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EFFECT OF GROUP BASED MINDFUL MEDITATION VERSUS PROGRESSIVE MUSCLE RELAXATION ON STRESS IN POST MODIFIED RADICAL MASTECTOMY PATIENTS.

Oncology

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ABSTRACT

Context: Individuals who have been diagnosed with cancer usually suffer from various psychosocial impairments. Psychosocial impairments affect the well-being of the individual, causing risk to the individual in various ways. With rise in awareness about cancer and its effects on an individual, people are increasingly seeking out various complementary therapies to cope with their illness. Hence this study aimed to compare the effect of Group Based Mindful Based Stress Reduction and Progressive Muscle Relaxation on stress in post Modified Radical Mastectomy patients.

Methods and Material: 60 post MRM patients (30-60 yrs) were selected as per eligibility criteria. Pre-intervention scores were taken using DASS-42 (Marathi version). Both the groups intervention was given for ten minutes for five days, for one week and post-intervention assessment was done, and scores noted.

Results: Unpaired t test of baseline characteristics (BMI, AGE, pre-interventional DASS) done for both the groups showed that the groups were comparable.Pre and Post interventional data collected in MBSR (group 1) ($t= 2.94$, $p<0.001$) and PMR (group 2) ($t=1.67$, $p<0.05$) showed that there was significant difference in DASS scores. However, between group analysis by Unpaired t test of both the groups showed no significant difference ($t=0.98$, $p>0.05$) hence, both the interventions were effective in decreasing DASS scores.

Conclusions: The study concluded that both the interventions were effective in decreasing symptoms of stress in the post MRM patients.

KEYWORDS

Group Based, MBSR, PMR, Modified Radical Mastectomy

INTRODUCTION:

Breast cancer a condition characterized by uncontrolled growth of breast cells is a world-wide problem affecting more than 1.2 million women every year and a major cause of morbidity and mortality in developing and developed countries [1,2] It is a commonly diagnosed malignancy in women worldwide, with increasing annual incidence. Despite the advances in multidisciplinary treatment for breast cancer, with increase in income and improved standard of living in developing countries, there is increase in incidence of breast cancer. The increase in incidence rate may be due to longer life, higher exposure to risk factors, eating more fatty food, obesity, and lower pregnancy rates [3,4].

Emotional distress after diagnosis of cancer is common. Doubts and fears about the future and physical symptoms or functional losses resulting from the disease or its treatment are a few of the precipitating factors. Accumulation of these difficulties, lead many patients to conclude that stress, including the very stress caused by their cancer experience, may lead to recurrence or progression of their disease [5]. Selye (1956) used the term "stress" to denote the effects of anything which would seriously threaten homeostasis." Although stress response evolved as an adaptive process, Selye observed that severe and prolonged stress response (to a particular or varied stressor) might lead to tissue damage and disease [6].

The link between psychological and physiological features of cancer risk and progression have been studied through psychoneuroimmunology. The constant activation of the hypothalamic-pituitary-adrenal (HPA) axis in the chronic stress response and in depression probably impairs the immune response and leads to the development and progression of some types of cancer[7].

Cancer diagnosis and treatment are often associated with physical and psychosocial impairments[8]. In addition to the direct effects of psychological states on physiological function, individuals who are stressed and depressed are more likely to have health habits that put them at great risk which include decreased sleep, a greater propensity for alcohol and drug abuse, worse nutrition, and less exercise which have various immunological and endocrinological consequences[7]. As a consequence, people diagnosed with cancer are increasingly seeking out supportive and complementary therapies as adjunct to medical treatment in their efforts to cope with their illness and to promote healing[5]. Complementary and alternative medicine is widely used by patients to cope with symptoms of their disease[8].The most common of CAM therapies include use of vitamins, herbs or nutritional supplements, massage, relaxation, various meditative techniques and self-help groups Spiritual healing and prayer are also included[9]. Several complementary cancer treatments are based on mindfulness. Derived from Buddhist Theravada tradition, mindfulness has been viewed as the core construct of Buddhist meditation[8]. Mindfulness Based Stress Reduction (MBSR) is a technique developed by Dr. Jon Kabat-Zinn in 1979. Although it was initially developed for stress management, it has now evolved to encompass the treatment of a variety of health-related disorders. It uses mindfulness meditation to alleviate suffering associated with physical, psychosomatic and psychiatric disorders[10].

Progressive muscle relaxation technique (PMRT) is a non-pharmacological intervention which has been proven to overcome stress. It has effects on mental and physical conditions, mood, depression, and anxiety. Relaxation methods are very powerful tools for dealing with stress, by giving the body/mind the chance to heal on its own. Developed by Dr. Edmund Jacobson, he discovered that a muscle could be relaxed by first tensing it for a few seconds and then releasing it. [11]

Despite the importance of reducing stress, there are very few studies which have determined the effect of Mindfulness Meditation and PMR on stress in patients who have undergone Modified Radical Mastectomy. Therefore, the study aims to evaluate the effects of Mindfulness Meditation and PMR on stress in post MRM patients.

