



ORIGINAL RESEARCH PAPER

Physiotherapy

A COMPARITIVE STUDY OF EFFECTIVENESS OF CRYOTHERAPY WITH IONTOPHORESIS (DEXAMETHASONE 1%) AND CRYOTHERAPY WITH PHONOPHORESIS (DICLOFENAC 4%) IN THE CONDITION OF ACUTE SUPRASPINATUS TENDONITIS

KEY WORDS: Acute Supraspinatus Tendonitis, Cryotherapy With Phonophoresis, Cryotherapy With Iontophoresis Therapy.

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ABSTRACT

Acute supraspinatus tendonitis is a common painful musculoskeletal condition that primarily involves the inflammation of the supraspinatus tendon. This tendon is a crucial part of the rotator cuff, a group of four muscles and tendons that provide stability and enable movement in the shoulder joint damaged, affect 19% to 25% of the general population, between 30 and 60 years old. More in female, Military persons and in Athletes. The aim of the study to compare the effectiveness of cryotherapy with iontophoresis(dexamethasone 1%) and cryotherapy with phonophoresis (diclofenac 4%) in the condition of acute supraspinatus tendonitis. In 60 cases of acute supraspinatus tendonitis, randomly study in group A group B of 30 each. Cryotherapy is often used for relief pain, reduction of edema and inflammation, decrease in muscle spasm, and reduction of spasticity..statistically highly significant by using T- test. Summary- regular practice of cryotherapy with phonophoresis (Diclofenac 4%) and cryotherapy with iontophoresis acute supraspinatus tendonitis give beneficial effect over patients.

INTRODUCTION:

Acute supraspinatus tendonitis is a common and often painful musculoskeletal condition that primarily involves the inflammation of the supraspinatus tendon.^[1] This tendon is a crucial part of the rotator cuff, a group of four muscles and tendons that provide stability and enable movement in the shoulder joint.^[2] the supraspinatus muscle is located on the upper part of the scapula, allows the movement of shoulder to and lift the arm, that involve raising the arm overhead.^[3,4] The repetitive strain due to over use, produce traumatic injuries to shoulder, and degenerative changes associated with aging. resulting in localized pain, swelling, and restricted movement⁵⁻⁷ exacerbate its progression if not properly managed or corrected.^[8-6,7,8] can significantly impact a patient's quality of life, especially if untreated or unaddressed.^[9,10,11,12]

Iontophoresis is a type of electrical stimulation used in physical therapy. Phonophoresis, also known as sonophoresis or ultrasonophoresis, is when an ultrasound is used to maximize the effects of a topical drug. Phonophoresis is commonly used to treat inflammatory issues and injuries to soft tissues. Cryotherapy is often used for pain relief, fever reduction, control bleeding, prevention or reduction of edema from trauma and inflammation, decrease in muscle spasm, and reduction of spasticity. The Empty Can Test, also known as the Jobe Test or supraspinatus test, is to assess the integrity and strength of the supraspinatus muscle, which is part of the rotator cuff in the shoulder. The test was described by Dr. Robert Jobe..^[13,14]

Regular practice of cryotherapy with phonophoresis (Diclofenac 4%) and cryotherapy with iontophoresis acute supraspinatus tendonitis give beneficial effect to reduce the pain, edema inflammation, decrease in muscle spasm, and reduction of spasticity and significantly impact a patient's quality of life,

AIMS & OBJECTIVE:

The aim of the study to compare the effectiveness of cryotherapy with iontophoresis(dexamethasone 1%) and cryotherapy with phonophoresis (diclofenac 4%) in the condition of acute supraspinatus tendonitis

2. To compare the effectiveness of cryotherapy with iontophoresis(dexamethasone 1%) and cryotherapy with phonophoresis (diclofenac 4%) in the condition of acute supraspinatus tendonitis

MATERIALS & METHOD:

STUDY DESIGN: prospective Study.

PLACE OF RESEARCH: Department of Physiotherapy, in Sukh Sagar medical college Jabalpur (M.P.)

STUDY PERIOD: January to June 2023. Six months

STUDY SUBJECTS: 60 subjects, (A Group 30 B Group 30) with age group 20 to 45yrs.

INCLUSION CRITERIA: 60 subjects of age group 20 to 45 yrs.

- 1. EXCLUSION CRITERIA.** Subjects who were Previous Shoulder Surgery
2. Systemic Inflammatory Conditions
3. Concomitant Shoulder Pathologies
4. Neurological Disorders (brachial plexus injuries or neuropathies)
5. Patient with adhesive capsulitis

Outcome measurement -- VAS Scale: The Visual Analog Scale (VAS) is having 10 centimeters. **0: No Pain-** At the left end of the scale, a score of 0 indicates the absence of pain.

1-3: Mild Pain- Scores in this range typically represent mild or low-intensity pain. It may cause some discomfort, and can generally tolerate it well.

4-6: Moderate Pain -Scores in this range suggest a moderate level of pain.

7-9: Severe Pain- Scores in this range indicate a high level of pain, which can be quite intense and may significantly impact the individual's ability to perform daily activities.

Worst Pain Imaginable

The Shoulder pain & disability (SPADI)- is a self-report questioner develop to measure the pain & disability associated with shoulder pathology. 10-point change is often considered clinically significant. Here are the commonly used categories for interpreting SPADI scores:

1. 0-20: mild shoulder pain and disability.
2. 21-40: moderate shoulder pain and disability.
3. 61-80: very severe shoulder pain and disability
4. 81-100: extremely severe shoulder pain and disability.

Materials used for study Couch and mat, Dexamethasone, Diclofenac gel, Ultrasound TENS.Cold pack.

METHODOLOGY: The present study was conducted in the department of Physiotherapy Sukh sagar Medical College Jabalpur (M.P.) and patients with acute supraspinatus tendonitis.

