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Original Article

COMPARING THE EFFICACY OF ROM EXERCISES WITH AND WITHOUT SCAPULAR MOBILIZATION IN PATIENTS WITH ADHESIVE CAPSULITIS

PINKY KHANDELWAL[1*], JAFAR KHAN[2], RENUKA P. T.[3], USMAN KHAN[4]

[1,4]Pacific Medical College and Hospital, Udaipur-313001, Rajasthan, India. [2,3]Pacific College of Physiotherapy, Udaipur-313001, Rajasthan, India
*Corresponding author: Pinky Khandelwal; *Email: nityakhandelwal9898@gmail.com

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ABSTRACT

Objective: Adhesive capsulitis, or frozen shoulder, is a condition characterized by shoulder pain and limited range of motion. Its cause and pathophysiology are not well understood. The prevalence is estimated to range from 2% to 5% in the general population, with a higher incidence in women and individuals in their fifth and sixth decades of life. The optimal treatment approach for adhesive capsulitis is currently unclear, although ROM exercises are commonly prescribed. Scapular mobilization may enhance outcomes by addressing scapular dyskinesis and muscle imbalances.

Methods: A comparative study with 30 subjects diagnosed with adhesive capsulitis was conducted. Subjects were randomly assigned to two groups: ROM exercises with scapular mobilization (Group 1) and ROM exercises without scapular mobilization (Group 2). The study took place at PMCH, Udaipur, for 12 w, with sessions lasting 30 min per day, 5 d a week. Inclusion and exclusion criteria were established, and outcome measures such as pain scores, ROM measurements, functional assessments, and patient-reported outcomes were used.

Results: The analysis of SPADI scores revealed that Group A had a mean score of 41.73 (SD = 4.69, SE = 0.86), while Group B had a mean score of 42.40 (SD = 3.29, SE = 0.84), with a mean difference of 0.67. The t-test indicated a significant difference between the groups (t = 1.335, p = 0.021). Similarly, for VAS scores, Group A had a mean score of 3.20 (SD = 0.67, SE = 0.17), Group B had a mean score of 3.06 (SD = 0.70, SE = 0.18), with a mean difference of 0.14. The t-test also revealed a significant difference between the groups (t = 5.95, p = 0.038). These results demonstrate notable distinctions in both SPADI and VAS scores between Group A and Group B.

Conclusion: The study supports the effectiveness of combining scapular mobilization with ROM exercises for adhesive capsulitis. The group receiving both interventions showed greater improvements in shoulder range of motion and pain reduction compared to the ROM exercises alone group. Incorporating scapular mobilization into the treatment approach may enhance the management of adhesive capsulitis. Further research is needed to validate these findings and customize treatments based on individual patient characteristics.

Keywords: Adhesive capsulitis, Frozen shoulder, Range of motion exercises

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INTRODUCTION

Adhesive capsulitis, commonly known as frozen shoulder, is a condition characterized by shoulder pain and limited range of motion. It is a debilitating condition that can significantly impact a person's daily activities and quality of life. The exact cause of adhesive capsulitis remains unknown, and its pathophysiology is not well understood. This manuscript aims to investigate the effectiveness of two different treatment approaches for adhesive capsulitis: range of motion (ROM) exercises with scapular mobilization versus ROM exercises without scapular mobilization [1].

Adhesive capsulitis has been described as a thickening and contraction of the shoulder capsule, leading to its adherence to the head of the humerus. It is often associated with major restriction or limitation of both active and passive shoulder movements without a known intrinsic shoulder disorder. The symptoms of adhesive capsulitis typically include discomfort, stiffness, and restricted range of motion, particularly in shoulder flexion, abduction, and external rotation [2].

The prevalence of adhesive capsulitis is estimated to range from 2% to 5% in the general population of India, with a higher incidence in women and individuals in their fifth and sixth decades of life. The disorder progresses through four stages: a painful or freezing phase, followed by stiffness, a frozen or transitional phase, and finally, a thawing phase with a gradual recovery of range of motion. The duration of these stages varies, with the frozen phase lasting approximately 4 to 14 mo [3].

Currently, there is no consensus on the optimal treatment approach for adhesive capsulitis. ROM exercises are commonly prescribed to improve shoulder mobility and reduce pain. However, the addition of scapular mobilization to ROM exercises may enhance the outcomes by addressing potential scapular dyskinesis and associated muscle imbalances [4].

This manuscript proposes a comparative study that could involve a randomized controlled trial. Patients diagnosed with adhesive capsulitis would be randomly assigned to either the scapular mobilization group or the non-mobilization group. Outcome measures, including pain scores, ROM measurements, functional assessments, and patient-reported outcomes, would be used to evaluate the effectiveness of each intervention [5].

