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**AN ANALYSIS UPON COMPAARISON OF
MULLIGAN'S VS. MAITLAND'S MOBILIZATION
TECHNIQUES IN IMPROVING NECK PAIN,
DISABILITY, ROM AND ADHESIVE CAPSULITIS
OF SHOULDER JOINT**

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An Analysis upon Comparison of Mulligan's Vs. Maitland's Mobilization Techniques in Improving Neck Pain, Disability, Rom and Adhesive Capsulitis of Shoulder Joint

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Abstract – Neck pain is a common problem with point prevalence of 13 % (Bovim G et al 1994)1.Two-third of the population having neck pain at some point in their lives (Binder AL 2007)2 Neck pain is increasing in both intensity, frequency and severity of episodes as people are increasingly sedentary. Different types of mobilization are employed to treat neck pain, but limited studies are done to compare their effectiveness of two different mobilization techniques in treatment of neck pain. Pain, disability and ROM were assessed by numerical pain radiating scale, NDI and universal goniometer. Assessment was done at 0, 15th and 30th day of treatment. Anova and Paired t-test were used. Statistical significance was set at 5% level. This study showed that mulligan mobilization is more effective in improving pain, ROM and disability. Although both experimental groups showed decrease in pain, disability and improved ROM but Mulligan mobilization was found to be more effective in improving pain, ROM and disability.

Physical therapy is the most important part of conservative treatment of frozen shoulder. Both Maitland and Mulligan's techniques have been found effective. We here did a comparative study to find the effectiveness of both these techniques in frozen shoulder rehabilitation. Both the treatment techniques i.e. Maitland and Mulligan are improve the pain VAS score, but response to Mulligan's was better. Mulligan mobilization technique is better than Maitland in terms of improvement in the range of extension while remaining ranges were similarly improved by both techniques.

INTRODUCTION

The neck pain is a public health problem and a common source of disability in the general population (Pierre et al 2003). Neck Pain is a common problem with point prevalence of 13% and life time prevalence of 50 % Neck pain is a common problem in our society and, at any given time, affects about 10% of the general populationn (Donald R. Gore 1998). Estimates of the prevalence of chronic neck pain vary. In a Swedish population (Guez et al,2002) 18.5% of females and 13.2% of males had neck pain for longer than 6 months; however, when continuous chronicity was rated, these figures were reduced to 10% and 7%, respectively. A Finnish study (Makela et al, 1991)8reported chronic neck pain in 13.5% of females and 9.5% of males.

The best and most widely accepted method of classification for pain is diagnostic triage, where patients are categorized as falling into one of three groups: serious spinal pathology; neurological involvement; and non-specific pain.

Each year, 27% to 48% of workers suffer NSNP (Peter Rothfels et al 2010)10 Nonspecific neck pain usually resolves within days or week, but can reoccur or become chronic. The systemic review found evidence that in patients with chronic pain treated in secondary care or an occupational setting, 20%-78% of patients remained symptomatic, irrespective of therapy given.

Maitland's techniques involve the application of passive and accessory oscillatory movements to spinal and vertebral joints to treat pain and stiffness. Grade I is a small amplitude movement performed below the range of resistance and is suitable for treating highly irritable conditions.

Use of Grade I enable the slack in collagen to be taken up when connective tissue is not under load and can relieve pain by working on neural structures. A Grade II mobilization is wider in amplitude but still below resistance. Use of Grade I and II are appropriate when palpation elicits pain before restriction of movement. Grade III and IV are used

when resistance to movement is encountered before pain. A Grade III is a large amplitude movement performed within resistance and generally used to improve range of motion. Grade IV is a small amplitude movement performed within resistance used for chronic aches of low irritability. Grade V is a high velocity thrust used in manipulation. Maitland also prescribes stretching techniques to deal with muscle spasm (Maitland, 2002).

When the patient is capable of 60% of normal range of movement unencumbered by pain then physiological mobilizations should be employed in pursuing the eventual establishment of normal range of movement.

Maitland argues that the comparable pain response "is nearly always found with the unphysiological movement rather than the physiological movement". Conversely, Mulligan applies movement in sympathy with physiological movement. Mulligan's principle techniques are NAGS, SNAGS and MWMs (Mulligan 1993). NAGS are natural apophyseal accessory glides applied to the cervical spine with the patient passive. SNAGS are sustained natural apophyseal accessory glides whereby the patient attempts to actively move a painful or stiff joint through its range of motion whilst the therapist overlays an accessory glide parallel with the treatment plane. MWMs are mobilizations with movement and are applied to the peripheral joints.

The underlying principle to MWMs is derived from Kaltenborn who argued that joint surfaces are not fully congruent, physiological movements are a combination of rotation and glide, and glide is essential to pain free movement.