S.No	Group A (30 patients)	Group B (30 patients)
01	Cryotherapy treatment will be administered specifically targeting the shoulder region 10 mints	Cryotherapy treatment will be administered specifically targeting the shoulder region 10 minutes.
02	Iontophoresis (Dexamethasone) for 10 minutes will be given	Phonophoresis (Diclophenac) for 10 minutes will be given

In Group A- Cryotherapy with Iontophoresis (Dexamethasone) for 10 minutes was given in Shoulder region.

In Group B- Cryotherapy with Phonophoresis (Diclofenac) for 10 minutes was given in Shoulder region.

Statistics- 30 subject of each group with supraspinatus tendinitis were analysed by using SPSS 25.0 and p-value <0.05 was considered as statistically significant.

RESULTS

The current study was designed to studied the effectiveness of cryotherapy with iontophoresis (Dexamethasone 1%) and cryotherapy with phonophoresis (Diclofenac 4%) in the condition of acute supraspinatus tendonitis a comparative analysis. The study was conducted on 60 participants in the age group of 20-45 years, divided into two groups of 30 subjects each. Group A received cryotherapy with iontophoresis (Dexamethasone 1%) and group B received cryotherapy with phonophoresis (Diclofenac 4%). The participants were treated for 5 sessions per week for 6weeks and the effects were analysed using VAS and SPADI score before and after the intervention. At the end of 6 weeks intervention participants in both the groups showed statistically significant improvement in between and within the group. But the mean differences in the scores of VAS and SPADI is higher in group B as compared to group A.

OBSERVATION;

Table.1 showing Effectiveness of cryotherapy with iontophoresis (Dexamethasone 1%) on shoulder pain in the condition of acute supraspinatus tendonitis, in group A and B group with their mean, SD, T and P value of Van scale.

Group	Condition of patient	mean, SD of Vas Scale	t-value	P-value
A 30 case	Before taking therapy+ Dexamethasone 1%	7.40 ± 1.00	11.61	<0.05
	After taking therapy+ Dexamethasone 1%	6±1.01		
B Group 30 case	Before taking therapy+ Diclofenac 4%	7.90±0.9 2	33.68	<0.05
	After taking therapy+ Diclofenac 4%	4.03±.66		

Table.2 showing Effectiveness of cryotherapy with phonophoresis (Diclofenac 4%) on pain and disability of shoulder in the condition of acute supraspinatus tendonitis in group A and B group with their mean, SD, T and P value of Van scale.

Group	Condition of patient	mean, SD of Vas Scale	t-value	P-value
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A 30 case	Before taking therapy+ Diclofenac 4%	60.27 ± 9.55	24.66	<0.05
	After taking therapy+ Diclofenac 4%	51.47 ±8.09		
B Group 30 case	Before taking therapy+ Diclofenac 4%	7.90±0.9 2	33.68	<0.05
	After taking therapy+ Diclofenac 4%	4.03±.66		

Table-3. showing Effectiveness of cryotherapy with phonophoresis giving Dexamethasone 1% on pain and disability of shoulder in the condition of acute supraspinatus tendonitis in group A and B group with their mean, SD, T and P value of Van scale.

Group	Condition of patient	mean, SD of Vas Scale	t-value	P-value
A 30 case	After taking therapy+ Dexamethasone 1%	57.43 ± 9.55	2.61	<0.05
B Group 30 case	After taking therapy+ Dexamethasone 1%	51.47 ±.8.09		

we can say that cryotherapy with phonophoresis (Diclofenac 4%) has a significant effect on pain and disability of shoulder in the condition of acute supraspinatus tendonitis, it means that cryotherapy with phonophoresis (Diclofenac 4%) is more effective than cryotherapy with iontophoresis (Dexamethasone 1%) on pain and disability of shoulder in the condition of acute supraspinatus tendonitis.

DISCUSSION-

The current study was designed to studied the effectiveness of cryotherapy with iontophoresis (Dexamethasone 1%) and cryotherapy with phonophoresis (Diclofenac 4%) in the condition of acute supraspinatus tendonitis a comparative analysis. The study was conducted on 60 participants in the age group of 20-45 years. Participants were selected based on inclusion and exclusion criteria and divided into two groups of 30 subjects each. Group A received cryotherapy with iontophoresis (Dexamethasone 1%) and group B received cryotherapy with phonophoresis (Diclofenac 4%). The participants were treated for 5 session per week for 6weeks and the effects were analysed using VAS and SPADI score before and after the intervention. At the end of 6 weeks intervention participants in both the groups showed statistically significant improvement in between and within the group. But the mean differences in the scores of VAS and SPADI is higher in group B as compared to group A. Therefore, according to statistical analysis cryotherapy with phonophoresis (Diclofenac 4%) was significantly effective for improving VAS and SPADI on pain and disability of shoulder in the condition of acute supraspinatus tendonitis. Your result was similar to H. b. shivakumar1, chanappa. t. s2, pradeep kumar reddy3, jayashree dey4. ^[18] Neeter C. ^[16] their studied.

CONCLUSION :

According to results we can say that there is a significant effect of cryotherapy with iontophoresis (Dexamethasone 1%) and cryotherapy with phonophoresis (Diclofenac 4%) on pain and disability of shoulder in the condition of acute supraspinatus tendonitis. Results indicates that cryotherapy with phonophoresis (Diclofenac 4%) has a significant effect on pain and disability of shoulder in the condition of acute supraspinatus tendonitis, it means that cryotherapy with phonophoresis (Diclofenac 4%) is more effective than cryotherapy with iontophoresis (Dexamethasone 1%) on pain and disability of shoulder in the condition of acute supraspinatus tendonitis.

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