SUBJECTS AND METHODS:

Prior to the commencement, this study was approved by the Ethical Committee at Dr. APJ Abdul Kalam College of Physiotherapy at Pravara Institute of Medical Sciences, Loni, Maharashtra. The study was conducted in Pravara Rural Hospital, Loni, Maharashtra. This study was introduced after all the patients were informed about the research procedure. Patients who were willing were given detailed information regarding the nature of study, before participation and written informed consent forms and permissions were obtained. Those patients who were willing and who met the following criteria were requested to participate in the study. Inclusion criteria was: Patients diagnosed with breast cancer and who have undergone MRM surgery, Age Group of 30- 60 years, with a clinical diagnosis of stage 1 and 2 breast cancer [2], Patients who either have undergone unilateral or bilateral modified Radical mastectomy[2], Patients receiving radiotherapy, post-surgery[2] and patientswho were willing to participate. Exclusion criteria was: Any cardiovascular abnormality [2], Impaired cognitive function [2], Musculoskeletal disorders[2], Neurological disorders [2], Emotional instability and/or a very low level

of activity. [2] and patients who have been diagnosed with breast cancer but have not undergone MRM surgery.

Baseline assessment of demographics like Age, BMI was done. Also, the patients were given the DASS-42 (Marathi Version)[12] and were asked to fill in the questionnaire, as a pre-intervention assessment and their scores taken.

Total 60 patients who fulfilled the inclusion criteria were taken into the study. The patients were allocated (30 for each group) to either a group receiving MBSR along with conventional physiotherapy or to a group receiving PMR along with conventional physiotherapy on alternate basis. The interventions were given under the supervision of the physiotherapist. After a week of this intervention the participants were re-assessed using the DASS-42 (Marathi version) and their scores were noted and compared to those taken pre-intervention. Patients receiving MBSR were giving group therapy where the patients were asked to sit upright, relaxed in chairs and concentrate on their breathing. To further enhance their concentration, patients were asked to close their eyes. The patients were instructed in between the treatment to focus their wandering attention back to their breathing. Patients were also instructed not to focus on their thoughts and to let them flow. Treatment was given for ten minutes, for five days for a week. PMR was given beside with patients lying down in a relaxed manner. The patients were asked to contract their muscles as much as possible, so that they feel the tension building up in their muscles. Contraction was held for ten seconds, followed by complete relaxation of the muscle for 20 seconds. Patients were asked to focus on the difference between the two states as the patients were first instructed to contract and then relax various groups of muscles starting from their lower extremity ending with their fascial muscles. PMR was also given for ten minutes, for five days a week over a period of one week.

DASS-42 is a set of three self-report scales designed to measure the emotional sates of Depression, Anxiety and Stress. Items are designed to help the clinician/ the researcher to get a deeper understanding of the emotional states. Each of the three DASS scales contains 14 items, divided into subscales with similar content. The 42 items are easy to understand and the participants are asked to rate the items on the scale of 0-3. The questions in this scale assess the emotional state of the participant over a week. The participant has to indicate by circling how often he/she felt or thought a certain way. 0 = Did not apply to me at all, 1 = applied to me to some degree or some of the time, 2 = applied to me to a considerable degree or good part of the time, 3 = applied to me very much or most of the time.[13]

RESULTS:

This study included 60 female patients with stage 1 and 2 breast cancer whose baseline characteristics BMI, Age and Pre-intervention DASS scores were compared for both the groups and are shown in Table 1 which show that both the groups were comparable.

Table 1: Baseline Comparison of both the groups.

	Group A		Group B		T value (unpaired T test) and degree of freedom	P value and significance
	Mean	SD	Mean	SD		
BMI	26.17667	4.22143	25.91667	5.234111	T=0.2118, df=58	P=0.83, (P>0.05), not significant
Age	46.03333	10.09433	42.7	9.91394	T=1.290, df=58	P=0.20, (P>0.05), not significant.
DASS	98.497667	204.8256	60.63	20.71	T= 0.2466, df=58	P=0.15, (P>0.05), not significant

Table 2: Within Group Analysis of DASS according to Paired T Test for MBSR Group

MBSR				
	Pre	Post	T-Test	P Value and Significance
Mean	62.16	48.9	2.94	P<0.001, significant
SD	27.02	22.12		

Table 3: Within Group Analysis of DASS according to Paired T test for PMR Group

PMR				
	Pre	Post	T-Test	P Value and Significance
Mean	60.63	54.33	1.67	P<0.05, significant
SD	20.17	20.49		

Table 4: Between Group Analysis of DASS according to Unpaired T test for MSBR and PMR Group

	Post (MBSR)	Post (PMR)	Unpaired T-test	P Value and Significance
Mean	48.9	54.33	0.98	P>0.05, not significant
SD	22.12	20.49		

On between group comparison of post-interventional from both the groups, results suggested that there was no significant difference. Hence, both the interventions were effective in decreasing DASS scores.

