

Short Term Effectiveness of Intraarticular Injection of Methylprednisolone Acetate in Subacromial Impingement Syndrome in A Tertiary Care Hospital

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ABSTRACT

Objective: To determine the effectiveness of intraarticular injection of methylprednisolone acetate in subacromial impingement syndrome.

Study Design: Descriptive Case Series

Place and Duration: Study was conducted in Orthopaedic Unit Ayub Medical Teaching Institute Abbottabad and MTI, Hayatabad Medical Complex Peshawar for one year duration from February 2020 to February 2021.

Methods: Total 100 patients of newly diagnosed subacromial impingement syndrome were enrolled in this study. Patients were aged between 20-60 years. Patients details demographics age, sex and body mass index were recorded after taking informed written consent. Patients did not receive any treatment before were included. Effectiveness of intraarticular injection of methyl prednisolone acetate was measured by using visual analogue scale (VAS) for pain intensity from 0 to 10 by VAS score after 4 weeks. Completed data was analyzed by SPSS 22.0 version.

Results: Mean age of the patients was 38.14 ± 7.44 years with mean BMI 25.64 ± 18.9 kg/m². Among 100 cases, 75 (75%) patients were males and 25 (25%) were females. Diabetic patients were 25 (25%) and 14 (14%) patients were gout among all cases. Mean VAS score before treatment was 6.14 ± 4.84 and after treatment VAS score was reduced to 4.41 ± 3.64 . After follow up of 4 weeks VAS score was decreased to 1.11 ± 3.65 . Satisfaction among patients were 90 (90%).

Conclusion: We concluded in this study that for the treatment of subacromial impingement syndrome, intraarticular injection of methylprednisolone acetate was effective and useful. It was also observed that VAS score among patients were reduced significantly with shoulder pain.

Keywords: Intra articular methylprednisolone injection, Subacromial impingement syndrome, Effectiveness, Visual analogue scale

INTRODUCTION

Shoulder pain is a frequent issue among people of all ages. Subacromial impingement syndrome [1-3] is the most prevalent cause of shoulder pain and range of motion restriction, which leads to debility and impaired quality of life [4, 5]. Subacromial bursitis and rotator cuff tendonitis are the most common causes of shoulder pain [6]. Rest, ice, physical therapy, ultrasound, electromagnetic radiation, corticosteroid injections, and systemic nonsteroidal anti-inflammatory medications (NSAIDs) have all been used as nonsurgical treatments for impingement syndrome [7-10]. Corticosteroid injections are a common and well-accepted therapy option for patients with subacromial impingement syndrome who have not responded to more conservative approaches. The precise mechanism of corticosteroid injections remains unknown. The anti-inflammatory impact is thought to lessen the inflammation of bursitis and tendinitis [11, 12].

Unfortunately, the use of corticosteroid injections is limited due to the possibility for major side effects. Corticosteroids have been linked to tendon rupture, subcutaneous atrophy, alterations in articular cartilage, and systemic consequences such osteoporosis [13,14]. A

conservative therapeutic approach based on physiotherapy, rehabilitation, and nonsteroidal anti-inflammatory drugs (NSAIDs) may be insufficient for a significant proportion of SIS patients; when this occurs, a local injection of corticosteroids in the subacromial space is a commonly used therapeutic intervention. However, the efficacy of this treatment modality is still a matter of controversy [15]. Following a thorough study, Koester et al [16] found that there is currently little repeatable data to support the subacromial injection of steroids in the therapy of individuals with subacromial impingement syndrome. We conducted present study with aimed to determine the effectiveness of intraarticular injection of methylprednisolone acetate in subacromial impingement syndrome.

MATERIAL AND METHODS

This Descriptive Case Series was conducted in Orthopaedic Unit Ayub Medical Teaching Institute Abbottabad and MTI, Hayat Abad Medical Complex Peshawar for one year duration from February 2020 to February 2021 and comprised of 100 patients. Patients detailed demographics age, sex and body mass index were

recorded after taking informed written consent. Patients had history of adhesive capsulitis, fracture on same shoulder, arthritis and those did not give any written consent were excluded from this study.

