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Original Article

Clinical Management and Manifestation of Rotator Cuff Tendinitis

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ABSTRACT:

Background:

Shoulder pain is one of the leading causes of musculoskeletal disorders after low back pain and cervical pain, and rotator cuff tendinitis contributes to most common cause of the shoulder pain in person aged 70 years or older. Overuse injuries from repetitive lifting, pushing, pulling and throwing and traumatic tear in tendons from a fall or accidents are other major contributing factors to shoulder pain due to rotator cufftendinitis.

Objective:

The study was designed to describe the different pain presenting patterns and symptoms accompanying rotator cuff tendinitis along with different treatment methods and their outcomes in managing rotator cuff tendinitis.

Methodology:

A descriptive case series study design, describing the pain presenting patterns and symptoms accompanying the rotator cuff tendinitis and outcome of difierent treatment method given to them. 25 patients with the age range of 21-71 years were selected using non-probability sampling from the outpatient department of physical therapy and orthopedic surgery of Fatimah Memorial Hospital, Lahore. A self administered questionnaire and standardized physical examination were used to record the demographic and objective findings. Each case was managed with Mulligan concept of Mobilization with movement (MWM) and improvement in pain was recorded on VAS before and after treatment session.

Results:

25 patients were selected with the mean age of 42.7 + 14.8 years with more males (14) and less females (11). Mean duration of pain was 8.9 + 11.4 weeks with 72% patients having duration of sickness between 1-8 weeks. 76% patients had pain of constant nature as compared to 24% which had a pain of intermittent type. When measured on VAS, 44% patients had severe pain (7-10) in comparison to 56% patients which rated their pain as moderate (3-6). In describing the location of shoulder pain majority of the patients (72%) had pain on the antero-superior aspect of the shoulder, 4% had antero-lateral pain while 1% had posterior pain. Empty can test was maximum positive up to 76% in all patients, Hawkins Kennedy up to 29%, Neer test 13% and Drop Arm test in 3%. Patients treated with manual therapy along with medications showed 100% recovery while patients treated with manual therapy and mechanical therapy showed 75% recovery.

Conclusion:

According to the results of this study, rotator cuff tendinitis affects male more than females, but this more related to the kind of activity performed by the patients than to sex. It more common in right shoulder, antero-superior aspect in particularly. Most of the patients had acute onset of disease. Manual therapy technique of MWM proved to be effective treatment option in improving pain in management of rotator cuff tendinitis.

Keywords:

Rotator cuff tendinitis, Visual Analogue Scale, Manual Therapy, Mobilization With Movement

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INTRODUCTION:

Shoulder pain is the third most common musculoskeletal complaint and one of principal causes of shoulder ailment is rotator cuff tendinitis. Rotator cuff tendinitis being the third most common reason for consultation with a physiotherapist, is a debilitating degenerative condition which refers either any irritation or

damage to rotator cuff muscles or tendons most commonly the supraspinatus muscle as it passes below the acromion. [1 2]

Rotator cuff tendinitis affects people between 25-60 years and above. Younger individuals are also most commonly affected with rotator cuff injuries which more due to history of overuse syndrome rather the history of trauma before the onset of clinical signs and symptoms '* In contrast, older population (>50 years old) also present with chronic degenerative rotator cuff tears; often have no history of trauma [" Age being an important factor, governs the prevalence of rotator cuff tendinitis Prevalence of RCT increases with age, with 4% asymptomatic subjects less than 40 years, and 54% aged above 60 years or above having partial rotator cuff tear.

The etiology of rotator cuff tear is complex & multi-factorial. Broadly the cause of rotator cuff tendinitis can be classified into intrinsic and extrinsic factors. Intrinsic factors include hypo-perfusion theory [' degenerative theory "' degeneration-micro-trauma ["' apoptotic theory "' & extra cellular matrix modifications [10]. Extrinsic factors include chronic overuse syndrome and c h ro n ic i mp ing ement synd ro me due to anatomical variation in the shape of acromion process. Neer classified rotator cuff disease into stage I, II and III. Edema and hemorrhage of the tendon and bursa in patients younger than 25 years, tendinitis and fibrosis of the rotator cuff in patients 25 to 40 years of age, tearing of the rotator cuff either partial or full thickness in patients older than 40 years of age are the characteristics of stage I, II & III respectively [11]

Primary indication of RCT is pain which is variable in nature and location. Pain is usually described as aching or tender most commonly located over the antero-lateral margin of acromion. Pain is usually constant, aggravated by overhead activity, worse at night, and only slightly decreased with anti- total inflammatory drugs.

Physical examination should include inspection, palpation, the evaluation of active and passive range of motion, the execution of strength and provocative tests. While strength may be normal in some patients with small full-thickness RCTs, weakness is usually present with larger tears. Many specific clinical tests are recorded to test muscles forming the RC. The most commonly used are the Jobe's test / Hawkins-Kennedy test / Empty can test for supraspinatus tendon, the external rotation lag sign (ERLS) for infraspinatus [2] Gerber's lift-off test, internal rotation lag sign (IRLS) and belly-press test are useful to evaluate subscapularis tears." [2'] Murrel and Walton compared the results of most commonly used shoulder tests. Patients affected by shoulder pain, and who tested positive for supraspinatus weakness, weakness in external rotation, and impingement, have a 98% chance of rotator cuff tear. If patients were older than 60 years and two clinical tests were positive, the probability to be affected by a RCT was 98%. Any patient with a positive drop-arm sign also has a 98% chance of RCT. [1"']

The management of a rotator cuff tear is multi directional and depends upon the age, pre injury functional level / demand & general health of the patient. Conservative management includes analgesia and anti-inflammatory medications, physical therapy, activity modification and subacromial injections of local anaesthetic and/or steroid. Different manual therapy techniques such as M ulligan concept of mobilization with movement, Keltenborn and Maitland manual the rapy tec h ni q ue s a re em ploy e d fo r management of rotator cuff tendinitis.

