Original Article

Short Term Effectiveness of Intra-articular Corticosteroid and Physiotherapy in Contrast to Medical Treatment and Physiotherapy in Patients with Frozen Shoulder in a District Hospital of Bangladesh

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Abstract

Background: Frozen shoulder is a troublesome condition in Orthopaedic practice, most often of unknown etiology. Standard treatment includes medical treatment, physiotherapy and intra-articular corticosteroid injection. Prognosis depends on several clinical factors and modality of treatment. **Objective:** The aim of this study was to assess the outcome of patients with frozen shoulder by different modalities of treatment in 250 Bedded Razia Naser District Hospital, Bagerhat. **Methodology:** This was an analytic cross-sectional study with a total number of 220 cases of frozen shoulder treated in 250 Bedded Razia Naser District Hospital, Bagerhat, Bangladesh. Study period was from January 2017 to April 2023. Study population was selected by convenient purposive sampling based on inclusion and exclusion criteria. Study population was divided into two sub-groups. Group A: 110 patients who was managed by only medical treatment; Group B: 110 patients who were managed by intra-articular corticosteroid injection in addition to the medical management. Ethical clearance was taken from the Ethical review committee of 250 Beded Razia Naser District Hospital, Bagerhat. **Result:** Patients of each group was age and sex matched. Most of the patients in both groups were housewives and housemaids. Outcome were more favorable in group B in terms of pain and disability. Visual Analogue Score (VAS) and Shoulder pain and disability index (SPADI) were used as the assessment tool here. At least 06 months follow up was done in each patient. Relapse rate was significantly lower in group B than in group A at 6th month. **Conclusion:** On the basis of pain, disability and relapse rate, responsiveness was higher in patient intra-articular corticosteroid injection along with medical treatment and physiotherapy than medical treatment and physiotherapy alone.

Keywords: Frozen shoulder, intra-articular corticosteroid.

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Introduction

Frozen shoulder is often considered as a frustrated condition both for Orthopaedic surgeons and patients. No clear cause has yet been found for the idiopathic type of frozen shoulder. Treatment of this condition is diffi-

cult and can result in astonishing outcomes [1]. Medical treatment, physiotherapy are effective treatment for frozen shoulder. In many researches, prevalence rate found variable. In a study, the prevalence rate was 2% in the general population [2]. It affects persons older than 40 year of age more commonly [3], and 70% of patients presenting with a frozen shoulder are women [4]. The condition affects diabetic (type 1) patients more often than healthy ones, with a prevalence of almost 11% in this population group [5]5. Griggs et al. [6] suggested with their results that female patients who do not have an intrinsic emotional, psychological or personality disorder can overcome adhesive capsulitis better than those who possess. The pathophysiological process is believed to involve synovial inflammation and fibrosis of the shoulder joint capsule [7]. Literature review suggests that frozen shoulder has four different clinical stages; inflammatory phase, freezing phase, frozen phase and thawing phase [1]. Clinical feature usually varies according to the phase of presentation [8]. Treatment option of frozen shoulder includes medical management, physiotherapy and intra-articular corticosteroid injection [9]. Oral non-steroidal anti-inflammatory medication can be initiated in patients who present with painful limited range of motion during the painful freezing phase [10]. It is suggested in the literature that an intra-articular injection is associated with better pain relief than physiotherapy, analgesics or placebo [11]. In our study, we evaluated the short-term effectiveness of intra-articular steroid injection along with medical treatment and physiotherapy in contrast to that of medical treatment and physiotherapy alone.

Methodology

This study was conducted as an analytic cross-sectional study with a total number of 220 cases of frozen shoulder treated in 250 bedded Razia Naser District Hospital, Bagerhat, Bangladesh from January 2017 to April 2023. Study population was selected by convenient purposive sampling based on inclusion (patients with frozen shoulder, age in between 15 to 75 years age, patients with no congenital abnormality) and exclusion criteria (patients with severe co-morbidities, patients with terminal care, liver failure, renal failure). All patients were divided into two sub-groups. Group A: 110 patients of frozen shoulder who was managed by only medical treatment; Group B: 110 patients who were managed by intra-articular corticosteroid (Triamcinolone) injection and physiotherapy in addition to the medical management and physiotherapy. At least 06 (six) months follow up was done in each patient. The survey data were analyzed using the statistics, such as- mean, SD, percentage etc. Informed consent was taken from all patients and ethical clearance was taken from the Ethical review committee of 250 bedded Razia Naser District Hospital, Bagerhat. Visual Analogue Score (VAS) and Shoulder pain and disability index (SPADI) were used as the assessment tool in this study to analyze the outcome [9, 10].

