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PREVALENCE OF MYOFASCIAL DYSFUNCTIONS IN BREAST CANCER SURVIVORS

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ABSTRACT

Background: After breast cancer treatment, many complications are seen in breast cancer survivors (BCS). In that musculoskeletal dysfunctions are common. These dysfunctions are one of the common sources of pain and disability. A recent study states that extreme pain after breast cancer treatment is often. Severe pain can be a source of a lot of limitations and psychological distress. Before the time assessment and rehabilitation can be inserted to reduce pain level, improve strength and mobility which will be helpful in minimize restrictions in daily living and improve quality of life (QOL). The objectives of the study were as follows: To determine the prevalence of myofascial dysfunctions in BCS. To study the association of myofascial dysfunctions and demographic variables in BCS.

Methods: A total of 74 females who underwent breast cancer surgeries along with chemotherapy or radiotherapy or hormone therapy, were included based on inclusion criteria. Subjects were assessed for pectoralis tightness, post-mastectomy pain syndrome (PMPS), rotator cuff diseases, adhesive capsulitis, lymphedema and axillary web syndrome (AWS) by using Visual Analogue Scale (VAS), Musculoskeletal Assessment and pectoral tightness test.

Results: Primary outcomes used for the result were Musculoskeletal Assessment, Visual Analogue Scale, posture Assessment, pectoral tightness test. The most common type of myofascial dysfunctions were Pectoral tightness ($p=0.1344$), post-mastectomy pain syndrome ($p=0.0116$), rotator cuff disease ($p=0.1344$), adhesive capsulitis ($p=0.9388$) and axillary web syndrome ($p=0.9193$) and the result was extremely significant.

Conclusion: The major postoperative myofascial dysfunctions above the age of 50 years are pectoralis tightness, rotator cuff, and then by adhesive capsulitis and that of below 50 years was adhesive capsulitis followed by lymphedema and the by rotator cuff disease.

Keywords: Myofascial dysfunctions, Pectoral tightness, AWS, PMPS, Adhesive capsulitis, and Rotator cuff disease.

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INTRODUCTION

Breast cancer refers to cancers originating from breast tissues, most commonly from the inner of milk ducts or the lobules that supply the ducts with milk [1]. Mainly breast cancer occurs into the two types first is ductal carcinoma and second is lobular carcinoma. In that cancer produces in ducts or lobules [2]. Due to the alterations in dietary habits, reproductive risk factors, and increasing life expectancy, there is a rapid rise in the incidence of breast cancer [3]. Prevalence of breast cancer in India is 25.8 per 1, 00,000 and mortality 12.7 per 1, 00,000 women [4] for the last few years; awareness is increased about breast cancer. Current progress in the treatment of breast cancer has developed in better survival and the focus has now shifted to rehabilitation and improvement in the quality of life [5]. Many surgeries are performed to remove the tumor. Recently more selective and less invasive methods of treatments are available. Surgeries are performed to reduce the risk of complications or for cosmetic purposes [5]. Surgical treatment divides into two types one is breast-conserving surgeries and the other is modified radical mastectomy. This increases life expectancy for women in breast cancer and they have given special importance to improve QOL [6]. After the surgeries, some complications are seen in BCS. In that musculoskeletal dysfunctions are common. Because of dysfunctions, an upper-body function reduces and hampers the activity of daily living. Myofascia is made from fibers containing bundles of collagens. Fascia covers the muscle and it spreads throughout the body. In breast cancer surgeries involves the neuromusculoskeletal tissues of the shoulder girdle. During surgeries, fascia gets detached, causes dysfunctions. Upper body dysfunctions and pain in BCS are common [7]. Not only pain but myofascial dysfunctions lead to a decreased range of motion and strength [8]. Many details are convenient about pain and its treatment but very less information is available about Pectoralis tightness, Lymphedema and lymph stasis, Myofascial pain syndrome, PMPS, Rotator cuff disease, AWS, Adhesive Capsulitis, Myofascial tightness, Myofascial trigger points and Postural alterations. Recent studies suggest that extreme pain after breast cancer treatment is common. Intense pain can be a source of significant disability and psychological discomfort. In that chronic neuropathic pain, the syndrome occurs after breast cancer surgeries, or this syndrome also occurs due to the other non-surgical treatment of breast cancer [9]. Muscles affected during breast cancer treatment are the muscles related to pain and discomfort. First muscle shortening and second loss of muscle activity probably developing a movement disorder identical to the dropped shoulder syndrome. Thus exercise procedures should focus not only on the range of motion but also on posture correction and patient education about these complications [10]. In PMPS pain and reduction in the shoulder, mobility is common if pain continues; there may be a risk of chronic pain syndrome or also having a risk of to develop chronic neuropathic pain syndrome, which