METHODOLOGY:

Descriptive case series study design was used and the data was collected from the outpatient department of physical therapy and orthopedic surgery of Fatimah Memorial Hospital, Lahore. A of 25 patients were taken in this study. A non-probability convenient sampling technique was used for the selection of patients.

Patients with i) primary complaint of shoulder pain with or without referral into the upper limb ii) shoulder range of motion largely preserved iii) pain exuberated by overhead activities, frequent night pain especially when lying on the affected shoulder iv) any one of the shoulder assessment test positive among Drop arm test, Neer's impingement test, and Hawkins Kennedy test were included in the study.

Patients having inflammatory condition like myositis, arthritis, fibrositis and tendon rupture, patients on steroids, and patients having undergone shoulder surgery were excluded from the study.

The case meeting the inclusion criteria were asked to sign an informed consent for undergoing differential management procedure. Each subject was asked to provide the socio demographic data. They were inquired about the history of present illness regarding the onset, types of symptoms, severity and duration of each. They were examined for finding the positive signs, listing the extent and level. Each subject was managed with Mulligan concept of Mobilization with movement (MWM), a sustained posterior accessory glide was applied to the glenohumeral joint was applied while the subject simultaneously actively flexed the shoulder to the pain-free endpoint. This procedure was repeated for a total of 3 sets of 10 repetitions as long as pain-free motion was sustained. Improvement in pain was recorded using VAS, before and after treatment session.

All data was entered into SPSS version 15 and was analysed using the same software. All qualitative data was presented in form of percentage, proportion and frequency table. Paired sample t-test was used to see the association between the two variables. A P-Value less than 0.05 were taken significant.

RESULTS:

Mean age of the patients participating in the study was 42.7 + 14.8 years, with males (14) being greater than females (11). The range of age in the subjects was 21-71 years. Almost 50% of the females were in the age group of 31-40 years while 28% males were in the age group of 41-50 years. Mean duration of sickness was 8.9 + 11.4 weeks. The range of duration of sickness is 1-49 weeks.72% patients were having duration of sickness of 1-8 weeks. 76% of the patients had constant pain and only 24% had intermittent type.

The patients with right side affected were 60%, left sides were 32% and bilateral shoulders affected were 8%. Majority (72%) of the patient had pain at antero-superior aspect of their shoulder, whereas 24% had antero-lateral pain and only 4% had pain at posterior aspect of shoulder. The major contributing factor in the disease were repeated activity 48%, followed by sports activity 24%, idiopathic was 16% and trauma to shoulder was only 13%. All patients showed significant reduction in pain and improvement in function when measured on VAS, with the mean pain reduction from 62.86 +17.453 to 45.49+ 15.74 (p value < 0.05) . The improvement was also demonstrated by negative pain provocation test which were initially positive before the start of treatment session.

DISCUSSION:

Rotator cuff tendinitis is a debilitating degenerative, refers either irritation or damage to the rotator cuff muscle/tendons. It is third most common reason for consultation with a physiotherapist and poses major occupational health problems, with high functional damages.

In this study prevalence of RCT is greater in males than females which related more to the kind of repeated activity than to the sex, since men perform different tasks from the ones performed by the women. In relation to the patient's age, the distribution of RCT higher in ages 21-50 years. However, in some studies the incidence was highest after fifth decade. This difference is due to multiple factors involved in the genesis of the

rotator cuff disease and its complications. Repeated activity was an isolated factor to the pathology appearance, whereas age related degeneration was another major causative factor. According to this study, RCT affects right shoulder and at anterosuperior aspect with greater frequency which is due to the fact that right upper limb is more dominant than left in general population. Similar outcomes were found in other studies. Patient showed significant reduction in pain, measured on VAS after treatment with MWW.

Conroy and Hayes found also found statistically significant reductions in pain measures with subjects who received joint mobilizations (MWM) in combination with supervised exercise compared to those receiving exercise alone. It can further be speculated that MWM techniques used in this study resulted in capsular stretching and/or restoration of normal glenohumeral arthrokinematics. [10]

In a trial conducted by Bergman et al, patients with shoulder pain were randomly assigned to two treatment groups. One group received usual medical care for their shoulder symptoms from their primary care physicians and the other group received manipulative therapy of cervicothoracic spine and rib cage in addition to usual medical care for a maximum of six treatment sessions. The results were highly encouraging with the treatment group receiving manipulative therapy reported increased rates of 'full recovery', and improved disability out to 52 weeks. [11]

The findings of the above study were also testified by another trial conducted by Bang and Deyle. They compared manual therapy techniques with and without reinforcing exercises directed at shoulder joint. Significant improvements in function and pain were observed with the use of a manual physical therapy approach. Two other studies compared the use of manual mobilization techniques in addition to a comprehensive offering of various therapeutic modalities and exercise, and showed improved outcomes in the groups that received mobilizations in addition to their comprehensive programme. [16]

CONCLUSION:

Rotator cuff tendinitis affects male more than females, but this more related to the kind of activity performed by the patients than to sex. It more common in right shoulder, antero-superior aspect in particularly. Most of the patients had acute onset of disease.MWM proved to be an effective manual therapy treatment technique for the management of rotator cufltendinitis.

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