range of motion (46%), and lymphedema (17%).

There were statistically significant differences between ALND and SLNB groups in terms of lymphedema (χ^2 = 11.8, P = .002), lymphangitis/phlebitis (χ^2 = 6.01, P = .01), and impaired shoulder flexion (χ^2 = 6.09, P = .01) (Table 2). Although there was no statistically significant difference in terms of winged scapula between the ALND and SLNB

Table 2 • Postlymphadenectomy Complications Between ALND and SLNB Groups

Complications	ALND (n = 48) n (%)	SLNB (n = 48) n (%)	*P*	χ^2
Pain (shoulder/arm)	31 (64.6)	24 (50)	.07	3.12
Lymphedema	14 (29.2)	2 (4.2)	.002	11.8
Lymphangitis/Phlebitis	8 (16.8)	1 (2.1)	.01	6.01
Fibrosis	28 (58.3)	24 (50)	.83	0.36
Functional limitations				
Scar adherence/retraction	15 (31.3)	14 (29.2)	.82	0.04
Winged scapula	4 (8.2)	0	<.5[a]	
Shoulder range of motion				
Flexion	29 (60.4)	15 (31.2)	.01	6.09
Abduction	28 (58.3)	19 (39.6)	.06	3.37
Shoulder strength limitations				
Abduction	23 (47.9)	22 (45.8)	.08	3.9
Adduction	24 (50)	15 (31.2)	.06	3.49

Abbreviations: ALND, axillary lymph node dissection; SLNB, sentinel lymph node biopsy.
[a]Fisher exact test: significant.

groups, winged scapula only occurred among the women in the ALND group. When comparing the ALND and SLNB groups according to the number of lymph nodes dissected, there was a statistically significant difference in lymphangitis/phlebitis (χ^2 = 8.9, *P* = .01). More lymph nodes dissected were significantly related with more cases of the complications. Radiotherapy after surgical treatment was investigated in relation to the complications. Table 3 shows that there were statistically significant relations between complications and radiation after surgical treatment. Among the complications, there were statistically significant higher incidences of impaired should range of motion (*P* = .01) and lymphedema (*P* = .002) in ALND group.

Quality of Life and Pain Assessment

A factor analysis validated the Portuguese version of the FACT-B in this study. Representation value was 70%. Analysis of the 38 items showed factor loads ranging from .48 to .84. There were no statistically significant differences between the ALND and SLNB groups in terms of overall quality of life and all subscales. (Table 4). There were no statistically significant differences between quality of life and demographic and clinical variables, such as age, education, types of breast surgery (lumpectomy vs mastectomy), types of lymphadenectomy (ALND vs SLNB), chemotherapy, and radiation. Pain and impaired shoulder strength were statistically significantly related to poor overall quality of life as well as subscales of physical, social/family, emotional, and functional well-being, as well as additional concerns about physical symptoms (shortness of breath, swollen and tender arm, hair loss, weight change), perceptions of body image (feeling sexually attractive, worrying about the way of dressing, not feeling like a woman) (Table 5).

■ Discussion

This descriptive and correlational study investigated the incidence of postlymphadenectomy complications and quality of life among women treated for breast cancer in Brazil. Our study showed that the incidence of postlymphadenectomy complication of pain (57%) was higher. This finding is consistent with previous studies that reported a prevalence of pain after breast cancer treatment ranging from 16% to 60%.[3,38,39] Although research on exact causes of pain in women after breast cancer treatment is lacking, previous research showed that pain after breast cancer treatment was associated with the damage of the intercostal nerve[9] and related to psychological, sexual, and physical stress; social

Table 3 • Postlymphadenectomy Complications in Relation to Radiation (RT) between ALND and SLNB Groups

	ALND		SLNB		
Complications	RT n (%)	Without RT n (%)	RT n (%)	Without RT n (%)	*P*[a]
Lymphedema	1 (1)	13 (13.5)	1 (1)	1 (1)	.001
Flebitis/Lymphangitis	0 (0)	8 (8.4)	1 (1)	0 (0)	.006

Abbreviations: ALND, axillary lymph node dissection; SLNB, sentinel lymph node biopsy.
[a]Fisher exact test.

