Comparison between Kaltenborn and General Scapular Mobilization in Adhesive Capsulitis Patients

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Abstract

Background: To compare the efficacy of Kaltenborn scapular mobilization with the general scapular mobilization in the physical therapy management of adhesive capsulitis in patients with restricted abduction above 90 degrees.

Methods: In this descriptive study all the patients with non traumatic adhesive capsulitis of the shoulder with positive Apley’s scratch test and restricted abduction above 90 degree were included. All were treated in the out-patients department of Physical Therapy and Rehabilitation for five days a week for two weeks. Forty seven patients were included in the study. They were randomly placed in two groups with 25 patients in group A (Kaltenborn technique group) and 22 patients in group B (General scapular mobilization group).

Results: The Kaltenborn technique was applied on 25 patients of group A, in which 17 patients showed significant increase in the range of motion (ROM) and 8 patients did not show any increase in ROM. In group B general scapular mobilization was applied on 22 patients in which 12 patients showed significant increase in ROM and 12 patients did not show any increase in ROM.

Conclusion: The Kaltenborn scapular mobilization technique is more effective as compared to the general scapular mobilization technique to increase restricted abduction above 90 degrees in adhesive capsulitis.

Key Words: Kaltenborn scapular Mobilization, General Scapular Mobilization, Adhesive capsulitis.

Introduction

The Frozen shoulder or adhesive capsulitis is a common condition caused by the capsular tightening at shoulder joint. There is no specific cause determined but some people think that altered scapulo-humeral rhythm, thoracic kyphosis, diabetes, trauma, comorbid psychiatric condition could be the contributing factors.1 The patients stop using their shoulder joint in full range due to pain, so the restrictions in the range of motion are due to disuse. The pattern of restriction is usually marked restriction in abduction, moderate restriction in rotation and mild restriction in flexion. The physical examination includes the assessment of active, passive and joint play movements, and the diagnosis is always confirmed by the Apley’s scratch test.2 The Apley’s scratch test is usually performed in three different positions, and the patient actively tries to touch his opposite shoulder, neck and lower back.3 The inability, pain, and any apprehension are the positive findings for the test. The common physical therapy management of the frozen shoulder or adhesive capsulitis is pain management, range of motion exercises, muscle stretching and joint mobilization.4

The first 90 degree abduction occurs at the gleno-humeral joint and the remaining 90 degrees is the combination of many joints, the glenohumeral, sternoclavicular, acromioclavicular and scapulothoracic articulation. In the manual therapy for the initial 90 degrees we always do inferior glide and for the last 90 degrees we mobilize the scapula. There are two important techniques to increase scapular mobility; the first one is general scapular mobilization in which we move the scapula passively in protraction, retraction, elevation, depression, medial and lateral rotation. The second technique is the Kaltenborn technique in which we place the inferior angle of the scapula in the web of the hand and over ride the scapula on the dorsal surface of the hand to stretch the structures which originate from the spine and attach on the inferior angle and medial border of the scapula.

Patients and Methods

Forty seven patients were randomly selected from the orthopedic out-patient department and the department of physical therapy and rehabilitation with the diagnosis of adhesive capsulitis of the shoulder joint with restricted abduction above 90 degree. Then the patients were placed randomly into two groups. The Kaltenborn scapular mobilization technique was applied in group A on 25 patients in prone position, by placing the scapula in web space between thumb and index finger by one hand, and the
other hand was placed on the top and anterior side of the involved shoulder. In this position lift the shoulder and over ride the medial scapular border on the lateral surface of the index finger.

The general scapular mobilization technique was applied on 22 patients in side lying position on the sound side, and scapula was generally mobilized in elevation, depression, protraction, retraction, downward rotation and upward rotation. The inferior angle of the scapula was kept in first web space of the hand. Other hand was at top of the shoulder girdle.

All the techniques were applied for 10 repetitions per session, five days a week, for two weeks. The range of motion of abduction was the assessment tool for the study, and was measured by Goniometer in degrees before the starting and after the completion of two weeks treatment. The research data was analyzed by the SPSS and paired ‘t’ test was applied to draw the results.

Results

A total of forty seven patients were studied. 24 were male and 23 were females. In group A 25 patients were treated with Kaltenborn technique for two weeks. Males were 16 and females were 9. 90 % patients’ showed satisfactory increase in the range of motion in shoulder abduction. The results (p<0.0001) indicated a favorable response to the technique used. In group B 22 patients were treated with general scapular mobilization for two weeks. Males were 11 and female were also 11. 59% patients’ showed increase in the range of motion in shoulder abduction. The results (p<0.047) were interpreted as unsatisfactory(Table 1).

Discussion

By studying the effectiveness of oral medication, injection therapy, physiotherapy, acupuncture, arthographic distension and suprascapular nerve block it is concluded that there is a moderate evidence of joint mobilization techniques in increasing range of motion and relieving pain. Studies revealed that physiotherapeutic intervention has long term effects as compared to the corticosteroids injection in restoration of range of motion. The importance of manual therapy and joint mobilization in frozen shoulder is also proven. Shoulder range of motion is better improved by scapulothoracic exercises. Mobilization can improve the shoulder range of motion as compared to the intra articular injections in frozen shoulder. Joint space can be increased by exercises and mobilization in patients with frozen shoulder. Joint mobilization and exercises are clinically effective in treatment of painful shoulder.

Table 1: Difference in Kaltenborn mobilization and general scapular mobilization

<table>
<thead>
<tr>
<th>Variable</th>
<th>Kaltenborn Scapular Mobilization Group</th>
<th>General Scapular Mobilization Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>62.68</td>
<td>9.09</td>
</tr>
<tr>
<td>Median</td>
<td>70</td>
<td>15</td>
</tr>
<tr>
<td>Mode</td>
<td>80</td>
<td>15</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>18.24536</td>
<td>18.9307</td>
</tr>
<tr>
<td>Sample Variance</td>
<td>332.8933</td>
<td>258.658</td>
</tr>
<tr>
<td>Minimum</td>
<td>20</td>
<td>-35</td>
</tr>
<tr>
<td>Maximum</td>
<td>90</td>
<td>35</td>
</tr>
<tr>
<td>Count</td>
<td>25</td>
<td>22</td>
</tr>
</tbody>
</table>

p-value = p<0.0001 p<0.047

References