Adhesive capsulitis (frozen shoulder) is a condition of uncertain etiology characterized by pain and progressive loss of both active and passive shoulder motion. Various method of treatment are available for adhesive capsulitis which includes: heating stretching exercises by physiotherapist or auto stretching by patients and scapular setting exercises along with the pendulum exercises which helps in maintaining and improving strength of shoulder girdle muscles and improve function. Joint mobilization is the treatment of choice to restore and improve synovial shoulder joint mobility. Various schools of manual therapy have been advocated for the treatment of frozen shoulder. Various grades of mobilizations such as mid-range and end range mobilizations are suggested by Maitland and Kaltenborn to improve joint mobility and reduce pain.

Nicholson¹⁰ compared pain and range of movement of the shoulder joint in two groups who received mobilization along with exercises and the other group treated with active exercises only and that the found mobilization group had lesser pain and joint stiffness than control group. Other researchers have also found Maitland's mobilization to be effective in this condition though different authors have used different grades and names of mobilizations. On the other hand

another study by Bulgen et al found no place for Maitland mobilization over steroid injection or no treatment. This is believed that graded mobilization stretches the tightened capsule and other periarticular soft tissues. Direction of glides depends on the range to be aimed at. The choice of direction follows convex-concave rule. Johnson et al found posterior glide to be better than anterior glide to improve glenohumeral abduction.

Similarly Mulligan's mobilization with movement (MWM) have shown convincing results in improving pain and mobility of different joints in which it was administered. Mulligan proposes that the MWM technique has its effect by correcting the positional faults in the joints that occur following injuries or strains. MWM is the simultaneous application of the corrective glide to the joint along with active movement by the patient. In the end range passive over-pressure is applied by patient or assistant. MWM when used for shoulders with limited range of motion because of pain had shown improvement in range of motion and pressure pain threshold. Even if MWM is applied to the elbow for lateral epicondylgia, it has improved shoulder external rotation 23. The author attributes this change to the neurophysiological activities which helps to move shoulder through a wider range of motion. In a systemic review of the studies on MWM, the results were inconclusive.

MULLIGAN'S MOBILIZATION VS. MAITLAND'S SUBJECTS WITH UNILATERAL OSTEOARTHRITIS TIBIOFEMORAL

Osteoarthritis (OA) is the most common arthritis in worldwide and approximately 10% of the world's population who are 60 years or older have symptomatic OA. OA is a chronic degenerative disorder of multifactorial etiology characterized by loss of articular cartilage and peri-articular bone remodeling. It is probably not a single disease but represents the final end result of various disorders as joint failure. Osteoarthritis results from a combination of genetic abnormalities and joint injuries. In this disorder, an affected joint experiences a progressive loss of cartilage, the slippery material that cushions the ends of bones. Accessory movements are used when initially treating pain. When the patient is capable of 60% of normal range of movement unencumbered by pain then physiological mobilizations should be employed in pursuing the eventual establishment of normal range of movement. An accessory glide is applied at the peripheral joint, while a normally pain-provoking physiological movement or action is actively or passively performed. A key component to Mulligan's Mobilization-With-Movement (MWM) is that pain should always be reduced and/or eliminated during the application. Further gains in pain relief may be

attained via the application of pain-free overpressure at the end of the available range during the MWM.

Maitland's techniques involve the application of passive and accessory oscillatory movements to spinal and vertebral joints to treat pain and stiffness of a mechanical nature. The techniques aim to restore motions of spin, glide and roll between joint surfaces and are graded according to their amplitude. This study is aimed to compare the effectiveness of Maitland and Mulligan's mobilization in improving the knee Range Of Motion (ROM) and Function in subjects with Tibiofemoral osteoarthritis.

SIGNIFICANCE OF THE STUDY

It is reported by Côté et al. (2000) that neck problems are very disabling, painful and costly. William et al. (2010) stated that neck pain is a significant contributor to worldwide disability and poses a considerable financial burden to its stakeholders. The prognosis for chronic neck pain is generally poor, and the associated disability seems to be more persistent than low back pain. There are not many reports on the efficacy of Mulligan's technique and dominated by the descriptive or case report publication from Exelby (2001). The above mentioned evidence showed the effectiveness of Mulligan technique in the spinal articular pain and in the peripheral joint problems, but all this evidence pointed towards short-term effectiveness of the concept. Moreover, there is scarcity of literature on the efficacy of Mulligan techniques in the mechanical cervical pain. Mulligan's approach is frequently used in clinical practice for reducing pain and improving functional abilities of neck pain sufferers. This eventually reflects to an extent that either the results are not interpreted appropriately or the practicing clinicians find these interventions effective to an extent greater than what is informed through published reviews.

METHODOLOGY

Study design: Experimental controlled design. Study setting: Patient were included in this preliminary, randomized, multicenter trial after obtaining their informed consent Population and sampling: 30 subjects with mechanical nonspecific neck pain of either sex in age group of 20-45 years were selected and were divided into three groups.

Criteria for sample selection: Inclusion criteria-

- Age group between 20-45 years.
- Patient with primary complaint of non-specific neck pain.

