International Journal of Healthcare Sciences ISSN 2348-5728 (Online)
Vol. 8, Issue 1, pp: (203-206), Month: April 2020 - September 2020, Available at: www.researchpublish.com

EFFECT OF GONG'S MOBILIZATION ON PAIN, RANGE OF MOTION AND DISABILITY IN FROZEN SHOULDER: A PILOT STUDY

Manish Shrestha[1], Diker Dev Joshi[2]

[1]MPT Final Year, [2]Lecturer

[1,2]Padmashree Institute of Physiotherapy, Bangalore, India

Abstract: **Joint mobilization is the technique performed to reduce the pain and increase joint range of motion. It is applied to treat majority of joint problems. Mobilization techniques are performed on the basis of Maitland grades and forces are applied according to level of intensity of pain. Different methods are applied like distraction, compression, rolling and spinning to increase ROM by stretching soft tissues. Gong's mobilization technique is end range mobilization technique in which a corrective Antero-Posterior glide is applied with the shoulder in the dynamic position followed by distraction and performing the restricted movement. The main objective of the study was to determine the effect of Gong's mobilization on pain, range of motion and disability in subjects with frozen shoulder. Methods: This pilot study was conducted on 15 frozen shoulder subjects. Subjects with frozen shoulder, determined by self –administered positive test for frozen shoulder were included in the study. Gong's mobilization was given as intervention program for two weeks. The measurement of pain, range of motion and disability was assessed for pre and post four weeks. Results: In the present study, the statistical analysis showed there was a significant difference in pre and post scores of pain, range of motion and disability with P value <0.005. Conclusion: This study demonstrated that gong's mobilization is effective in improving pain, range of motion and disability in a group of frozen shoulder.**

Keywords: **Frozen shoulder, Pain, Range of motion, Disability, Gong's mobilization.**

I. INTRODUCTION

Frozen shoulder is defined as a condition uncertain aetiology characterised by spontaneous onset of pain with significant restriction of both active and passive range of movement of shoulder[1].Approximately 2% to 5% of the general population and 10% to 15% of population with diabetes are affected by frozen shoulder[2-3]. But there are several studies showing considerable number of untreated patients with long term disability and pain[4-7]. It affects the people in their 4th to 6th decade of life and especially patients with diabetes are more prone to get adhesive capsulitis[8]. The long term limitations experienced by these patients suggest greater understanding of that greater understanding of the condition and more effective intervention approaches are needed[9].

Joint mobilization is the technique that is performed to reduce the pain and increase joint range of motion. It is applied to treat majority of joint problems. Mobilization techniques are performed on the basis of Maitland grades and forces are applied according to level of intensity of pain. Different methods are applied like distraction, compression, rolling and spinning to increase ROM by stretching soft tissues[10]. Pain is inhibited as proprioceptive senses induce normal nerve firing prior to perception of noxious stimuli through joint movement. In addition gliding technique such as Anterior posterior gliding improves abduction and external rotation range of shoulder joint[11].

Gong's mobilization technique is end range mobilization technique in which a corrective Antero-Posterior glide is applied with the shoulder in the dynamic position followed by distraction and performing the restricted movement. Then oscillation at Maitland's grade 3 and 4 is given with sustained stretching. Thus it incorporates both distraction as well as Maitland's technique [12]. Gong's mobilization is a useful treatment in clinical setting because of its immediate effects. It aims to decrease pain and improve range of motion [13-16]. Wontae Gong found that Gong's mobilization technique is more effective than anterior to posterior gliding at improving shoulder medial rotation and it is an end range mobilization technique that keeps the shoulder in normal position, but this study was limited to know the effect comparing with other end range mobilization technique such as mobilization with movement[17].

As a result if affects the outcome measures of the technique. Though the technique seems to be helpful in treating frozen shoulder, study to see its effect has not been done. So the need of study is to apply the technique and see its effect in frozen shoulder subjects.

2. METHODOLOGY

15 subjects diagnosed with frozen shoulder diagnosed by self -administered positive test aged 40-60 years were selected for the study. After taking the written consent of the subjects, they underwent pre evaluation for frozen shoulder. Subjects having arthritis of should ,metabolic bone disease in shoulder, neoplastic bone disease in shoulder, osteomyelitis and osteoporosis, fracture of arm, rupture of ligament around shoulder joint, concurrently receiving manual therapy, Rheumatoid arthritis were excluded from the study.