By directly comparing the outcomes of ROM exercises with and without scapular mobilization, this study aims to provide valuable insights into the optimal treatment approach for individuals with adhesive capsulitis. The findings of this research have the potential to guide clinicians in developing evidence-based treatment protocols and improve patient outcomes, including pain relief, restoration of shoulder function, and overall satisfaction. Understanding the effectiveness of different treatment approaches for adhesive capsulitis is crucial in improving the management of this condition and enhancing the quality of life for affected individuals [6].

MATERIALS AND METHODS

Study design: Comparative study design.

Sample size: 30 subjects.

Sample selection

30 patients with adhesive capsulitis are selected randomly according to the inclusion and exclusion criteria and divided into-

Group 1: (n=15) ROM exercises with scapular mobilization.

Group 2:(n=15) ROM exercises without Scapular mobilization.

Study centre: PMCH, Udaipur

Duration of the study: 12 W (30 min per day, 5 d a week.)

Inclusion criteria

Patients diagnosed with adhesive capsulitis

a) Age range (e. g. 30-60 y)

b) Patients who have completed conservative treatment for a minimum of 6 w

c) Patients who have a restricted range of motion (e. g. 30-135 degrees) of the shoulder joint

d) Patients who have pain (e. g. visual analogue score ≥ 4) in the affected shoulder joint

e) Patients who can understand and comply with the exercise program

Exclusion criteria

a) Patients come with any other pathological disease related to the shoulder (e. g. "rotator cuff tear, impingement syndrome")

b) Patients come with neurological, rheumatological disorders affecting the shoulder joint.

c) Patients come with a history of shoulder surgery or trauma

d) Patients with systemic diseases affecting the musculoskeletal system (e. g., osteoarthritis, rheumatoid arthritis)

e) Patients who may be limited in their capacity to exercise due to cardiovascular, respiratory, or metabolic issues

f) Patients who are pregnant or breastfeeding

g) Patients who have received any form of manual therapy within the last 3 mo.

Tools used for data collection

- Client information sheet
- Consent form
- Data collection sheet
- General instruction sheet
- Assessment form

Material used

- Treatment couch
- Paper-pencil
- Chair
- Wand
- Dumbles

Outcome measures

1. "Visual Analogue Scale" (VAS)

2. "Shoulder pain and disability index" (SPADI)

Procedure

Method

The study sample consists of 30 subjects of age groups between diagnosing with Adhesive Capsulitis.

- The subjects should fulfill the inclusion and exclusion criteria will be only selected and after that, they will be assessed before starting the intervention.
- A subject complete clinical history and all functional and physical examinations should be done on each participant before treatment.
- The pre-test should be done before starting the treatment.

Once the patients who "were selected by inclusion and exclusion criteria and divided into two groups" had given their written consent:

Group 1: "ROM exercises without scapular mobilization"

Group 2: "ROM exercises with scapular mobilization"

Group 1: ROM exercises without scapular mobilization:

In this group of 15 patients, ROM exercises are all that are done.

- Wand Exercises
- Pendular exercise
- Wall climb stretching exercise (Finger walk)
- Shoulder Towel Stretching exercise
- Anterior Shoulder Stretching exercise

Group B

- Shoulder Blade Squeezes: Sit or stand with good posture.
- Wall slide
- Resistance band rows
- Scapular protraction and retraction on all fours
- Scapular wall angles.
- Scapular dips.
- Scapular punches
- Scapular cat camel stretch

After obtaining ethical approval dated 29/08/2022, Ref no-PMU/PMCH/IEC/2022/227 .All participants completed information and consent form at recruitment.

RESULTS

The mean SPADI score for Group A was 41.73 (SD = 4.69, SE = 0.86), while for Group B it was 42.40 (SD = 3.29, SE = 0.84). The mean difference between the two groups was 0.67. The t-test revealed a statistically significant difference between the groups (t = 1.335, p = 0.021).

Table 1: Comparing SPADI scores between Group A and Group B

Spadi	Mean	SD	Std. error mean	Mean diff	T	P
GROUP A	41.73	4.69	0.86	0.67	1.335	0.021
GROUP B	42.40	3.29	0.84			

Table 2: Comparing VAS scores between Group A and Group B

VAS	Mean	N	SD	Std. error mean	Mean diff	T	P
Group A	3.20	15	0.67	0.17	0.14	5.95	0.038
Group B	3.06	15	0.70	0.18			

The mean VAS score for Group A was 3.20 (SD = 0.67, SE = 0.17), while for Group B it was 3.06 (SD = 0.70, SE = 0.18). The mean difference between the two groups was 0.14. The t-test revealed a significant difference between the groups (t = 5.95, p = 0.038).

