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EFFECTIVENESS OF MANUAL JOINT MOBILIZATION IN FROZEN SHOULDER WITH AND WITHOUT HOME EXERCISE PROGRAM.

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ABSTRACT

BACKGROUND: Adhesive Capsulitis or Frozen Shoulder, according to many authors is a clinical disorder rather than Ac diagnosis. **OBJECTIVE:**To determine the effectiveness of manual joint mobilization in frozen shoulder with and without home exercise program. **MATERIALS AND METHODS:** A randomized control was conducted in Sindh (Karachi) from May 2022 to November 2022 to determine the effectiveness of manual therapy with and without home exercise program for frozen shoulder. Sample size of 48 participants were randomly assigned to Group A and Group B. Group A and Group B received manual joint mobilization two time per week for total six weeks, Group B advised to perform daily home exercises. The SPADI was used to measure primary outcome was changes in pain and stiffness. Goniometer was used to measure the secondary outcomes. Descriptive and inferential statistics was used for data analysis.**RESULTS:** Participants were divided into Group A and Group B. Group A (n=24) and Group B (n=24) groups. Results showed that the group B had significantly greater improvements in pain (-25.86 vs. -15.00), disability (-22.64 vs. -17.72), and ROM (39.17 vs 30.01 for flexion, 43.21 vs 33.09 for abduction, and 26.41 vs 18.85 for external rotation) compared to the group A. These findings suggest that joint mobilization with home program may be an effective intervention for improvement in pain, disability, and ROM in patients with shoulder impingement syndrome. **CONCLUSION:** A Study concluded that Manual joint mobilization with a home exercise program was found to be an effective treatment for frozen shoulder, resulting in significant improvements in pain, disability, and range of motion.

KEY WORDS: Frozen shoulder, Home exercise, Joint mobilization, SPADI

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INTRODUCTION

INTRODUCTION

According to many authors Frozen Shoulder, is a clinical disorder. It has got different names, frozen shoulder syndrome, scapulohumeral periarthritis, pericapsulitis, irritatives capsulitis, and periarthritis of the shoulder[1]. Frozen shoulder is a disorder in which pain, soreness and stiffness cause limitation of the range of motion[2]. Inflammation and subsequent adhesion formation (bands of scar tissue) leads to the painful condition. Frozen shoulder is a hurting and restricting disorder, its prolonged course becomes frustrating for most of the patients[3]. In certain cases trauma to the shoulder may be the cause of frozen shoulder[4]. It is recognized that in some cases there is autoimmune factor, which kills healthy capsule of shoulder joint. Frozen shoulder is categorized into primary and secondary types with known causes like trauma or surgery. Secondary frozen shoulder is further categorized into systemic, extrinsic, and intrinsic factors such as diabetes, stroke, or rotator cuff syndrome[5]. The prevalence of frozen shoulder is 3– 6% and in patients of diabetes mellitus its incidence is 11–36%. Frozen shoulder is slightly more common in females than males. Most common affected age group is 40-70 years[6]. The female patients of frozen shoulder were in an age group of 50-70years[7]. Recent studies have shown that frozen shoulder is a self-limiting condition and settles down in the time period of 1-3 years; however 20%-50% of frozen shoulder patients may suffer from joint stiffness for an extended period of time and may last for 8-10 years 8 to 12 Different shoulder glides are performed in manual mobilization to put stretch on shoulder capsule and to regain pain free active joint movement. Manual joint mobilization involves translatoric movements of the joint play that includes traction, gliding and compression, in relation to the joint treatment plane[9]. Manual joint mobilization has been reported to be effective in improving range of motion (ROM) and reducing pain in various musculoskeletal conditions, including frozen shoulder[10,11]. In addition, a home exercise program (HEP) was also included in the treatment protocol, as it has been suggested that exercises can improve shoulder function and reduce pain in frozen shoulder patients[12,13]. The combination of Manual joint mobilization and home exercises program has been shown to be effective in improving shoulder ROM and reducing pain in patients with frozen shoulder[14,15]. Home exercises are used to regain permanent soft tissue elongation and flexibility[16].

MATERIALS AND METHOD

RCT Study was conducted in different physiotherapy clinics of Karachi. The study duration was from May 2022 to November 2022 and was adhere to ethical guidelines and obtain informed consent from all participants. The subjects were treated

frozen shoulder, with and without a home exercise program, sample size of 48 participants aged between 40-60 years, of both genders, with a diagnosis of frozen shoulder. Participants were be randomly assigned to Group A (manual joint mobilization alone) and Group B (manual joint mobilization with a home exercise program). Both groups were received manual joint mobilization twice a week for six weeks, while Group B was also performing a home exercise program daily. The primary outcome was measured the change in shoulder pain and stiffness, as assessed by the Shoulder Pain and Disability Index (SPADI), with secondary outcome measures including changes in shoulder range of motion and the patient's global impression of change which was measured by Goniometer. Data was analyzed using descriptive and inferential statistics, including repeated-measures ANOVA and chi-square tests.

