

Functional Outcome of Frozen Shoulder Treated with Physiotherapy VS Intraarticular Injection of Corticosteroid

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ABSTRACT

Objective: To assess the functional outcome of frozen shoulder when treated with physiotherapy vs intraarticular injection of corticosteroid the department of Orthopaedics Surgery of LUH Hyderabad/ Jamshoro

Study Design: Observational / comparative study.

Place and Duration of Study: This study was carried out in the Orthopaedic Department of LUMHS, Hyderabad/ Jamshoro from August 2013 to March 2014.

Materials and Methods: In this study, 100 cases between age of 40-70 years selected after diagnosis of frozen shoulder or adhesive capsulitis. All the cases having pain into shoulder moving function for minimum 3 months of period, both gender and detected adhesive capsulitis or frozen shoulder were included in the study. Later on, subjects were isolated at random into groups, 48 cases of group A were underwent intraarticular injection of corticosteroid and the 52 cases of group B were underwent physiotherapy management. Result assessed at 4 and 8 weeks follow up continue at 16 weeks.

Results: In this study mean age was found 55.23 ± 9.8 years. In this forth week follow up visit we found more improved patients 29/69% in Intraarticular Injections group out of 42 cases, and in 23/50.5% cases found improvement in physiotherapy group out of 45 cases. Similarly 4th and 8th week follow-up on 16th week also some cases were missed, but on this follow up visit we found physiotherapy is the superior than Intraarticular Injections group. As well as in this 16th week follow up visit we found improvement in the majority of patients 30/81.0% in physiotherapy group out of remaining total 37 cases, and in 17/58.6% cases found improvement in Intraarticular Injections group out of remaining 29 cases.

Conclusion: Physiotherapy has better result in reduce pain and range of movement (ROM) exercise than Intraarticular injections of cortisone plus home exercise in the long time.

Key Words: frozen shoulder, Physiotherapy, Intraarticular injections of cortisone

Citation of article: Memon A, Ahmed S, Pirwani MA. Functional Outcome of Frozen Shoulder Treated with Physiotherapy VS Intraarticular Injection of Corticosteroid. Med Forum 2016;27(8):27-30.

INTRODUCTION

The frozen shoulder called as adhesive capsulitis too, is a state where shoulder joint turn out to be extremely stiff, tight & painful. Additionally, joint of shoulder also inflames, which eventually causes pain in shoulder as well as limited ROM of shoulder within capsulitis pattern.¹ Patients at first suffer from the state of ache or freezing, afterwards the state of frozen & at last defrosting state distinguished by the restricted Range of Motion.^{2,3} Within the shoulder, capsular pattern is distinguished generally with the restriction of passive lateral capture and revolving. Though, various authors notified frozen shoulder within prime frozen shoulder, which causes correspond to idiopathic.

Secondary correspond to injured capsulitis or in case of any other medical state is present alongside.⁴ In fact, it continues for extended period as contrasted to declared period, while, it doesn't cure entirely, it never achieves complete recovery. The treatment aims at getting the relief, maintaining the ROM & finally restoring function. The clinical syndrome comprises restricted ROM, muscular pain & weakness. Though, various researchers argued that frozen shoulder is self-limiting disorder persisting as short-term as 6 months; Moreover some other researchers suggested that frozen shoulder is further long-lasting disease leading to long-lasting disability. Bonding agent capsulitis is further reactive in; DM cases as contrasted to common population. It varies from 10 to 20 percent in DM cases.⁵ But, as compared to that, it is just 2 to 5 percent in general populace.⁶ Moreover, it is more frequent in women too, with age varying from 40 to 70 yrs, where the chance of reappearance is too low. A variety of treatments is present for adhesive capsulitis. Treatments ranging from analgesics & rest, open surgery/arthroscopic, electrotherapy, physical therapy, acupuncture, injections, exercise, manipulation under Corticosteroid & anesthesia, TENS, U/S, ice & deep heat, while, as

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Received: March 23, 2016;

Accepted: April 30, 2016

such no therapy is being regarded as standard treatment. This study targeted to assess the functional outcome of frozen shoulder when treated with physiotherapy vs intrarticular injection of corticosteroid.

