



ORIGINAL RESEARCH PAPER

Physiotherapy

TO COMPARE THE EFFECTIVENESS OF SCAPULAR PNF WITH CONVENTIONAL PHYSIOTHERAPY VERSUS CONVENTIONAL PHYSIOTHERAPY IN SUBJECTS WITH SHOULDER DYSFUNCTION AFTER MASTECTOMY

KEY WORDS:

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ABSTRACT

AIM- To compare the effectiveness of Scapular PNF with conventional physiotherapy in subjects with shoulder dysfunction after mastectomy.

METHODS: 30 participants with age group between 18-65 years were taken among which 15 subjects in each group were selected (Group A & Group B). In Group A- 15 subjects were treated with Scapular Proprioceptive Neuromuscular Facilitation (PNF) techniques and Conventional physiotherapy. In Group B- 15 Subjects were treated with only conventional physiotherapy. Outcome has been measured using Numeric Pain Rating Scale, Active & Passive ROM and Simple Shoulder Test.

RESULT- In this study, 30 females were studied. There is a significant difference between pre & post scores of group A with p-value 0.006 and pre & post scores of group B with p-value 0.008.

CONCLUSION- The findings of the current study showed that both the group A & group B shows significant improvement in reduction of pain and improves shoulder function and quality of life following mastectomy in breast cancer. But on comparing both intervention groups group A give better result than group B.

INTRODUCTION

Breast cancer is the most common type of cancer in women in the developed world. Breast cancer-related lymph edema of the upper limbs is a common complication following breast cancer surgery. The incidence of lymph edema after breast surgery is approximately 30% especially in patients who underwent tumor resection with axillary lymph node dissection (1). Most of these patients, suffer from serious complaints in their arm and shoulder including decreased joint mobility and muscle strength, pain, impairment in functions and (2, 3) disability in gross and fine motor skills, psychosocial disorders and cosmetic deformity mostly related to lymph edema leading to limitations in activities of daily living and participation in work, sports and social activities (4). Also, cancer surgery and related factors cause tissue fibrosis. In addition, radiotherapy and hormonal therapy are the main risk factors for formation of fibrosis (5). Early physical therapy intervention can reduce the complications related to breast surgery and reduce the need for intensive rehabilitation and the associated costs. (6) Manual Lymph Drainage, lymphological compression bandage, massage of fibrotic tissue, progressive active assisted shoulder exercises and educational strategy are some of the physical therapy approaches (7). Previous studies reported that exercise therapy can be beneficial in reducing lymph edema along with Physical therapy approach in shoulder impairment, improvement in the shoulder movements (8).

Exercise interventions include a range of rehabilitative exercises aimed at preventing, minimizing or improving shoulder ROM, upper-limb strength and function, pain and lymphedema. An exercise program may include active, active-assisted, and/or passive ROM exercises, stretching or movement exercises, and upper-limb strengthening exercises.

MATERIALS AND METHODS

This is experimental study design & comparative type. The study was conducted in physiotherapy OPD of Chatarpati shivaji subharti hospital, Meerut. 30 females of age group 18 years to 65 years were included in the study. The study duration was six weeks. The study was approved by institute ethics committee. Patients with local recurrence, distal metastasis, diabetes, pre existing joint disorder, previous surgeries performed on chest wall, arm & shoulder were excluded from the study. (9)

After initial examination, subjects who met study criteria & agreed

to participate were assigned in two groups (group A & group B), informed consent was taken from the subjects prior to the treatment.

In Group A- 15 subjects were treated with Scapular Proprioceptive Neuromuscular Facilitation (PNF) techniques and Conventional physiotherapy such as Hot pack therapy. After the application of hot pack, stretching exercises and shoulder mobilization exercises performed. Stretching exercises including anterior and inferior capsule stretch of the shoulder, and Codman pendulum exercise was performed with 20 repetitions for each exercise. In Group B- 15 Subjects were treated with only conventional physiotherapy.

Inferior capsule stretch

Patient standing next to the wall with arm nearest the wall, stretch the arm overhead, bend the elbow as an attempt to place the hand on back of the head, lean on to the wall with the back of head.

Hold 30 secs, repeat 3-10 times per set. Do 1 set per session and do 1-2 sessions per day.

Anterior capsule stretch

The patient has to stand facing the window with reachable distance in walk standing position and grasp the hand on the window bar by extending the shoulder now the patient has to lunge forward and down until the patient feels stretch. Then Scapular PNF was applied in two diagonals, (elevation anteriorly and depression and posterior elevation with anterior depression) with patient positioned in normal side. In all patterns of facilitation techniques, repeated contractions and rhythmic initiation were applied in all patterns with rest period between 20 repetitions was 20 seconds. The rhythmic initiation technique helps to improve active range of motion and coordination and the technique of repeated contraction increases both the strength and range of motion.