RESULTS

Randomized control trail was conducted there were 48 participants divided into two groups: Control (Group A) (n=24) and Experimental (Group B) (n=24). The mean age of the Group A was 45.39 ± 4.20 years, while the mean age of the Group B was 47.9 ± 1.92 years. In terms of gender distribution, the control group had 11 males (45.8%) and 13 females (54.2%), while the experimental group had 10 males (41.7%) and 14 females (58.3%). In terms of the side affected by the condition, the majority of both groups had left side involvement, with 15 (62.5%) in the control group and 13 (54.2%) in the experimental group. Regarding diabetic status, the control group had one participant (4.2%) who was not diabetic, while the experimental group had five participants (20.8%) who were not diabetic. The experimental group had a higher percentage of diabetic participants than the control group, with 23 participants (95.8%) being diabetic.

Table 1: Characteristics of Control and Experimental Groups, including Age, Gender, Side Affected, and Diabetic Status with Frequencies and Percentages

Characteristics	Control Group (n=24)	Experimental Group (n=24)
Age (in Years)	45.39 ± 4.20	47.9 ± 1.92
Gender		
Male	11(45.8%)	10 (41.7%)
Female	13 (54.2%)	14 (58.3%)
Side affected		
Left	15 62.5%)	13 (54.2%)
Right	9(37.5%)	11 (45.8%)
Diabetic		
Yes	19(79.2%)	23(95.8%)
No	1 (4.2%)	5 (20.8%)

Table 2: Pre-Post treatment Scores of Control and Experimental group

Variable	Control Group	Experimental Group	Mean Different Between Group
Pre SPADI Pain	72.24 ± 7.80	68.62 ± 15.54	-3.62

Post SPADI Pain	57.24 ± 9.51	42.76 ± 18.87	-14.48
Mean Different	-15.00	-25.86	
Pre SPADI Disability	69.73 ± 10.76	62.50 ± 16.67	-7.23
Post SPADI Disability	52.01 ± 10.25	39.86 ± 15.12	-12.15
Mean Different	-17.72	-22.64	
Pre Flexion ROM	85.35 ± 13.42	89.25 ± 26.84	3.90
Post Flexion ROM	115.36 ± 24.43	128.42 ± 37.36	13.06
Mean Different	30.01	39.17	
Pre Abduction ROM	70.89 ± 10.56	65.42 ± 29.41	-5.47
Post Abduction ROM	103.98 ± 25.66	108.63 ± 32.81	4.65
Mean Different	33.09	43.21	
Pre External Rotation ROM	38.68 ± 10.88	33.32 ± 11.07	-5.36
Post External Rotation ROM	57.53 ± 11.10	59.73 ± 9.36	2.20
Mean Different	18.85	26.41	

Significant improvement in pain in the experimental group (-25.86 vs -15.00), disability (-22.64 vs -17.72), and ROM (39.17 vs 30.01 for flexion, 43.21 vs 33.09 for abduction, and 26.41 vs 18.85 for external rotation) compared to the control group

Findings of the randomized control trial suggest that experimental group may be an effective intervention for improving pain, disability, and ROM in patients with frozen shoulder. Advance research is needed to determine the optimal duration and frequency of joint mobilization for these patients.

DISCUSSIONS

The effectiveness of manual joint mobilization in patients with frozen shoulder with and without a home exercise program was determined by The Randomized control trial.

The results of this study showed that the combination of manual joint mobilization and a home exercise program lead to greater improvements in pain, disability, and range of motion compared to manual joint mobilization alone. Results in this study are in line with other research that revealed manual treatment and exercise are effective ways to treat frozen shoulder[17].

Substantial impairment excruciatingly pain caused by frozen shoulder make this study more important regarding frozen shoulder. According to this study home exercise program and manual joint mobilization techniques are considered effective treatment for frozen shoulder[18].

Literature review suggested that use of manual therapy and home exercises plans are effective treatment of musculoskeletal disorders[19]. Breaking adhesion and mobilization of soft tissues around shoulder joint increase the range of motion and decrease pain and discomfort associated with frozen shoulder [20, 21]. Home exercise program along with the regular Physical therapy sessions improves the outcomes and boost the patients confidence[22, 23.] Other studies also suggested that home exercise program along with the physical therapy sessions might help patients to achieve better results in frozen shoulder [24, 25]. This study also supports the previous studies that home program exercises along with manual therapy treatment are useful for the treatment of frozen shoulder. Results of the study may be useful for the health care professionals who treat the patients with frozen shoulder.

CONCLUSION:

To treat the frozen shoulder home exercises plan along with joint mobilization techniques considered to be effective treatment and support the previous studies for the treatment of frozen shoulder.

ETHICS APPROVAL: The ERC gave ethical review approval

CONSENT TO PARTICIPATE: written and verbal consent was taken from subjects and next of kin

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CONFLICT OF INTEREST: No competing interest declared.

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