Table 4 • Range, Mean, SD, and Cronbach α of the Functional Assessment of Cancer Therapy–Breast (FACT-B) and McGill Pain

	Possible Range	Actual Range	Mean (SD) ALND	Mean (SD) SLNB	*P*	Cronbach α
FACT-B	0–152	35–137	95.4 (21.0)	101.0 (23.0)	.3	.85
McGill Pain	0–60	0–57	15.8 (12.8)	11.2 (11.0)	.09	.74

Abbreviations: ALND, axillary lymph node dissection; SLNB, sentinel lymph node biopsy.

dysfunction; and body image problems.[40] A comprehensive physical and psychosocial evaluation is needed in future studies on the causes of pain after breast cancer treatment. Although overall quality of life as assessed by the FACT-B in our study was not significantly different between the 2 groups of women who underwent ALND and SLNB, lower scores of overall quality of life or subscales were found in the group of ALND. Higher incidence of postlymphadenectomy complications was also found in the ALND group.

Findings of this study showed that postlymphadenectomy complications such as pain and impaired shoulder strength had a large negative effect on the quality of life in Brazilian women with breast cancer. It should be noted that most women in the study were poor; had low educational level; and held jobs requiring frequent use of arms and hands, such as housekeeping, cooking, or sewing. Such sample characteristics might also be the possible explanation for the negative impact of pain and impaired shoulder strength on the quality of life in the women in our study. Yet, the negative impact of these 2 complications on women with jobs requiring laborious use of their arms and hands should not be underestimated. Healthcare professionals in Brazil should consider this social economic context when providing care for women with breast cancer. Future studies should explore the impact of occupation and social economic status on the development of postlymphadenectomy complications and quality of life in women with breast cancer.

Impaired shoulder strength and range of motion and lymphedema interfere with domestic, work-related, and other activities, causing physical and psychological distress.[16,38,40] Approximately 46% of the participants in our study had impaired shoulder range of motion, and 16.7% had lymphedema. The incidence of impaired shoulder range of motion in flexion ($P = .01$) and lymphedema ($P = .0027$) was statistically significantly higher in the ALND group. Lymphedema is a common complication from breast cancer treatment and has been associated with physical, psychological, sexual, and functional problems.[38,40,41] Such findings from our study underscore the importance of early detection of breast cancer so that ALND can be avoided and SLNB can be an option for the women with early stage of breast cancer.

Lymphangitis and phlebitis occurred less frequently among the participants in our study, yet the incidence was statistically significantly higher in the ALND group than in the SLNB group. Lymphangitis develops when the accumulation of lymph fluid eventually precipitates infections.[16] Winged scapula occurred only among participants who had ALND (8.4%) in our study. Bergmann[4] found that 6.3% of their participants (N = 394) had winged scapula, whereas Siegel and colleagues[2] found a prevalence of 1.5% (N = 476), and Paci and colleagues[42] found a 12.6% (N = 259) prevalence in their studies. Winged scapula, or serratus anterior muscle hypotonia, is a significant functional problem, associated with secondary pain and spasm due to muscle imbalances and tendonitis around the shoulder joint, besides adhesive capsulitis, subacromial impingement, and brachial plexus radiculitis.[23]

As far as radiotherapy is concerned, the incidence of the following postlymphadenectomy complications was statistically significantly higher among participants in the ALND group who had radiation: lymphedema ($P = .001$) and lymphangitis/phlebitis ($P = .006$). Cserni[43] suggested that most complications or morbidity after breast cancer treatments was caused by ALND and radiotherapy. Consistent with the findings of our study, Kwan and colleagues[5] found significant difference between groups who had radiotherapy. Surgical scar fibrosis is considered to be associated with muscle retraction, lack of local sensitivity, and alteration on the compensatory mechanism of the lymphatic system.