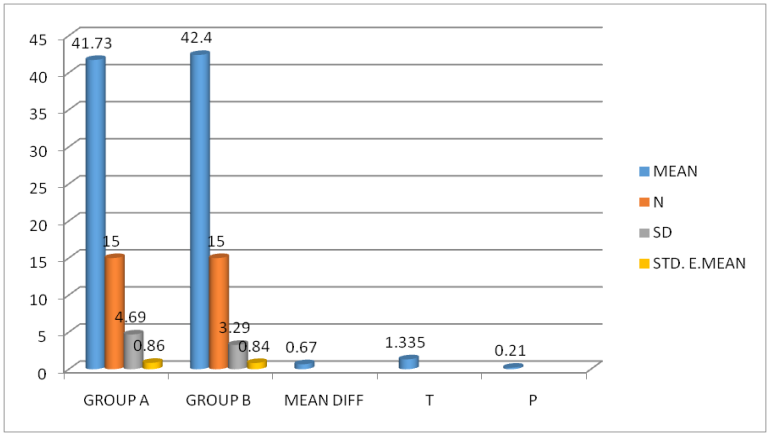

Fig. 1: Comparing SPADI scores between Group A and Group B

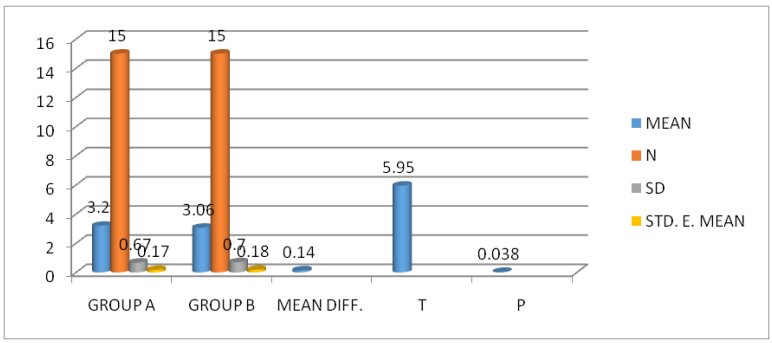

Fig. 2: Comparing VAS scores between Group A and Group B

DISCUSSION

The objective of this study is to compare the effectiveness of two different treatment approaches for adhesive capsulitis: range of motion (ROM) exercises with scapular mobilization versus ROM exercises without scapular mobilization. The aim is to determine which approach produces better outcomes in terms of pain relief, improvement in shoulder range of motion, functional gains, and overall patient satisfaction [7].

Adhesive capsulitis, commonly known as frozen shoulder, is characterized by stiffness, pain, and a limited range of motion in the shoulder joint. This condition significantly impacts daily activities and work productivity. Physiotherapy is often recommended to address adhesive capsulitis, and a common strategy involves combining ROM exercises with scapular mobilization. Scapular mobilization entails manipulating and moving the shoulder blade to improve its alignment and muscle activity [8]. This technique is believed to enhance ROM, reduce discomfort, and alleviate stiffness in the shoulder joint. Some evidence supports the effectiveness of combining ROM exercises with scapular mobilization in managing adhesive capsulitis more successfully than ROM exercises alone [9].

In a study published in the Physical Therapy Journal in 2015, researchers compared the outcomes of ROM exercises alone versus ROM exercises combined with scapular mobilization in a group of individuals with frozen shoulders. The study concluded that the group receiving both ROM exercises and scapular mobilization demonstrated greater improvements in shoulder ROM and pain reduction compared to the group that received ROM exercises alone [10]. A separate study published in the Journal of Back and Musculoskeletal Rehabilitation in 2019 found that the combination of scapular mobilization and ROM exercises was more effective in improving shoulder function in patients with adhesive capsulitis compared to ROM exercises alone [11].

These studies suggest that incorporating scapular mobilization into ROM exercises may enhance the management of adhesive capsulitis. However, further research is necessary to confirm these findings and determine the most appropriate treatment approach for each patient. A randomized controlled trial could be conducted, assigning patients with adhesive capsulitis to either the scapular mobilization group or the non-mobilization group [12]. Outcome measures such as pain scores, ROM measurements, functional assessments, and patient-reported outcomes could be utilized to compare the effectiveness of the two interventions, providing valuable insights into the optimal treatment approach for adhesive capsulitis patients [13].

CONCLUSION

In conclusion, this study aims to compare the effectiveness of ROM exercises with scapular mobilization versus ROM exercises without scapular mobilization in adhesive capsulitis. By conducting a randomized controlled trial and using outcome measures such as pain scores, ROM measurements, functional assessments, and patient-reported outcomes, valuable insights can be gained regarding the optimal treatment approach for adhesive capsulitis. The findings of this research have the potential to improve pain relief, shoulder range of motion, functional gains, and overall patient satisfaction in individuals with adhesive capsulitis. Further research is needed to confirm these findings and tailor treatment approaches to individual patients.

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Nil

AUTHORS CONTRIBUTIONS

All the authors have contributed equally.

CONFLICT OF INTERESTS

Declared none

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