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Immediate added effects of pain releasing phenomenon on DE Quervains tenosynovitis pain – a mulligan concept technique

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ABSTRACT

Objectives

The purpose of the study was to determine the added effects of PRP in De quervain's tenosynovitis using Numerical Pain Rating Scale and Patient Specific Functional Scale.

Methodology

32 subjects with diagnosed De Quervain's tenosynovitis were selected and were randomly allocated into control and experimental groups. Subjects were assessed on measures of pain, ROM and functional status prior to and immediately after intervention. The intervention in the control group included Ultrasound and in experimental group included Pain Releasing Phenomenon (PRP) with conventional treatment.

Results

The experimental group showed significant decrease in pain and improved functional status. Comparison revealed, there was reduced pain and improved functional status in both the groups but was remarked in experimental group.

Conclusion

In the present study, it could be seen that PRP technique showed significant improvement in pain and improved functional status in patients with De Quervain's tenosynovitis.

Keywords: De Quervain's tenosynovitis, Pain Releasing Phenomenon, Pain.

INTRODUCTION

Fritz De Quervain was the first in 1895, who defined De Quervain's tenosynovitis, a painful complain of the wrist as stenosing inflammation of the tendon sheaths of ABDUCTOR POLLICIS LONGUS and EXTENSOR POLLICIS BREVIS in the first dorsal compartment of wrist [1, 3, 6].

The activities which involves repeated thumb pinching and wrist movement can be the

consequence of this painful condition seen in mothers of young children, computer keyboard operators, machinists, golfers, mountain bikers, frequent SMS texters [7-10].

The patients may experience associated symptoms besides pain is dysesthesias, such as, numbness, tingling, burning and cramping

The most standard finding in De Quervain's tenosynovitis is a positive Finkelstein's test (The

test is performed by asking the participant to make a fist with the thumb enfolded inside the fingers. The examiner stabilizes the forearm and passively performs ulnar deviation. Pain at the radial wrist, over the ABL and EPB tendons, a positive test indicated when significantly more tender than the uninvolved side.)

The literature review reveals the precise etiology of De Quervain's tenosynovitis which includes acute trauma; an extreme, unaccustomed/new exercise or cumulative microtrauma [11-15].

PRP [2, 4, 5]: The Pain Release Phenomenon Techniques (PRP) is a manual therapy technique introduced by Brian Mulligan for the chronic pain management in the extremities. In this technique, joint compression, muscular contraction or stretch is used as the pain provoking stimuli and the stimuli is maintained for 15- 20 seconds. If indicated, the pain will reduce in this period. Out of its types, technique which provokes pain is selected for treatment. As in de Quervains tenosynovitis, Finkelstein test which is diagnostic causes pain when tendons are taken into stretched position, therefore stretch PRP is selected for treatment [16-19].

Some of the conventional treatment which are used in chronic cases such as thumb spica, surgery have disadvantages such as thumb spica leads to increased dependency, and surgery may lead to complications such as volar subluxation of APL and EPB, radial sensory nerve injury (including scarring and adhesions of the nerve, reflex sympathetic dystrophy ,whereas PRP has no such complication and hence advantageous and can be used as a treatment adjunct with the conventional physiotherapy. But the advantages are not been studied and recorded in de-quervains patients. Hence this study was conducted.

MATERIALS

- Ultrasound
- Watch
- Pen
- Paper

METHOD

44 subjects were screened out of which 32 were selected for the study. Subjects with other musculoskeletal conditions of hand, wrist and forearm, with severe pain and patients not willing to tolerate pain were excluded from the study. Subjects were explained about the study i.e. aim, method, and duration of study. Before recruitment in the study, written consent was obtained from the subjects who were willing to participate in the study. Initial evaluation of subject included –

1. Numerical Pain Rating Scale (NRS)
2. Patient Specific Functional Scale (PSFS)

The subjects were randomly assigned in two groups using chit method.

Control group

Ultrasound 0.7 w/sq cm, 7 minutes, pulsed

Experimental group

All subjects in experimental group were given conventional treatment along with PRP.

TECHNIQUE OF PRP

- Patient position: Sitting on chair.
- Therapist position: Sitting in front of the patient, holding the affected hand of the patient.
- Make a fist with thumb inside the fingers.
- Deviate the wrist medially until a tolerable pain is produced.
- The pain provoked should settle down within 15-20 seconds.
- The range at which the pain starts is evaluated.
- Therapist maintains pressure at P1 for 15-20 seconds
- (P1: The point in ROM where the initial onset of pain is experienced)
- If pain reduces within 15-20 seconds, start new PRP in new available range with increased force.
- If pain does not reduce within 15-20 seconds, it implies that stretch being applied is too high. Hence, the pressure should be reduced to a level so that provoked pain gets reduced within 20 seconds.
- If pain reduces before 10seconds, it implies that stretch being applied is too low. Hence it should be increased to a level so that provoked pain gets reduced within 15-20 secs and not before 10 seconds.

- Stretch PRP for De Quervain’s tenosynovitis
- Continue to perform PRPs until a substantial amount of pain relief is achieved during a session.
- NPRS and PSFS scores will be assessed pre-treatment and post-treatment.

