

## Comparative analysis of triamcinolone acetonide and methylprednisolone acetate injections in treatment of Periarthritis Shoulder.

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### Abstract

#### OBJECTIVE:

To compare the effectiveness of triamcinolone acetonide (40 mg) and methylprednisolone acetate (40 mg) along with local anaesthetics in Kashmiri patients with Periarthritis shoulder.

#### METHODS:

A total number of 111 (79 males and 32 females) patients with frozen shoulder, Studied at outpatient department of Orthopaedics in Skims Medical College Hospital (Kashmir) and Hajahad Clinics Hyderpora Srinagar from January 2014 to December 2019, were enrolled in non-controlled clinical trial. The diagnosis of frozen shoulder was made using the guidelines for shoulder complaint issued by the Dutch College of General Practitioners. Intraarticular injections of 40 mg triamcinolone acetonide (42 males and 16 females) or 40 mg methylprednisolone acetate (37 males and 16 females) were given every week (not more than 3 injections) by using posterior route.

#### RESULTS:

Both triamcinolone acetonide and methylprednisolone acetate were equally effective in adhesive capsulitis. Triamcinolone acetonide significantly improved diabetic periarthritis in comparison to methylprednisolone acetate. Higher percent of severe cases were significantly improved by triamcinolone acetonide in comparison with methylprednisolone acetate.

#### CONCLUSION:

We conclude that triamcinolone acetonide is a good rescue for painful periarthritis particularly for resistant cases as with diabetes mellitus, and with long duration of illness. Also, its efficacy can be observed with less frequent injection.

**Key Words:** Capsulitis of Shoulder, intraarticular injection, steroids

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### I. Introduction

Adhesive capsulitis shoulder is a painful and debilitating condition affecting 1-5% of general population.1,2 Frozen shoulder can be classified as primary (or idiopathic) when patients display symptoms with no obvious cause and secondary when there is a known cause, such as diabetes mellitus, or an existing injury.3 The term “frozen shoulder” was first introduced by Codman in 1934, characterized by considerable pain and insidious shoulder stiffness, which results in near complete loss of passive and active forward elevation and external rotation.4 Frozen shoulder patients usually present in the sixth decade of life, and onset before the age of 40 is very uncommon and occurs slightly more often in women than men 5, however, Bunker suggested that the prevalence may be more equal amongst males and females than found historically.2 After the first joint has resolved, the other shoulder involvement occurs in 6-17% of patients.

Different treatment modalities have been described in the literature 3,5 and include: physical therapy; oral corticosteroids; non steroidal anti inflammatory drugs; injections (corticosteroids, local anaesthetics, sodium hyaluronate and calcitonin); articular or arthrographic distension; manipulation under anaesthesia; arthroscopic and open surgery; or a combination of modalities, although there is no consensus about how to manage patients with frozen shoulder. These treatment methods have limited benefits and most patients slowly improve over 12-24 months.6

A meta-analysis performed by Hazleman on the use of intraarticular steroids, and found that the success of the treatment depended on the duration of symptoms.8 More quick recovery was seen in patients who received injections earlier. Recent meta-analysis conducted on randomized controlled trial showed that subacromial injections of corticosteroids are effective for painful shoulder to a 9-month period.8 Intraarticular steroid injections are not indicated in the adhesive phase as inflammatory stage of the disease has passed.5 Van

der Windt et al showed that steroid injections are more effective than the physiotherapy alone at 6 weeks.<sup>9</sup> Moreover, single intraarticular steroid injection in combination with physiotherapy is effective in reducing both pain and disability.<sup>10</sup>

Present study is aimed to compare the effectiveness of intra-articular injections of two corticosteroids: Triamcinolone acetonide & Methylprednisolone acetate in patients with adhesive capsulitis of shoulder.

## **II. Materials & Methods**

111 patients of frozen shoulder who visited outpatient department of Orthopaedics, skims Medical College, Hospital Srinagar and Hajahad clinics were included. Patients with painful restriction of glenohumeral mobility were included. Patients were excluded if they had past history of surgery, dislocations or fractures in shoulder area, if they had Insulin dependent Diabetes mellitus, Rheumatoid arthritis, allergy or neurological disorders, bilateral disease, if they had treatment with corticosteroid injection or Physiotherapy during the preceding 6 months. The diagnosis was made using the guidelines of Dutch College of General Practitioners.<sup>9</sup>

Routine laboratory investigations were performed including chest & shoulder X rays. Intra-articular injections of 40mg Triamcinolone acetonide (Group A-56 patients) or 40mg Methylprednisolone acetate (Group B-55 patients) were given at every 3 weeks interval using posterior route. No more than 3 injections were given & all patients were assessed by 8 weeks. If the patients were experiencing severe pain, analgesics were prescribed. Patients were also taught to do physical exercises at home for shoulder movements many times a day. Patients who made complete recovery or having much improvement were counted as complete cure. Pain assessment was done using scores of 0 [No pain]; 1 [Mild pain]; 2 [Moderate]; 3 [Severe] & 4 [Severe with night pain].

## **III. Results**

111 patients were randomly allocated for intra articular injection of Methylprednisolone acetate 40mg & Triamcinolone acetonide 40mg. There were no significant difference between the intervention groups in regard to age and the cause of painful stiff shoulder. However female preponderance was seen in frozen shoulder patients (Male: Female ratio was 1:2). Right side was found to be more involved than the left. Group A patients treated with Triamcinolone acetonide showed better results in regard to the improvement in pain scores as well as range of movements overall. Diabetic patients significantly responded better to Triamcinolone acetonide injection in comparison to Methylprednisolone injection [78.6% versus 61.5%]. Diabetic patients also required less frequent injections of Triamcinolone acetonide compared to those who received Methylprednisolone acetate injection. However there was no significant advantage of Triamcinolone acetonide injection in post traumatic or primary frozen shoulder in comparison to group B patients receiving methylprednisolone, however they both are found effective in reducing pain scores and overall mobility of shoulder joint.

## **IV. Discussion**

In present study, female preponderance was seen in study population (Male: Female ratio was 1:2), as well as right side of body was affected more in cases of frozen shoulder. Regarding these findings, our observations are in agreement with other studies.<sup>12,13,14</sup>

In present study, 57% patients were due to primary (idiopathic) frozen shoulder while 25% were due to diabetes. The incidence of frozen shoulder in diabetes mellitus patients was reported to be 10-36% in literature.<sup>15</sup>

Present study concludes that for treatment of frozen shoulder especially caused by diabetes mellitus, injection Triamcinolone acetonide has got advantage over Methylprednisolone acetate. In our study, 78.6% of diabetic patients treated with triamcinolone acetonide showed better result than 61.5% treated with methylprednisolone injection. Diabetes mellitus patients responded in a better way after receiving triamcinolone acetonide injection. In regard to improvement of baseline pain score and degree of shoulder movement disability in the two groups of Triamcinolone and methylprednisolone, the triamcinolone group seemed to have a little bit better result. Rizk et al found that intraarticular methylprednisolone injections had no advantage in restoring shoulder motion but partial, transient pain relief occurred in two-third.<sup>16</sup> From our results, it seems that the effectiveness of triamcinolone acetonide injections may be extended to adhesive phase in addition to painful freezing phase.<sup>17</sup>

In our series, the intraarticular injections were carried out using posterior approach. Anterior approach were not preferred as more than half missed the intended location in the glenohumeral joint were reported by using the anterior approach.<sup>18</sup>

## V. Conclusion

Present study concludes that for treatment of frozen shoulder especially caused by diabetes mellitus, injection Triamcinalone acetonide has got advantage over Methylprednisolone acetate.

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