

A Comparative Study of Triamcinalone and Methylprednisolone in Adhesive Capsulitis

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ABSTRACT

Introduction: Frozen shoulder (adhesive capsulitis) is characterized by retraction of the anterior portion of the glenohumeral joint capsule leading to pain and restriction of motion. Present study is aimed to compare the effectiveness of intra-articular injections of two corticosteroids: Triamcinolone acetonide & Methylprednisolone acetate in patients with frozen shoulder.

Material & Methods: 100 patients of frozen shoulder with painful restriction of glenohumeral mobility were included. Intra-articular injections of 40mg Triamcinolone acetonide (Group A-50 patients) or 40mg Methylprednisolone acetate (Group B-50 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. Intra-articular injections of 40mg Triamcinolone acetonide (Group A-50 patients) or 40mg Methylprednisolone acetate (Group B-50 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.

Results & Conclusions: 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 1:1.78). Right side was found to be more involved than the left. 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.

KEYWORDS: Adhesive capsulitis, Frozen shoulder, Methylprednisolone, Triamcinolone acetonide.

INTRODUCTION

Frozen shoulder (adhesive capsulitis) is characterized by retraction of the anterior portion of the glenohumeral joint capsule leading to pain and restriction of motion. It is a common complaint among patients attending the outpatient services in the Orthopedics department. The term "frozen shoulder" was first introduced by Codman in 1934 and the term adhesive capsulitis was coined by Naviesar in 1945.¹

Movement of the shoulder is severely restricted, with progressive loss of both active and passive range of motion. The condition is sometimes caused by injury, leading to lack of use due to pain, but also often arises spontaneously with no obvious preceding trigger factor (idiopathic frozen shoulder).²

It tends to occur in patients more than 40 years of age &

more in women. The annual incidence vary from 6.6 to 25 cases per 1000 cases.^{3,4} Complete recovery is however not infrequent & 7-15% of patients permanently lose their range of abduction motion. The condition is called 'frozen' shoulder because the more pain that is felt, the less likely the shoulder will be used. Lack of use causes the shoulder capsule to thicken and becomes tight, making the shoulder even more difficult to move -- it's 'frozen' in its position. People who suffer from adhesive capsulitis usually experience severe pain and sleep deprivation for prolonged periods due to pain that gets worse when lying still and restricted movement/positions.

It is frequently treated with physical therapy, NSAIDS, Intra-articular steroid injections & surgical manipulation

under general anesthesia. However, these therapies provide limited benefits and most patients slowly improve in 12- 24 months without any treatment.⁵

Corticosteroids are used now a days for treatment of frozen shoulder, bu their efficacy are still questionable.⁶ Patients who received the injections earlier in the course of the disease recovered more quickly.⁷ Single intra-articular steroid injection in combination with Physiotherapy is effective in reducing pain & disability.⁸ Present study is aimed to compare the effectiveness of intra-articular injections of two corticosteroids: Triamcinolone acetonide & Methylprednisolone acetate in patients with frozen shoulder.

MATERIALS & METHODS

100 patients of frozen shoulder who visited outpatient department of Orthopaedics, Teerthanker Mahaveer Medical College & Research Centre, Moradabad, Uttar Pradesh 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.⁹ Routine laboratory investigations were performed including chest & shoulder X rays.

Intra-articular injections of 40mg Triamcinolone acetonide (Group A-50 patients) or 40mg Methylprednisolone acetate (Group B-50 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].

RESULTS

100 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 1:1.78). Right side was found to be more involved than the left (Table 1). 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%] (Table2). 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.

Table 1: Demographics of study population.

		Group A*	Group B**
Patients Treated		50	50
Gender	Male	19(38%)	17 (34%)
	Female	31(62%)	33 (66%)
Side	Right	32(64%)	34(68%)
	Left	18(36%)	16(32%)
Cause of Disease	Diabetes	14(28%)	13(26%)
	Post traumatic	10(20%)	9(18%)
	Idiopathic	26(52%)	28(56%)

*Triamcinolone acetonide Treated, **Metylprednisolone acetate Treated

Table 2: Percentage of patients that showed improvement in regard to the cause.

Cause	Total Patients(n)	Group A	Group B
Diabetes	27(27%)	11(78.6%)	8(61.5%)
Post traumatic	19(19%)	6(60%)	5(55.6%)
Idiopathic	54(54%)	16 (61.5%)	17 (60.7%)

DISCUSSION

In present study, female preponderance was seen in study population (Male: Female ratio was 1:1.78), 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.^{2,10,11} In present study, 54% patients were due to primary (idiopathic) frozen shoulder while 27% were due to diabetes. The incidence of frozen shoulder in diabetes mellitus patients was reported to be 10-36% in literature.¹²

Present study concludes that for treatment of frozen shoulder especially caused by diabetes mellitus, injection Triamcinalone acetonide has got advantage over Methylprednisolone acetate. In our study, 78.6% of diabetic patients treated with triamcinalone acetonide showed better result than 61.5% treated with methylprednisolone injection. Diabetes mellitus patients responded in a better way after receiving triamcinalone acetonide injection. In regard to improvement of baseline pain score and degree of shoulder movement disability in the two groups of Triamcinalone and methylprednisolone, the triamcinalone 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. From our results, it seems that the effectiveness of triamcinalone acetonide injections may be extended to adhesive phase in addition to painful freezing phase.¹³

In this trial, 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.¹⁴

CONCLUSION

Present study concludes that for treatment of frozen shoulder especially caused by diabetes mellitus, injection Triamcinalone acetonide has got advantage over Methylprednisolone acetate. Female preponderance was seen in study population (Male: Female ratio was 1:1.78), as well as right side of body was affected more in cases of frozen shoulder.

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