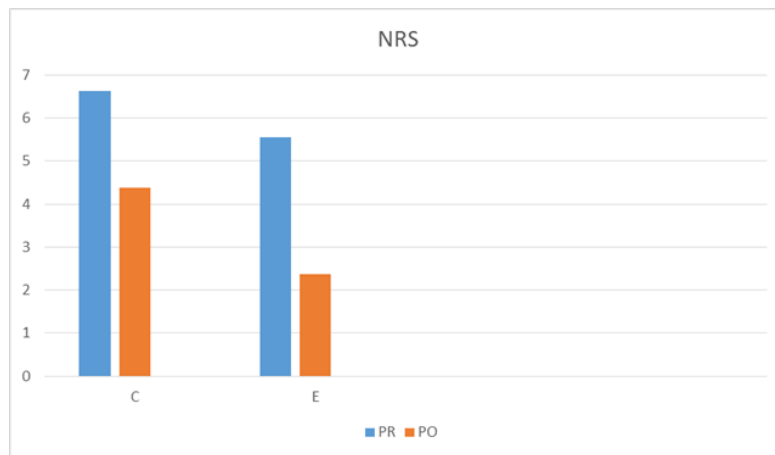
RESULTS

Total of 32 (both males and females) subjects were taken which were divided into two groups, control and experimental. NRS and PSFS were the outcome measures.

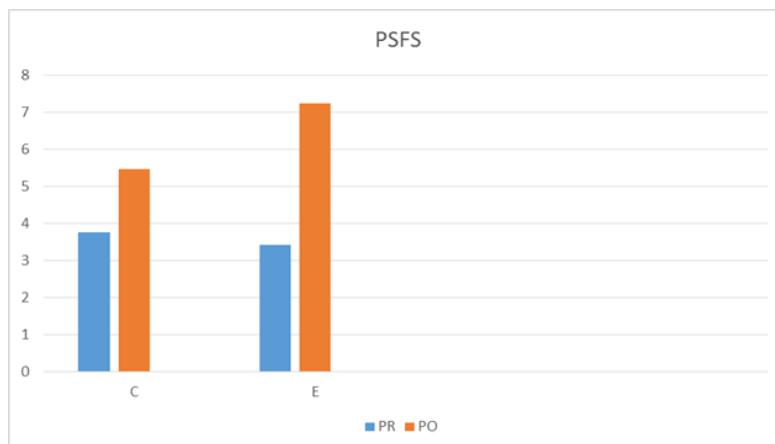
- Comparison of NRS and PSFS within the groups was assessed with paired t- test.
- Comparison between NRS and PSFS of two groups was done using unpaired t- test.

Groups	Mean		p-value	t-value	Significance
	Pre	Post			
Control group NRS	6.62	4.37	< 0.0001	8.45	Extremely significant
Experimental group NRS	5.56	2.37	< 0.0001	8.41	Extremely significant

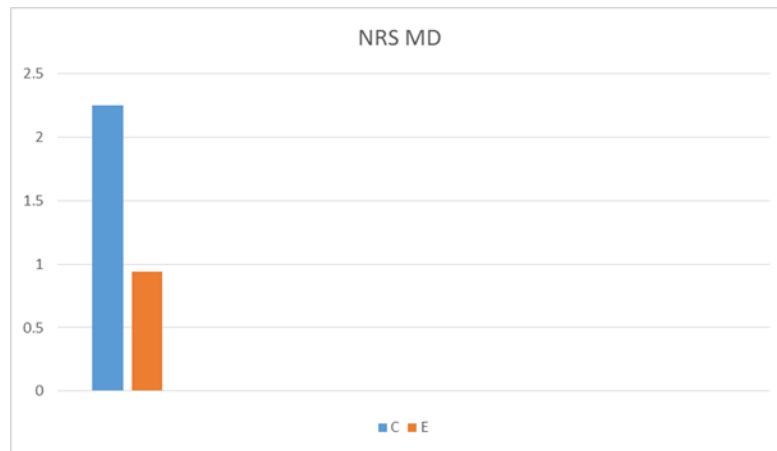
Groups	Mean		p-value	t-value	Significance
	Pre	Post			
Control group PSFS	3.76	5.45	<0.0001	6.86	Extremely significant
Experimental group PSFS	0.85	0.88	<0.0001	12.93	Extremely significant



Graph showing comparison of NRS score pre and post treatment in control and experimental group.



Graph showing comparison of PSFS score pre and post treatment in control and experimental group.



DISCUSSION

The present study tells us about the added effect PRP on De Quervain's tenosynovitis. In this study it was found that the difference of mean of NRS in control group is (2.25) and in experimental group (3.18) and P value obtained is 0.0001 which is considered extremely significant , the mean of PSFS in control group (-1.68) and experimental group (-3.83) P value is < 0.0001 which is considered extremely significant.

In the present study improvement in pain and thus functional status due to PRP involve local receptor hysteresis/creep effects as well as other centrally mediated endogenous inhibitory systems, thus causing pain relief and hence improved function.

Since PRP is manual therapy which has its effects on substantia gelatinosa of spinal cord faster than the nociceptive stimulus which leads to release of neurotransmitters (encephalins and endorphins) which causes pain inhibition. Neuronal plasticity

states there occurs central sensitization in chronic pain which disappears if the nociceptive input is reduced thus causing pain reduction and PRP does the same with creep effect.

CONCLUSION

From the study it can be concluded that PRP is very effective in the treatment of chronic De quervain's tenosynovitis and can be used as an adjunct to the conventional rehabilitation programme

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