Outcome measures:

VAS, ROM and SPADI test was used to assess frozen shoulder among the subjects. Patients were made to lie in side lying position where as therapist was in walk standing position. Patient's hand was abducted to their end range of motion and then with one hand elbow was supported and with other hand the mobilization was given in antero-posterior direction. Before giving the glide the shoulder was distracted for 15 sec. In frozen shoulder protocol, the subjects were well explained about the procedure. Therapist performed 30 glides in one set and the set was continued for 5 times. In each glide one sec relaxation was done. The treatment was given for 6 minutes for 5 days a week for 2 weeks.

3. RESULTS

Table: Comparison of Pre and post values of Outcome Measures

Sno	Outcome measures	Pre test		Post test		Wilcoxon test/ Paired t-test	p-value
		Range	Mean ±SD	Range	Mean ±SD		
1	VAS	8-10	9.07±0.79	3-5	3.73±0.70	z=3.501*	p<0.001
2	SPADI	85-92	89.97±2.19	12-24	17.73±3.21	z=3.410*	p<0.001
3	Shoulder flexion ROM	58-68	62.20±2.83	125-150	138.67±7.97	t=35.769*	p<0.001
4	Shoulder abduction ROM	41-52	46.53±3.11	120-139	131.33±5.61	t=56.184*	p<0.001

SPSS(version 20.0) was the software used for statistical analysis. Within the group, the comparision for pre and post score was made with the paired t-test. P value<0.01 was considered significant for this study.Comparision between pre and post test mean scores of VAS,SPADI and ROM with gong's mobilization showed significant difference within group (p<0.01) as shown in table.

4. DISCUSSION

In this study finding from the analysis that there is statistically significant improvement in pain, shoulder disability and shoulder range of motion(flexion and abduction) in both gong's after 2 weeks of intervention(10 sessions).However , the difference withbetween pre and post values were statistically significant for VAS. The values for SPADI as well as ROM were also statistically significant.

There was significant reduction in pain score. This is in agreement with previous study done by JyotiRinkuDilip et.al [18] and another sudy conducted by Yuvarani gopinath et.al[19]. It might be because mobilization reduces pain due to the neurophysiologic effects on the stimulation of peripheral mechanoreceptors and inhibition of nociceptors[18]. The activation

of apical spinal neurons as a result of peripheral mechanoreceptor by joint mobilization produces presynaptic inhibition of nociceptive afferent activity[19].

The post group have shown statistically significant improvement in shoulder pain and disability index.This studies correlates with the previous study done by Yuvarani gopinath et.al[19] in which it was found that beside pain, range of motion also improved with gong's mobilization. Improvement in the functional capacity might be due to decrease in pain and increase in range of motion. When patient pain decreased and range of motion increased,SPADI score also decreased.

The post group showed significant improvement in flexion range of motion as well as abduction range of motion. This studies correlates with the previous studies done by wontae gong et.al[20] and Young lee et.al[21]. Taking the pathology of adhesive capsulitis there is a contracture of joint capsule along other periarticular structures. Gong's mobilization allows for stretching of the contracted soft tissues[21]. The transitional movement helps to gain normal physiological movements of the shoulder thus inducing benifical effects and helps in improving range of motion[21].

The limitations of study were that it was conducted on patients with stage two frozen shoulder only so cannot be generalized. Also as only 40-60 age group was taken other age population might not have similar effect. Also only range i.e. flexion and abduction was taken. Hence future studies can be conducted with follow up and interventions can be applied in other stage of frozen shoulder.

5. CONCLUSION

The present study concludes that the 2 weeks of combined gong's mobilization with conventional exercise found statistically significant effect on improving pain, functional ability and range of motion for subjects with frozen shoulder.There was statistically significant difference in VAS, functional ability and range of motion within groups.

REFERENCES

[1] White D, Choi H, Peloquin C, Zhu Y, Zhang Y. Secular trend of adhesive capsulitis. Arthritis care & research. 2011 Nov;63(11):1571-5.

[2] Wadsworth CT. Frozen shoulder. Physical Therapy. 1986 Dec 1;66(12):1878-83.