MATERIALS AND METHODS

This retrospective and comparative study was conducted at orthopaedic department of LUMHS, with duration of time from august 2013 to March 2014. In this study, 100 cases between age of 40-70 years selected after diagnosis of frozen shoulder or adhesive capsulitis. All the cases having pain for at least 3 months while moving shoulder, both gender and diagnosed adhesive capsulitis/ frozen shoulder were included in the study. All the cases with Inflammatory arthritis, neurological involvement, post fracture complication, uncontrolled diabetes cases or any heart disease and patients chronic liver disease and women with pregnancy were excluded from the study. After that the subjects were isolated into groups at random, 48 cases of the group A were underwent intrarticular injection of corticosteroid and the 52 cases of group B were underwent physiotherapy management. Result assessed at 4 and 8 weeks follow up continue at 16 weeks. Result assessed on severity of pain on(VAS) and range of movement at shoulder joint. Data was analyzed on SPSS program version 16.0.

RESULTS

In this study mean age was found 55.23±9.8 years, female were found in majority 62(62.0%) as compare to males 38(38.0%). Table:1

In this study on 4th week follow-up 7 patients were loss in physiotherapy group and 6 patients were loss from follow-up in Interarticular Injections group. In this fourth week follow up visit we found more improved patients 29/69% in Interarticular Injections group out of 42 cases, and in 23/50.5% cases found improvement in physiotherapy group out of 45 cases. Table:2

On 8th week follow-up 12 patients were loss in physiotherapy group and 11 patients were loss from follow-up in Interarticular Injections group. In this 8th week follow up visit we found improvement in the majority of patients 32/85.0% in physiotherapy group out of 40 cases, and in 23/50.5% cases found improvement in Interarticular Injections group out of 35 cases. Table:3

Similarly 4th and 8th week follow-up on 16th week also some cases were missed, but on this follow up visit we found physiotherapy is the superior than Interarticular Injections group. As well as in this 16th week follow up visit we found improvement in the majority of patients 30/81.0% in physiotherapy group out of remaining total 37 cases, and in 17/58.6% cases found improvement in Interarticular Injections group out of remaining 29 cases. Table:3.

Table No.1: Demographic characteristics of patients (n=100)

| Variables | No. of patients /(%) |
|------------------|----------------------|
| AGE (Mean±SD) | 55.23±9.8 years |
| <u>GENDER</u> | |
| Male | 38(38.0%) |
| Female | 62(62.0%) |
| <u>RESIDENCY</u> | |
| Rural | 44(44.0%) |
| Urban | 56(56.0%) |

Table No. 2: Assessment at fourth weeks n=100

| Groups | Total comes after 4 weeks | Assessment Result | |
|--|---------------------------|-------------------|--------------|
| | | Improved | Not improved |
| A. Physiotherapy (52 Patients) | 45/100% | 23/50.5% | 22/49.5% |
| B. Interarticular Injections (48 patients) | 42/100% | 29/69% | 13/31% |

Table No. 3: Assessment at eight weeks n=100

| Groups | Total comes after 8 weeks | Assessment Result | |
|--|---------------------------|-------------------|--------------|
| | | Improved | Not improved |
| A. Physiotherapy (52 Patients) | 40/100% | 32/85.0% | 8/20.0% |
| B. Interarticular Injections (48 patients) | 35/100% | 22/62.8% | 13/47.2% |

Table No. 4: Assessment at 16 weeks n=100

| Groups | Total comes after 16 weeks | Assessment Result | |
|--|----------------------------|-------------------|--------------|
| | | Improved | Not improved |
| A. Physiotherapy (52 Patients) | 37/100% | 30/81.0% | 7/19.0% |
| B. Interarticular Injections (48 patients) | 29/100% | 17/58.6% | 12/41.4% |

