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EFFECT OF TWO DIFFERENT MOBALIZATION TECHNIQUES ON RANGE OF MOTION AND PAIN IN FROZEN SHOULDER PATIENT

Author's Name: Dr. Pushpa Ladwal

Affiliation: Assistant Professor, R P Inderaprastha Institute of Medical Science (Physiotherapy) Bastara, Karnal, Haryana, India

E-Mail ID: ladwalpushpa365@gmail.com

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Abstract

The goal of this study was to determine the status and level of empowerment of the disabled population in Banke Ward No.12 of Nepalgunj Sub Metropolitan City. The 80 disabled people in the study region were chosen by the researcher. In order to get information from the chosen respondents, the researcher employed a series of questions that included both closed-ended and open-ended inquiries. To ascertain the level of empowerment of impaired persons, the obtained data were evaluated and interpreted. The majority of disabled people have been found to experience discrimination, including exclusion, peer abuse, and mockery. Some of them participate in various community activities, such as weddings, religious events, and festivals. They have so caused embarrassment in society. Many of them participate in social events on an equal footing with others, but when it comes to job, employers rarely give them chances to be hired in their field of work. The majority of disabled persons attend secondary schools. The majority of them have been discovered to be incapacitated due to illnesses and/or congenital defects. To address the needs of the children, the parents must be engaged in their regular jobs. Their challenged children require full-time care, which they are unable to give. The empowerment of the disabled is generally heavily influenced by socio-cultural status, and this status was positive. To examine the level of economic empowerment, the majority of people with disabilities do not receive any benefits Less disabled people possess family assets; this is because so few of them work in places that generate revenue. Only a small percentage of disabled persons live with dignity and take part in home and community decision-making.

Keywords: *disability, empowerment, support, discrimination, survival*

INTRODUCTION

Frozen shoulder is also known as adhesive capsulitis (AC) it is characterized by initially painful and later progressively restricted active and passive glenohumeral (GH) joint range of motion spontaneously complete or near complete recovery over a varied period of time. Thin condition is found to be self limiting and gradually settle within three years in most patients. This condition most commonly in DM female patients with the age of 40 years. This disease can extended beyond three year in some **cases (1).** This result in a greater economic distress and emotional, with the patient suffer from long-term pain and restricted movement of shoulder (2).

Joint mobilization that is maitland's oscillatory techniques and kaltenborn's sustained stretching is used to treat the frozen shoulder. The purpose of mobilization technique for a peri arthritis shoulder is primarily to increase shoulder movement by stretching of glenohumeral joint capsule (3). The study has shown that Kaltenborn's and Maitland's techniques are similarly effective in improving ROM and reducing pain in frozen shoulder patients. Kaltanborn mobilization glide technique on

management of frozen shoulder among females and males residing in selected area of Distt, Karnal, Haryana.

To assess the frozen shoulder among male and female residing in gharounda ,Bastar, karnal.To assess the effectiveness of kaltanborn's glid mobilization technique in peri-arthritis shoulder.
Problem Statement: A experimental study on effect of Kaltanborn mobilization glide technique on management of frozen shoulder among females and males residing in selected area of Distt, Karnal, Haryana. Benefits of Kaltenborn glid mobalization: The kaltenborn method also refered to as orthopaedic manual therapy in a Nordic system of manual therapy drived by freddy kaltenborn and olaf Evjenth over several years. This Nordic system seeks to repair usual joint mechanics. (4)
The benefits from joint mobilization are: Theoretically joint mobalization could be used to address stiffness or pain in almost any body joint. Mobilization help to reduced pain, joint stiffness and increase range of motion. The incident of frozen shoulder is 2 to 5% in whole world. (5)
The prevalence of among diabetic person and those suffer from thyroid gland, especially hypothyroidism may increase as high ie.is 10 to 38% (6) Most people who develop frozen shoulder between 40 to 60 years of age (7) The incidence of womens is 1.6 To 4- fold higher than in men (8) .African, Americans and Hispanic also show a higher prevelance (7) .
These techniques are mobilize the glenohumeral joint theme keeping the scapula fixed relative to the glenohumrel joint and thorax (9) . The glenohumeral anterior glide mobilisation has been used by the physiotherapist to improve the external rotation range of motion of shoulder joint while follows the principle of convex concave rule of joint motion. Harryman et al (10). Postulated the capsular revelation mechanism while contrasts the convex on concave theory. Some researches has been forward the internal and external rotation range of motion increase with posterior glide manipulation of shoulder joint (11, 12). According to Roubal et al. (11), increase flexion and abduction ROM by the caudal glide Johnson et al. (13).