[3] Shaffer b, Tibone je, Kerlan r, frozen shoulder, a long term followup j bone joint surgeon, 1972,74; 738-746

[4] Lokesh M, Raja R, Prashantha S, Rajeev A. Comparison of effectiveness of the combination of muscle energy techniques and conventional physiotherapy over conventional physiotherapy alone in periarthritis of shoulder: a randomized study. Journal of Evolution of Medical and Dental Sciences. 2015 Jan 12;4(4):545-55.

[5] Peter R rather, Adhesive capsulitis : a literature review. 2000 1-18

[6] Jason JI, Ganesh Sundaram S, VengataSubramani M. Physiotherapy interventions for adhesive capsulitis of shoulder: A systematic review. Int J Physiother Res. 2015;3(6):1318-25.

[7] Lementrg raj ag, Davidson l, Robinson cm, Perks fj, frozenshoulder along term outcome following arthrographic distension actaorthropbelg 2013: 79: 368-74

[8] Rundquist PJ, Anderson DD, Guanche CA, Ludewig PM. Shoulder kinematics in subjects with frozen shoulder. Archives of physical medicine and rehabilitation. 2003 Oct 1;84(10):1473-9.

[9] Johnson AJ, Gadges JJ, Zimmerman GJ, Ounenionll, the effect of anterior versus posterior glide joint mobilization on external rotation range of motion in patients with adhesive capsulitis j ortho sports physical therapy 2007:37 :88-99

[10] Harsulkar Sunil G, Rao Keerthi .The case report: Effectiveness of Gong's Mobilization on shoulder abduction in adhesive capsulitis. Indian Journal of Basic and Applied Medical Research. 2013; 2(8) 984989.

[11] Gong Wontae, Lee Hyumin, Lee Yoonmi. Effects of Gong's Mobilization applied to Shoulder joint on Shoulder Abduction. Journal of Physical Therapy Science.2011;23(3):391-393

[12] Wontae Gong, HyunjaJeong, Eunyoung Kim. Effects of Gong's mobilization Applied to the shoulder Joint on shoulder Medial Rotation. Journal of Physical Therapy Science. 2012; 24:279-281

[13] Yang JL, Chang CW, Chen SY, Wang SF, Lin JJ. Mobilization techniques in subjects with frozen shoulder syndrome: randomized multiple-treatment trial. Physical therapy. 2007 Oct 1;87(10):1307-15

[14] Maitland GD. Treatment of the glenohumeral joint by passive movement. Physiotherapy. 1983 Jan;69(1):3.

[15] Carlsson AM. Assessment of chronic pain. I. Aspects of the reliability and validity of the visual analogue scale. Pain. 1983 May 1;16(1):87-101.

[16] Roach KE, Budiman-Mak E, Songsiridej N, Lertratanakul Y. Development of a shoulder pain and disability index. Arthritis & Rheumatism: Official Journal of the American College of Rheumatology. 1991 Dec;4(4):143-9.

[17] Binder AI, Bulgen DY, Hazleman BL, Roberts S. Frozen shoulder: a long-term prospective study. Annals of the rheumatic diseases. 1984 Jun 1;43(3):361-4.

[18] Dilip jr, Babu vk, Kumar sn, Akalwadi a. Effect of gong's mobilization versus mulligan's mobilization on shoulder pain and shoulder medial rotation mobility in frozen shoulder. International journal of physiotherapy. 2016 feb 1;3(1):132-9.

[19] Gopinath Y, SeenivaSan SK, Veeraraghavan SN, Viswanathan R, Govindaraj MK. Effect of Gong's Mobilisation versus Muscle Energy Technique on Pain and Functional Ability of Shoulder in Phase II Adhesive Capsulitis. Journal of Clinical & Diagnostic Research. 2018 Sep 1;12(9).

[20] Gong W, Lee H, Lee Y. Effects of Gong's Mobilization Applied to Shoulder Joint on Shoulder Abduction. Journal of Physical Therapy Science. 2011;23(3):391-3

[21] Gong W, Lee Y, Kim E. The effects of Gong's mobilization on lumbar extension ROM of patients with low back pain. Journal of Physical Therapy Science. 2013 Apr 25;25(4):437-40.