DISCUSSION

This study was intended to recognize the efficacy of intrarticular injection of corticosteroid techniques in shoulder adhesive capsulitis treatment by contrasting with physiotherapy management. In our study mean age was found 55.23±9.8 years, female were found in majority 62(62.0%) as compare to males 38(38.0%). Similarly Mohammad Siraj et al.⁷ reported that mean age of patients that were incorporated in this study was 49±9.3 yrs. Males were 62 (55%) and females were 51 (45%). In some other studies also reported that Frozen shoulder influences 2% to 5% of populace, commonly amid 4th to 6th decade of life. Generally female, Parkinson’s disease, DM, hypo or hyperthyroidism, cardiovascular disorders and those with immobilized shoulder for extended period because of injury are at

higher risk.^{8,9} The non prevailing side is usually influenced, 6% - 17% of patients have bilateral participation, with a male-to- female proportion of approximately 4:1.¹⁰

In this study on 4th week follow-up 7 patients were loss in physiotherapy group and 6 patients were loss from follow-up in Interarticular Injections group. In this forth week follow up visit we found more improved patients 29/69% in Interarticular Injections group out of 42 cases, and in 23/50.5% cases found improvement in physiotherapy group out of 45 cases. It makes the evidence stronger that endorses their short-lasting advantage. Similarly the authors' awareness, no prior systematic reviews directly contrasted physiotherapeutic interventions to corticosteroid injections in adhesive capsulitis treatment. One of the main issues is that study into shoulder syndrome frequently fails to be definite in terms of diagnoses. Though, a Cochrane review¹¹ was held that was believed to possess some significance to this piece of study, as they analyzed their findings via making sub-groups as per diagnosis. They accomplished that even though 2 studies had recommended a probable early advantage of injections^{12,13} non of the studies had documented any long-lasting advantages. The findings of Cochrane review¹⁴ in that corticosteroid injections were observed to be further efficient at improving both ROM & function at about 6 weeks to 7 weeks.

In our series on 16th week also some cases were missed, but on this follow up visit we found physiotherapy is the superior than Interarticular Injections group. As well as in this 16th week follow up visit we found improvement in the majority of patients 30/91.4% in physiotherapy group out of remaining total 37 cases, and in 17/58.6% cases found improvement in Interarticular Injections group out of remaining 29 cases. Similarly Ryans et al,¹⁵ during 2003 contrasted 20 mg triamcinolone injection with 2 ml saline in twenty cases of physiotherapy in further 20 cases and saline injection among 19 cases and followed them up @ 6th and sixteenth weeks. They observed that physiotherapy is further beneficial as compare to corticosteroid injection in reduction of pain. Arslan S et al.¹⁵ contrasted methyl prednisolone 40mg injection in 10 cases, with physiotherapy in further 10 cases and followed them up @ second and twelfth weeks. They did not observe any significant variation amid groups. One study stated that therapy with PNF exercises caused an instant, significant rise in ROM in cases with decreased shoulder's external rotation and injured overhead reach.¹⁶

In this study on forth week follow up visit we found more improved patients in Interarticular Injections group, while on 8th and 16th follow up visit majority of improved cases were found in physiotherapy group. As well as the findings of Victoria Blanchard et al¹⁷ state that the adhesive capsulitis therapy with corticosteroid

injections is further valuable as compare to physiotherapeutic interventions for short-term, and to a less extent in longer term. Physiotherapists are thus preferably kept to amalgamate the administration of injections to decrease the early pain, and further 'traditional' physiotherapeutic interventions, for instance exercise & mobilizations, to restore ROM & function.¹⁸

CONCLUSION

Physiotherapy with TENS, Ultrasound and range of movement (ROM) exercise has better result than Interarticular injections of cortisone plus home exercise in the long time. But still it is a doubtful that how many injections and what doses (20, 40, 80) is for effective outcome?. More long term and big sample studies are needed for more conformation.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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