Outcome measures are-

- The Numeric pain rating Scale for pain.
- Universal goniometer for shoulder ROM.
- The Simple Shoulder Test for the functional limitations of the affected shoulder.



DATA ANALYSIS

The collected data were tabulated and analyzed by using IBM SPSS version 20.0 software. Paired t- test was used to test the results between group A and group B.

RESULTS

In this study, 30 females were examined & treated for six weeks. 15 subjects in each group (Group A & Group B).There is a significant difference between pre and post score of all outcome measures (Numeric Pain Rating Scale, Active & Passive ROM and Simple Shoulder Test.) There is a significant difference in pre & post scores of Group A subjects (p value 0.006) who were treated with Scapular Proprioceptive Neuromuscular Facilitation (PNF) techniques and Conventional physiotherapy.

There is also a significant difference in pre & post scores of Group B subjects (p value 0.008) who were treated with only conventional physiotherapy. But Group A shows better result than Group B due to additional use of PNF technique along with Conventional physiotherapy.

Table 1- MEAN DIFFERENCE OF PRE & POST SCORE OF GROUP A

	MEAN \pm S.D.	PAIRED t TEST	P VALUE
PRE SCORE	29.1909 \pm 21.90844	3.511	0.006
POST SCORE	57.9509 \pm 47.79787		

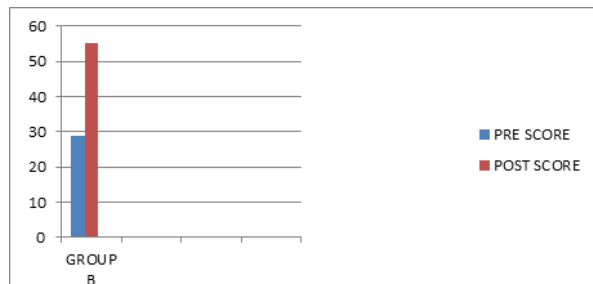
GRAPH 1-MEAN DIFFERENCE OF PRE & POST SCORE OF GROUP A



Table 2- MEAN DIFFERENCE OF PRE & POST SCORE OF GROUP B

	MEAN \pm S.D.	PAIRED t TEST	P VALUE
PRE SCORE	28.7591 \pm 20.33248	3.274	0.008
POST SCORE	55.0891 \pm 46.60487		

GRAPH 2-MEAN DIFFERENCE OF PRE & POST SCORE OF GROUP B



GRAPH 3-MEAN DIFFERENCE OF POST SCORE OF GROUP A & B

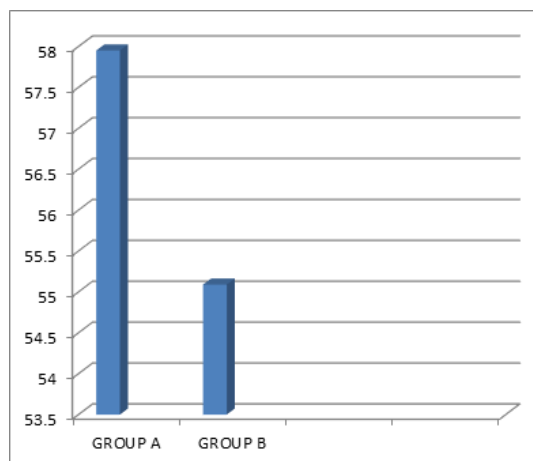


TABLE 3-PAIRED CORRELATION OF PRE & POST SCORE OF GROUP A & GROUP B

	N	CORRELATION	SIGNIFICANCE
PRE & post SCORE GROUP A	11	0.968	0.000
POST SCORE & POST SCORE GROUP B	11	0.989	0.000

DISCUSSION

This study compares the effectiveness of scapular Proprioceptive Neuromuscular Facilitation (PNF) techniques and conventional physiotherapy in restricted shoulder movements patients after mastectomy. Group A subjects who were treated with scapular Proprioceptive Neuromuscular Facilitation (PNF) techniques shows a pain reduction significantly, scapular dyskinesis, and improvement in range of motion of shoulder and functional activities. Proprioceptive NeuromuscularFacilitation (PNF) techniques help in improving range of motion as it elongates the Golgi tendon organ that facilitates relaxation of the antagonist muscles. This is supported by result of Kyungjin Ha et who showed that a PNF Technique Program after Mastectomy is effective in improving shoulder function, Lymph edema, Depression and Anxiety(10).Our result is like the result of Janine T. Hidding who showed that, an integrated approach in addressing the adverse effects of distinct breast cancer treatment modalities on impairments in arm and shoulder function is of clinical relevance.(11) Our result is in accordance with McNeelyML et ol Who studied evidence of benefit from physical therapy intervention on shoulder flexion ROM, shoulder abduction ROM and shoulder function.(12)

CONCLUSION

The findings of the current study showed that both the group A & group B shows significant improvement in reduction of pain and improves shoulder function and quality of life following mastectomy in breast cancer.

But on comparing both intervention groups group A give better result than group B.

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