A Randomised control trial in Tweenty patients of frozen shoulder, while compared posterior and anterior glide mobilization with lateral traction of glenohumeral joint. It was conducted that an increase external rotation range of motion can be achieved by kaltenborns grade 3 posterior glide mobilization sarkari et al (14).The movement of scapula with respect to humerus is better mobilisation method because it stretches and capsule directly and patients vermeulen et al (15).

This result show an increase in capacity of glenohumeral joint capsule and improve the mobility for external rotation, flexion and improvement in shoulder function after three months of treatment.

Vermeulen et al (16) used to reverse distraction technique in combination with other oscillatory glides to prove that Maitland`s grade 3 and 4 techniques are more effective than grade 1 in treatment of peri -arthritis shoulder.

SUBJECTS AND METHODS

40 patient were evaluated at physiotherapy outpatient department rpiims, campus (R.P. WELTAR HOSPITAL) BASTARA, KARNAL, HARYANA.
Subjects were included if they had primary adhesive capsules age between 40 to 70 years old and pain, stiffness and restricted passive shoulder lateral rotation ,internal rotation and abduction more than 50% compared with opposite side for at least three months.

In exclusion criteria were presents of neurological disorder for example: - CVA, Parkinsons disease leading to the deficiency of shoulder muscle activities, severe trauma, diabetes, related to painful stiff shoulder. OA of effective shoulder on X-Ray imaging, previous surgeries and manipulations under the aesthesia of affected shoulder.

20 patient that full fill the inclusion and exclusion criteria randomly allocated to one of two treatment groups. Posterior glide mobilization and kaltenborns caudal group.
Assessments was made the baseline and after 15 treatment sessions for assess pain during shoulder motion , patient used a visual analogue scale (VAS)12 consisting for a 10 - cm vertical line with one and corresponding to no pain during the shoulder joint motion and other end to maximum pain . In this study passive and active abduction and external rotation movement were measured with a goniometer as per guidelines given by American academy of orthopaedic surgeons(17) goniometer measurements are highly reliable provided measurements is conducted by physiotherapist (18). The radial styloid process was used to decrease the measurement error related for moments at the thumb and wrist joint.

If the hand could not reach the midline the measurement was taken by a drawing horizontal line from reached position of the central level .(19) The distance between L5 and C7 spinous process were also measured to the distance between the L5 spinous process and radial styloid process to eliminating difference due to the variation in heights. (20) .The upper hand maintained the require angle of flexion and abduction. The lower hand was put on the lateral border of scapula for mobilising in download and medial rotation.(3,15).

In kaltenborns group mobilization glide technique was used (21), which can characterised low rate and low amplitude technique with sustained loading of restricting tissue at the end range of external and abduction rotation with a uniform gliding movements . The kaltenborns grade 3 glide were given for 1 minute for total of 15 minutes of sustained stretch without any oscillatory glide.

For posterior glide lateral humeral destruction was maintained with abduction end range. The patient position in supine line and scapula stabilized for caudal glide: - The patient position was in supine line and scapula stabilized lateral humeral distraction were maintained, caudal stretch mobilization was done in the resting position of shoulder joint. Patients was treated in 2 session per week for 15 days.

After each session mobilisation movement within the active pain free range of motion was encouraged the periartheritis shoulder treated by the conventional physical therapy were administered in both group the superficial heating modality that is (hot water fermentation) was applied at the shoulder joint for 20 minutes. The codmans pendular exercises was performed for relaxation of muscles around the shoulder joint (16, 22).
Four direction shoulder stretching in forward elevation, horizontal adduction, internal rotation, external rotation was performed. 23) Stretch was performed 2 times a day and maintained for 1-5 seconds in comfortable range (24).

RESULTS

The abduction active and passive range of motion increased significantly ($P<0.01$) in reverse

distraction group compared to kaltenborns group. The results was not significant ($p<0.001$) from baseline to final treatment time in both groups. A comparison of the normalised values of HBB reach between the groups after treatment session revealed no significant difference. There were a significant increase HBB reach after the treatment in both group.