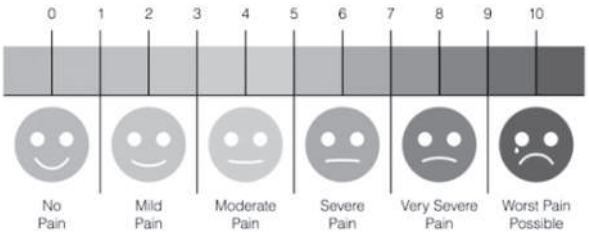


Figure 1: Visual Analogue Score (VAS).

Shoulder pain and disability index (SPADI): Integrated pain and disability score											
How severe the pain is?											
Indicators	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
At its worst?											
When lying on involved side?											
Reaching for something on a high shelf?											
Touching the back of your neck?											
Pushing with the involved arm?											

Figure 2: Pain scale.

How much difficulty does the patient have?											
Indicators	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Washing your hair?											
Washing your back?											
Putting on an undershirt or jumper?											
Putting on a shirt that buttons down the front?											
Putting on your pants?											
Putting an object on a high shelf?											
Carrying a heavy object of 10 pounds (4.5 kg)?											
Removing something from your back pocket?											

Figure 3: Disability scale.

Results

In group A, 30.9% (34) patients were male and 69.1% (76) patients were female; whereas, in case of group B, 40.9% (45) patients were male and 59.1% (65) patients were female.

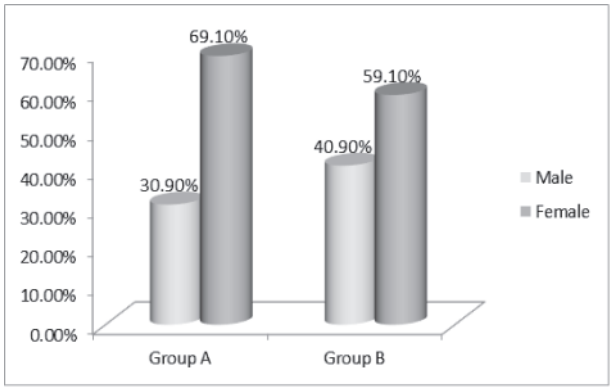


Figure 4: Sex distribution of the study groups with frozen shoulder.

Mean±SD of age was 35.6±8.2 and 33.5±7.5 years respectively in group A & B. Majority of the cases were in 31-40 years age in both groups (32.7% and 36.4% in respective groups).

Table I. Age distribution of patients with frozen shoulder.

Age	Group A		Group B	
(year)	n_1 (%)	Mean±SD	n_2 (%)	Mean±SD
<20	06 (5.5)		11 (10)	
21-30	13 (11.8)		15 (13.6)	
31-40	36 (32.7)		40 (36.4)	
41-50	28 (25.5)	35.6±8.2	22 (20)	33.5±7.5
51-60	16 (14.5)		17 (15.5)	
>60	11 (10)		5 (4.5)	
Total	110 (100)		110 (100)	

Regarding the occupation of the study patients, 30.0% (33) patients in group A and 25.5% (28) patients in group B were housewife. Frozen shoulder was also common in housemaids (18.1% and 22.7% in respective groups).

Table II. Occupation of the study patients.

Occupation	Group A n_1 (%)	Group B n_2 (%)
Housewife	33 (30)	28 (25.5)
Housemaid	20 (18.1)	25 (22.7)
Day labourer	15 (13.6)	16 (14.5)
Farmer	17 (15.5)	22 (20)
Player	3 (2.7)	2 (1.8)
Student	12 (10.9)	10 (9.1)
Others	10 (9.1)	7 (6.4)
Total	110 (100)	110 (100)

Medical treatment and physiotherapy were given to patients in Group A; and in group B, intra-articular injection corticosteroid (Triamcinolone) was given in addition to medical treatment and physiotherapy. Visual analogue scale (VAS) was used for evaluation of pain and follow-up in both study groups (where score 0 is no pain and score 10 is severe intractable pain) [12].