affects patient's daily activities [11]. Lymphedema is the most common and difficult complication of breast cancer treatment. Women who developed lymphoedema after breast cancer treatment conceived a higher prevalence of upper-body symptoms, pain, stiffness and numbness [12]. Recent approaches to the management of breast cancer have reported in better survival and the focus has now shifted to rehabilitation and improvement in QOL [13]. To improve these dysfunctions and quality of life, early assessment and rehabilitation are essential. To correct or to prevent this dysfunction, physiotherapy is must to be needed. Physiotherapist plays an important role to correct the dysfunctions. A physiotherapist will help to improve QOL, avoidance of secondary complications, Improve the activity of daily living, Relaxation techniques and improve mobility. Recent advances about the treatment of breast cancer have described progression in survival and the focus is shifted to rehabilitation and improvement in the quality of life¹¹. Prevalence study will help to enlighten the status of myofascial dysfunctions in BCS.

MATERIALS AND METHOD

It is an observational study that was carried out in Krishna hospital, Karad. Informed consent was taken from the BCS who were participated in the study. The total numbers of subjects included in the study were 74; this sample size was calculated using formula $n = \frac{4pq}{L^2}$. All the subjects were included in this study based on inclusion criteria. An inclusion criterion includes BCS stage II and stages IIIA. Histological confirmed breast cancer with no evidence of progressive disease for the last six months. BCS was done with surgery, radiotherapy and or chemotherapy. Females were having age between 40 to 65 years. Breast cancer survivors are receiving Hormone therapy. An exclusion criterion includes breast cancer survivors with a known case of fracture-dislocation, stroke, peripheral neuropathy, skin diseases.

PROCEDURE

This study was conducted to find out the prevalence of myofascial dysfunctions in the BCS. After getting ethical approval from the institutional ethical committee (Ethical number-0455/2018-2019). The BCS was grouped into two age groups based on inclusion and exclusion criteria. Informed consents were taken from the BCS. BCS were assessed for posture, shoulder strength and visual analogue scale. They have explained the procedure and importance of the study. Subjects were divided into above 50 and below 50 age groups who have undergone surgeries, radiotherapy, and chemotherapy and hormone therapy. Subjects screened for pectoral tightness, post-mastectomy pain syndrome, adhesive capsulitis, lymphedema and axillary web syndrome. The result of the study was done based on a detailed assessment. The study was concluded by statistical analysis of all the outcome measures. Statistical analysis was done manually and by using the statistics software INSTAT to verify the results derived. Data on all outcome measures were measured. The arithmetic mean, and the standard deviation was calculated for each outcome measure.

RESULTS

Primary outcomes used for the result were Musculoskeletal Assessment, Visual Analogue Scale, posture Assessment, pectoral tightness test. A total of 74 subjects were taken for the study. In this study the major myofascial dysfunctions were pectoral tightness ($p= 0.1344$), post-mastectomy pain syndrome ($p=0.0116$), rotator cuff disease ($p= 0.1344$), adhesive capsulitis ($p= 0.9388$) and axillary web syndrome ($p= 0.9193$) and the result was significant.

Table 1: Sociodemographic data

AGE	Present	Percentage
Above 50	33	(44.59)
Below 50	41	(55.40)
P-value	0.2498	
Past history	Present (%)	Absent (%)
	20 (27.02)	54(72.97)
Treatment history	Present	Percentage
Radiotherapy	74	100
Chemotherapy	63	85.13
Hormonal therapy	56	75.67
Surgery	26	35.13
Working status		
Workers	46	62.16
Non workers	28	37.83
Habits		
	Frequency	Percentage
Masheri	32	23.68
Tobacco	30	22.2
Smokers	12	8.88
Total	74	
Obesity		
	Frequency	Percentage
Obese	45	60.81
Non-obese	29	39.18
Total	74	
Population		
Urban population	22	29.72
Rural population	52	70.12
Total	74	

Table No. 1 represents sociodemographic data that includes age, treatment history, habits, working status, obesity and past history. The age group included in this study is 40 to 65 years. Among 74 subjects, 33 subjects fall under the age group of >50years and 41fall under the age group < 50 years.

Table 2: Pectoral tightness

PECTORAL TIGHTNESS	Below 50	Above 50
Present	29	29
Absent	12	4
P Value	0.1344	
Chi square value	2.241	

The table no.2 shows that out of total sample size, 50% of patients having pectoral tightness were above 50 years of age and below 50years of age with prevalence 0.1344.

Table 3: Post-mastectomy pain syndrome

Post-mastectomy pain syndrome	Below 50	Above 50
Present	29	24
Absent	4	17
P Value	0.0116	
Chi-square value	6.369	

Table No. 3 shows that out of total sample size, post-mastectomy pain syndrome present in 29 peoples age below50 and 24 peoples with age above 50.