Table 5 • Spearman Correlations Between Postlymphadenectomy Complications and Quality of Life

	Physical Well-being		Social/Family Well-being		Emotional Well-being		Functional Well-being		Additional Concerns		FACT-B	
Variables	*r*	*P*	*r*	*P*	*r*	*P*	*r*	*P*	*r*	*P*	*r*	*P*
Pain	−0.5	.000	−0.3	.000	−0.34	.000	−0.5	.000	−0.5	.000	−0.53	.000
Impaired shoulder strength												
SF	−0.42	.000	−0.01	.000	−0.32	.000	−0.4	.000	−0.4	.000	−0.4	.000
AS	−0.5	.000	−0.12	.000	−0.3	.000	−0.4	.000	−0.4	.000	−0.5	.000

Abbreviations: AS, shoulder abduction; FACT-B, Functional Assessment of Cancer Therapy–Breast; SF, shoulder flexion.

In our study, the number of lymph nodes dissected has a statistically significant association with lymphangitis/phlebitis ($P = .01$, $\chi^2 = 8.9$). Liljegren and Homberg[39] evaluated 381 patients divided in 2 groups according to the number of lymph nodes dissected: patients who had less than 5 lymph nodes dissected and patients who had more than 5. Findings of their study suggested that the risk for complications on the ipsilateral upperlimb increased by 30% for those who had 5 lymph nodes dissected and 40% for those who had more than 10 lymph nodes dissected.

In our study, quality of life has a statistically significant correlation with pain ($r = -0.53$, $P = .000$). Our study also showed that the presence and intensity of pain were directly related to poorer quality of life. Different from other studies,[41,6] our study showed that lymphedema was not statistically significantly correlated with quality of life. However, there was a negative correlation between quality of life and functional problems such as impaired shoulder range of motion and shoulder strength. This is consistent with the findings of other studies.[17] Consistent with the findings of other studies,[14] the ALND group in this study presented higher incidence of complications, yet, there was no statistically significant difference in the quality of life between the ALND and SLNB groups in terms of overall mean assessed by the FACT-B. Fleissing and colleagues[25] found a significant difference in the quality of life among ALND and SLNB participants. Such inconsistent findings may be due to uncontrolled variables such as time after surgery or age of patients in those studies. A limitation of this study was the lack of evaluation of social support, which might greatly influence the quality of life for these women since Brazilian families are very much supportive in situations of illness.[44]

■ Conclusion

Findings of this study indicate that ALND is associated with higher incidence of postlymphadenectomy complications in comparison with SLNB. In terms of impaired shoulder range of motion in flexion, lymphedema, and lymphangitis/phlebitis, findings of our study suggest that healthcare professionals, especially breast surgeons, should take efforts to avoid ALND when SLNB is an option. This finding also underscored early detection of cancer to avoid more aggressive procedures such as ALND. It should be noted that there were no significant differences between the ALND and SLNB groups in terms of other complications such as pain, fibrosis, impaired shoulder range of motion in abduction, and impaired shoulder strength. Such findings from our study indicate that postlymphadenectomy complications remain a problem in women with breast cancer who undergo either ALND or SLNB. It is important for Brazilian healthcare professionals to be aware of the incidence of postlymphadenectomy complications in patients after lymphadenectomy, including SLNB. Previous research showed that besides fear of recurrence, postlymphadenectomy complications were considered one of the most important factors leading to daily stress for Brazilian breast cancer patients, and these negatively influenced their quality of life.[25] Findings of our study also showed that quality of life was significantly related to pain and impaired shoulder range of motion. In addition, most women in our study had low social, economic, and educational status, and they had to do physical labors, such as lifting heavy objects, cleaning, cooking, and sewing to ensure family income. It is important for healthcare professionals in Brazil to consider this social, economic, and educational factor on postlymphadenectomy complications.

Lymphedema was found in a previous study to be associated with functional problems in patients after breast cancer treatment.[16] However, our study showed no significant relationship between lymphedema and quality of life, including functional domain. Limitations of the study probably influence the findings of the study. Sample of the study may be trended since some of the women sought the service because they were already starting to feel arm discomfort. Furthermore, this study did not analyze the onset of the postlymphadenectomy complications in relation to time after surgery. Onsets of some complications are typically early, whereas others are late. It is known, for instance, that the risk for lymphedema increases with time after surgery.[4]

In summary, more studies are needed in Brazil to prospectively investigate the onset of postlymphadenectomy complications and identify the factors that exacerbate the complications. An understanding of the postlymphadenectomy complications is important in providing adequate patient education and interventions to manage postlymphadenectomy complications so as to promote quality of life in women treated for breast cancer.

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