TABLE 1: SUBJECT CHARACTERISED

Subject characterized	Reverse distraction	Kaltenborns groups
Age	48.7 ± 6.4	52.5 ± 9.6
Weight	69.7 ± 8.7	71.6 ± 6.8
Height	162.7 ± 8.1	162.5 ± 9.1
BMI	26.2 ± 1.6	27.2 ± 3.1
Gender	7.7	6.8
Dominant arm	13{R}	12{R}
Affected arm	12(R)2(L)	11(R)3(L)
Occupation	11 sidentary,3 manual	10 sedentary ,4 manual
Minor injury recalled	2 yes ,12 no	4 yes ,10 no
Symptoms duration	4.6	5
Shoulder E.R. AROM	25.8 ± 11.5	28.7 ± 12.5
Shoulder E.R. PROM	31.2 ± 11.2	36.5 ± 12.3
Shoulder Abd AROM	93.5 ± 9.8	88.4 ± 9.7
Shoulder Abd PROM	99.3 ± 10.0	96.0 ± 10.6
HBB	6.7	8.1
VAS	8.1 ± 0.7	36.6 ± 8.1
FLEX-SE Score	36.0 ± 8.5	36.6 ± 8.1

HBB = Distance from L5 to hand behind back reach x 100
Distance from L5 to C7

DISCUSSION

The objective of this study were to compare two mobilisation techniques , reverse kaltenborns and range caudal and reverse distraction and posterior glides with lateral distraction in frozen shoulder patients. The patients were treated for 2 session per week for 5 weeks and changes in range of motion, pain and functional disability were recorded before and after interaction. Some studies have evaluated the effectiveness of reverse distraction technique along with other Mobilization techniques (15, 16). This small differences was found to be statistically significant.

Scapular mobilization has been proven to an effective treatment technique for recovering shoulder mobility in patients with frozen (20, 25). The corresponding studies used scapular mobilization procedures, likes as caudal and superior gliding, downward, upward rotations, and distraction of scapula from the thorax with patient lying on the unaffected surenkok et al ***(25).***

The reverse distraction techniques, was propsed by stenvers (3) and after used by vermeuler (15) is different from scapular mobilization technique in that glide is applied to the scapular in the downward and medial direction along with lateral distraction at desired elevation angles to the humerus at glenohumeral joint and patients lying on the unaffected side.

In present study there was improvement in pain in both groups, which is in accordance with previous studies (3, 13, 15, and 16). After the mobilization technique decrease pain has been attributed to various mechanism such a neurophysiological effect achieved by stimulation of Type 2 mechanoreceptors and by inhibition of Type 4 nociceptors (26).

The stimulation of golgi tendon organ activity, and reflex inhibition of the muscle at the end of passive joint mobilization (39). Mobilization decreased muscle activity, reduces muscle concentric activation, muscle tension in periarticular tissue and pain (27).
In this study passive and active abduction ROM in the frontal plane Increase significantly after 15 treatment sessions in both groups. Supports the results of the studies conducted by Johnson et al, vermeulen et al, and stenuer (3, 13, 15, and 16). The induced rheological changes in synovial fluid, increase exchange of fluid between synovial tissue and cartilage catrix and enhanced synovial fluid turn over are found to be affected by mobilization technique (28). In this study to be significantly better than traditionally used mobilization techniques in increased shoulder abduction mobility.

It's called that patients with periarthritis shoulder may develop an alternative compensatory elevation strategy (29, 30) when using excessive scapular movement during elevation of arm Fayad et al (31). There is increased scapular lateral rotation and scapulohumeral
Rhythm and decreased scapular protection in patient suffering from adhesive capsulelitis compared to those with glenohumeral osteoarthritis with limited arm elevation vermeules et al (32).

To restore normal glenohumeral range of motion abnormal scapular moment patterns should be correlated (33, 34). Because of capsular restriction the glenohumeral mobilization applied before'scapular mobilisation can be painful and improvement in joint mobility cannot be appreciated it's called that the scapula thoracic and glenohumeral joint are in a closed kinetic chain. If glenohumeral mobilization increase shoulder movements (35) and normalise scapulohumeral rhythm (36,37).

In the present study HBB reach was used to measure internal rotation because it's particularly difficult to measure internal rotation using goniometer with the arm in neutral position because the abdomen prevents achieving the maximum internal rotation (38). The method in effective and used clinically for measuring internal rotation of shoulder joint (39). There are studies that demonstrate the HBB reach is not an exact measuring of internal rotation (40, 41). This study demonstrated that shoulder function gets better with improvement in scapular and shoulder movements (42).

CONCLUSION

In this study supports the clinical uses of reserve destruction technique as a mobilisation method alternative to conventionally used technique aime at decreased pain and improving range of motion and functional scores in patient of periarthritis shoulder.

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