Table 4: Rotator cuff diseases

Rotator cuff disease	Below 50	Above 50
Present	29	29
Absent	12	4
P Value	0.1344	
Chi-square value	2.241	

Table No.4 shows that rotator cuff disease present in29 peoples each in both above and below 50 years of age, with prevalence 0.1344.

Table 5: Adhesive capsulitis

Adhesive capsulitis	Below 50	Above 50
Present	32	26
Absent	9	7
P Value	0.9388	
Chi square value	0.005894	

Table No. 5 shows that adhesive capsulitis present in 26 peoples with age groups above 50 and 32 is below 50 years of age with prevalence 0.9388.

Table 6: Axillary web syndrome

Axillary web syndrome	Below 50	Above 50
Present	27	23
Absent	14	10
P Value	0.9193	
Chi square value	0.01025	

Table No. 6 shows that axillary web syndrome present in 23 peoples age above 50 and 27 peoples with the age group below 50. The prevalence rate is 0.9193.

Table 7: Lymphedema

Lymphedema	Below 50	Above 50
Present	31	25
Absent	19	25
P Value	0.9882	
Chi square value	0.021	

Table No. 7 shows that lymphedema present in 31 peoples age above 50 and 25 peoples with the age group below 50. The prevalence rate is 0.9882.

DISCUSSION

This study on the Prevalence of myofascial dysfunctions in BCS was conducted to find the prevalence rate of myofascial dysfunctions which occur after the breast cancer treatment which includes chemotherapy, hormone therapy, radiotherapy and surgical treatment. After breast cancer treatment pain is ordinary. Many surgeries and treatments are performed to reduce the complications or for cosmetic purposes, but due to the surgeries or chemotherapy weakness, pain and chest tightness are common. Because of these myofascial dysfunctions, there are restrictions in upper body strength and mobility; this will result in a reduced capacity to lift, push and hold out to perform a task. This complication hampers patients' quality of life to a greater extent [14]. As an effect of earlier diagnosis and better treatment will help to BCS for improving survival rate and QOL after breast cancer treatment. Numerous researches were taken to find the QOL of the BCS. Still, there was no awareness about the prevalence of the myofascial dysfunction that occurs after the surgeries. As these dysfunctions have a direct relation with the QOL of the BCS, it is necessary to put some light on the prevalence rate of these dysfunctions. It will help to progress the patient's QOL. Knowing about the importance of the research, this topic has been approved by the ethical committee, and after that, the study began. A sample size of the study included 74 females undergone surgeries, who were screened for their pectoralis tightness, post-mastectomy pain syndrome, rotator cuff diseases, adhesive capsulitis, lymphedema and axillary web syndrome. The study concluded that out of 74 females, 58 had pectoral tightness, out of which 29 (50%) were above 50 years of age and 29 females (50%) were below 50 years of age. When screened for post mastectomy pain syndrome, we found out that out of 74 females, 53 females were having a complaint regarding the post-mastectomy pain syndrome, out of which 29 females were below 50 years of age and 24 were above 50 years of age. This study also commented about the prevalence rate of adhesive capsulitis which found out to be 32 and 36 below 50 and above 50 respectively. When screened for the rotator cuff disease, we found out that out of 74 females, 58 females were having a complaint regarding the post-mastectomy pain syndrome, out of which 29 females were below 50 years of age and 24 were above 50 years of age. The study concluded 31 and 27 females had experienced lymphedema and axillary we syndrome respectively and were of the age group of below 50 years of age and 25 and 23 were above the age of 50 years respectively. When comparing this study with previous researches, Stubblefield MD, Keole N. (2014) explained about post-operative complications like pain and management. Still, very fewer studies done about the myofascial dysfunctions and assessment [15]. There is a critical need for developing correct treatment and early

rehabilitation program for BCS to improve the activity of daily life and QOL [16]. If these dysfunctions remain untreated that would affect on physical and psychological health and shows many irreversible changes in muscle strength, pain posture, impingement syndrome. Hence early assessment and rehabilitation can be applied to restore the normal activity of daily living. Early physiotherapy will help to improve patients' health status.

CONCLUSION

Our findings indicate that after breast cancer management, myofascial dysfunctions are common in the first few months after the management. As per findings, we have concluded that pectoralis tightness preceding by rotator cuff disease and then adhesive capsulitis was seen in the age group above 50 years who had a significant post-operative myofascial dysfunction. Also, in the age group which was below 50 years, was found to have adhesive capsulitis followed by lymphedema and led by rotator cuff disease. Furthermore, explorative study and the larger sample size is required with a detailed assessment to explore more in-depth research on this topic.

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Abbreviations

VAS: Visual Analogue Scale

AWS: Axillary web syndrome

PMPS: Post-mastectomy pain syndrome

BCS: Breast cancer survivors

SD: Standard deviation

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