- Pain of sufficient intensity (greater than 2 out of 10 on numerical pain scale) to permit clinically worthwhile effect to be demonstrated.

Exclusion criteria-

- Osteoporosis.
- Weight loss, fever, history of malignancy.
- Inflammatory arthritis (AS).
- Structural abnormality effecting neck.
- Patient taking anticoagulants.
- Neck pain due to trauma
- Previous fracture

Independent Variables-

1. Maitland mobilization
2. Mulligan mobilization
3. Moist heat packs
4. Active exercises
5. Isometric exercises.

Instruments and tools-

Universal Goniometer, Towels, Pillows, Cervical moist hot packs, Neck disability index, Numerical pain rating scale

Technique of data collection-

During the initial session, a history, subjective and objective examination and thorough orthopedic examination were performed. On 0th day cervical range of motion was measured using universal goniometer. Disability was assessed by using Neck disability index and pain on numerical pain rating scale.

Procedure –

All the eligible subjects were divided into three groups. Group A was the control group and received conventional physiotherapy which includes

1. Active exercises-10 repetitions in all direction in pain free range

2. Isometrics-5-10 seconds brief but maximum contraction each held for 5-16 seconds for flexors, extensors, side flexors and rotators.
3. Moist hot packs sitting position for 15 minutes on cervical region in with head resting on table with a pillow.

Group B received conventional therapy plus Maitland grade 2 oscillatory movements for 60 seconds with 2-3 hertz. Starting with grade 2, repetitions were subsequently increased in progressive Group C received conventional therapy plus mulligan mobilization (NAGS, SNAGS) NAGS were given with 2-3 hertz (for less than 6 repetition) and SNAGS for 6 repetition in 3 sets.

The mobilization was repeated for less than 6 times and then movement was reassessed. Treatment was given 4 times a week for total of 30 days. Pain, Range of motion and disability were assessed by Numerical pain rating scale, Universal goniometer and Neck disability index on 15th and 30th day of treatment.

CONCLUSION

Thirty patients of both sexes with mechanical nonspecific neck pain in age group of 20-45 were investigated to find out the comparison of maitland and mulligan mobilization in improving Pain,ROM and disability over a period of 30 days. The results showed significant improvement in patients treated with mulligan mobilization as compared to maitland treated group.. Therefore from the literature available and the statistical analysis of data obtained following the treatment concludes that, "Mulligan mobilization is better than maitland mobilization in improving Pain,ROM and disability" The present study was undertaken to evaluate efficacy of the two manual therapy techniques, i.e. Mulligan (MWM) and Maitland mobilization technique on the adhesive capsulitis of the shoulder joint, and also to compare which of the techniques is better in terms of reducing pain, improving functional score (SPADI) and the joint mobility.

In conclusion, both the treatment techniques i.e. Maitland and Mulligan are improve the pain VAS score, but response to Mulligans is better. Both the techniques are equally effective in improving the functional score. Mulligan mobilization technique is better than Maitland in terms of improvement in the range of extension while remaining ranges were similarly improved by both techniques.

REFERENCES

- Ginn KA, Herbert RD, Khouw W, Lee R. A randomized, controlled clinical trial of a treatment for shoulder pain. *Phys Ther.* 1997;77:802-811.

- Guez M, Hildingsson C, Nilsson M, Toolanen G. The prevalence of neck pain: a population-based study from northern Sweden. *Acta Orthop Scand.* 2002;73:455-459. doi: 10.1080/00016470216329. [PubMed] [Cross Ref].
- Hing W, Bigelow R, Bremner T. Mulligan's mobilization: a review of tenets and prescription of MWMs. *NZ journal of physiotherapy* 2008;36(3):144-64.
- Kazemi M. Adhesive capsulitis: a case report, *J Can Chiropr Assoc* 2000; 44(3) :169-176
- Maitland GD, Bank K. *Vertebral manipulation.* Butterworth heinemann.oxford.2002.
- Mulligan BM. *NAGS, SNAGS and MWM.* Plane view services,1993.
- Myers J.B., Lephart S. M. The Role of the Sensorimotor System in the Athletic Shoulder. *Journal of Athletic Training.* 2000;35(3):351-363.
- Peter Rothfels, BEd, MD, ASAM, Craig Martin, MD, Kukul Noertjojo, MD. What's new in the literature: Nonspecific neck pain *BCMJ*, Vol. 52, No. 3, April 2010, page(s) 123 *WorkSafeBC.*
- Pierre Côté, J. David Cassidy, and Linda Carroll. The epidemiology of neck pain: what we have learned from our Population based studies. *J Can Chiropr Assoc.* Dec 2003; 47(4): 284-290.
- Uysal FG, Kozanoglu E. Comparison of the early responses of the two methods of rehabilitation in adhesive capsulitis. *Swiss med wky* 2004;134:353-358.
- Yang JI, Chang C, Chen S, et al. Mobilization techniques in subjects with frozen shoulder syndrome: randomized multiple treatment trial. *Phys Ther.* 2007;87:1307-1315.