Patients were aged between 20-60 years with newly diagnosed subacromial impingement syndrome. 40 mg methylprednisolone was mixed with 1 ml 2% lidocaine and injected to all patient's subacromial bursa via the anterolateral approach applying an aseptic technique. Effectiveness of intraarticular injection of methylprednisolone acetate was measured by using visual analogue scale (VAS) for pain intensity from 0 to 10 by VAS score after 4 weeks. Complete data was analyzed by SPSS 22.0 version. Frequencies and percentages were used for categorical variables.

RESULTS

Mean age of the patients was 38.14±7.44 years with mean BMI 25.64±18.9kg/m². Among 100 cases, 75 (75%) patients were males and 25 (25%) were females. Diabetic patients were 25 (25%) and 14 (14%) patients were gout among all cases. (table 1)

Table 1: baseline details demographics of enrolled cases

Variables	Frequency	%age
Mean age	38.14±7.44	
Mean BMI	25.64±18.9	
Gender		
Male	75	75
Female	25	25
Types of patients		
Diabetic	25	25
Gout	14	14
Normal	61	61
Total	100	100

Mean VAS score before treatment was 6.14±4.84 and after treatment VAS score was reduced to 4.41± 3.64. After follow up of 4 weeks VAS score was decreased to 1.11±3.65. (table 2)

Table 2: Comparison of VAS score before and after treatment

Variables	Frequency	%age
VAS score		
Before treatment	6.14±4.84	-
Post-treatment	4.41± 3.64	-
After 4 weeks		
VAS score	1.11±3.65	-

P-value <0.05

We concluded that 90 (90%) patients were completely satisfied by treatment and 10 (10%) were not satisfied.(table 3)

Table 3: Frequency of satisfaction among patients

Variables	Frequency (n=100)	%age
Satisfaction		
Yes	90	90
No	10	10

DISCUSSION

In this descriptive case series 100 patients of newly diagnosed subacromial impingement syndrome were

presented. Effectiveness of intraarticular injection of methylprednisolone acetate was measured by using VAS score. Majority of the patients 70% were males. Mean age of the patients was 38.14±7.44 years with mean BMI 25.64±18.9kg/m². [17]Among 100 cases, diabetic patients were 25 (25%) and 14 (14%) patients were gout. These findings were comparable to the previous some studies.[17, 18]

While most studies mention the beneficial effects of subacromial corticosteroid injection, there are a number of questions on the harmful effects of steroids such as cartilage structure, infections, drug allergies, diabetic bone fracture, hyperglycemia, tender / rupture weakness, pain flare after injection, fat atrophy, and skin hypopigment. [19, 20] In patients with diabetes mellitus and hypertension, steroids should be taken with caution. The majority, including shrinkage of the subcutaneous fat, skin degradation (54%), and tendon rupture, of the corticosteroid injection have been documented in orthopedic therapy by Hill et al (39%).[21]

In our study, before treatment VAS score was 6.14±4.84 among patients. 40 mg methylprednisolone was mixed with 1 ml 2% lidocaine and injected to all patient's subacromial bursa via the anterolateral approach applying an aseptic technique. After treatment VAS score was 4.41± 3.64. Patients were observed for the duration of 3-weeks and we gain results that VAS score reduced to 1.11±3.65. Significantly reduction in VAS score after treatment was assessed in our study. These results were comparable to the different studies of past in which intensity of pain was recorded low after treatment with steroids [22, 23].

Karthikeyan et al [24] also discovered that one injection of methylprednisolone is substantially better than tenoxicam, yet tenoxicam has favorable benefits. Çift et al. revealed that both tenoxicam and methylprednisolone injections can be successfully utilized in subacromial impingement therapy and tenoxicam could be chosen in corticosteroid contraindication patients [25].

In our study improvement was noted among 90 (90%) cases and all that patients were satisfied by short term effectiveness. These statistics were compatible with earlier reporting. Yu et al [26] revealed that the quality of life and ROM of 91% of the cases 1 month after the injections was significantly improved with 1 ml of xylocaine 2 percent and 1 ml of betamethasone in a prospective clinical trial done on 238 shoulders. The improvement in 88 percent of the people treated was still considerable a year later. The use of CS 1 month after injection has shown a significant improvement in shoulder symptoms because of the reduction in discomfort at night [27]

CONCLUSION

We concluded in this study that for the treatment of subacromial impingement syndrome, intraarticular injection of methylprednisolone acetate was effective and useful. It was also observed that VAS score among patients were reduced significantly with should pain.

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