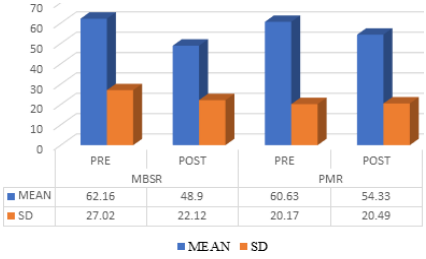

Figure 1: Graph showing Pre-Post interventional Mean and SD of MBSR and PMR.

DISCUSSION:

This study aims to determine the effects of MBSR and PMR on symptoms of stress in post MRM patients. In this study 60 patients were taken and were assessed using DASS. Results of the present study showed that MBSR was effective in reducing stress (P<0.001) which is in accordance to the study conducted by Reich RR, which suggested that MBSR held a promise as a clinical treatment in reduction of multiple symptoms amongst breast cancer survivors. There was evidence supporting MBSR as an effective tool in combatting symptoms of fatigue, mood disturbance, depression and anxiety[14]. MBSR is a group-based program that focuses upon progressive acquisition of mindful awareness, or mindfulness. It is characterized by nondeliberative, nonevaluative and sustained moment-to-moment awareness of perceptible mental states and processes which include continuous, immediate awareness of physical sensations, perceptions, affective states, thoughts and imagery. It merely implies paying sustained attention to the ongoing mental content without thinking about, comparing or in other way evaluating it, during periods of practice[15]. The main goal of MBSR is not to change the content of the patient's system of cognition but rather to change the way of relating to it. During mindfulness training, patients are trained to shift focus from the past and/or the future to focus on the present moment, developing a process of de-centralization and disidentification from personal experience. The core of MBSR involves gaining excellence in practice of self-regulation of attention that lowers reactivity to stressors balancing the sympathetic and para sympathetic responses. It leads in taking care of individual's health and emotional needs ultimately leading to positive emotions and happiness there by decreasing stress[16].

A similar research, supporting the results of the present study was conducted by Linda E. Carlson, which concluded that MBSR was associated with enhanced quality of life and decreased stress symptoms in the cancer patients[5].

Present study a showed that PMR also had a significant effect on reducing the symptoms of stress (P<0.05) which might be due to physiological effects of alternate contraction and relaxation of the muscles. PMR involves a physical and mental component [17]. The mental component includes patients identifying which muscles or group of muscles are chronically tensed by distinguishing between sensations of tension (purposeful muscle tensing) and relaxation (a conscious relaxing of the muscles). While the physical component includes tensing a muscle or muscle group for five to seven seconds and after which they are relaxed for 20-30 seconds. Each time, the individual focuses on the difference in sensations between the two conditions. The awareness of the relaxing sensation is one of the greatest gains realized with progressive muscle relaxation. [11, 17.] With practice, patient learns how to effectively relax in a short amount of time[17.] This was supported by the study of Jacobson (1941) who theorized that complete muscle relaxation is discordant with having any thoughts or feelings. The relaxation of autonomic nervous system leads to reduction in skeletal muscle tone leads to loss of ergotropic tone of hypothalamus and diminution of hypothalamic discharges

which consequently leads to dominance of trophotropic system, also called parasympathetic system whose activation causes reductions in HR and BP, increased activity of the digestive system, and increase in muscle endurance.[18]

Further a supporting the study a research was conducted by Peter M Scheufele, who observed the effects of progressive relaxation and classical music on measurements of attention, relaxation and stress response. The study showed that PMR had significant effects on behavioural and self-reported measures of relaxation[17].

Comparing the post interventional stress scores of both the groups, the study proved that both the interventions were effective in reducing symptoms of stress in post MRM patients. As a part of conventional physiotherapy given to the patient, a form of relaxation and MSBR can be added to reduce stress, for stress is linked to disease risk and its progression Study Limitations: The sample size of the study was small. The study did not have a follow-up to see if the effects of the intervention sustained over time.

Future scope: Further study with larger sample size and long term follow up should be done to see the effects of MBSR and PMR over a sustained time period.

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Key Messages: Emotional distress and psychological impairment affecting quality of life of cancer patients can be effectively dealt with alternative therapies like Mindfulness Based Stress Reduction and Progressive Muscle Relaxation helping them to cope up with stress.

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