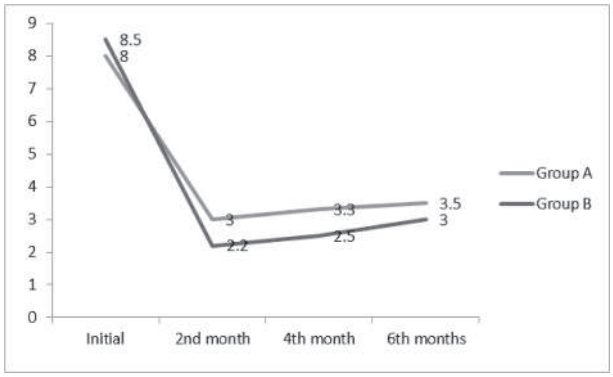


Figure 5: Assessment of pain in follow-up (using VAS).

Shoulder pain and disability index (SPADI) was used in this study as an assessment tool which was consists of pain score and disability score [12]. Pain and disability score was used for evaluation of pain in follow-up in both groups (where score 0 is no pain and score 10 is severe intractable pain) [13].

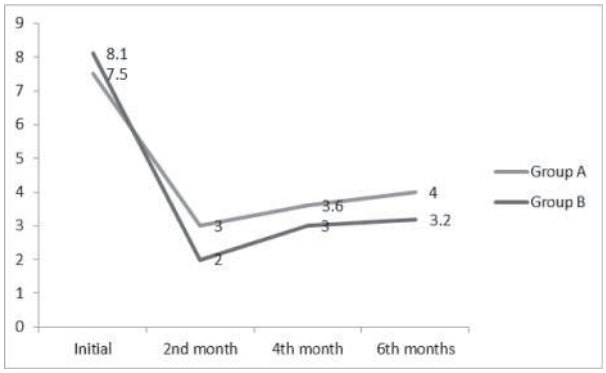


Figure 6: Assessment of pain & disability in follow-up (Shoulder pain and disability index-SPADI).

Incidence of relapse is relatively higher in case of group A in contrast to Group B. Overall relapse rate is represented in table 3.

Table III. Relapse rate in both study groups.

Follow-up	Group A n_1 (%)	Group B n_2 (%)
2nd month	10 (9.1)	4 (3.6)
4th month	15 (13.6)	5 (4.5)
6th month	18 (16.4)	9 (8.2)

Discussion

Majority of the patients with frozen shoulder was female in this study. 69.1% and 59.1% patients of group A and B was female. Peak incidence was seen in 31-40 years of age in both study groups (32.7% and 36.4% in respective groups). 25.5% and 20.0% patients in group A & B was in 41-50 years age. Mean±SD of age was 35.6±8.2 and 33.5±7.5 years respectively in both groups. In many studies it has been suggested that frozen shoulder mainly affects individuals of 40–60 years of age, with a female predominance. The exact incidence and prevalence of frozen shoulder are unknown, but many authors have quoted figures of 2%–5% in the general population [14, 15]. Occupation may have relation with frozen shoulder. Most of the patients in both groups were housewives and housemaids. In group A, 30.0% (33) patients

were housewife; whereas in group B, 25.5% (28) patients were housewife. 18.1% (20) and 22.7% (25) patients of respective groups were housemaid. Incidence was also high in day labourers and farmers. However, occupational relationship was not suggested in most of the researches [1].

Pain trends to fall after treatment (using the VAS). Highest response rate was seen at 2 months following treatment. Thereafter, pain trends increase slightly in both study groups. Better response rate in terms of pain was observed in case of group B in contrast to group A (using the VAS). Similar response rate was observed in terms of pain and disability. Shoulder pain and disability index (SPADI) was used to assess the pain and disability in the patients with frozen shoulder. Significant response was seen at 2nd months in both groups; however better result was observed in group B. Relapse rate was significantly higher in group A than in group B. At 6th month, relapse rate was 16.4% (18) in group A; whereas, in group B, it was 8.2% (09). Best and optimal outcome was observed in patients treated with intra-articular corticosteroid injection. Most of the researches suggests that effectiveness of intra-articular corticosteroid injection with physiotherapy is relatively good than medical treatment and physiotherapy alone in terms of pain and disability [16]. In majority of the studies, recurrence rate varied greatly [17]. However, recurrence in case of frozen shoulder is a rare situation depicted in some studies [12].

Conclusion

From the study it could be concluded that, intra-articular corticosteroid injection along with physiotherapy gives better result that medical treatment and physiotherapy in terms of pain, disability and relapse rate.

Conflict of Interest

The authors declare no conflict of interest.

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