e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2024; 16(3); 414-417

Original Research Article

A Clinical Assessment of the Effect of Intra-Articular Steroid Injection for Osteoarthritis Knee by Using Knee Society Score (KSS) and Visual Analog Scale (VAS)

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Received: 12-01-2024 / Revised: 15-02-2024 / Accepted: 22-03-2024
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Conflict of interest: Nil

Abstract

Aim: The aim of the present study was to assess the effect of intra-articular steroid injection for osteoarthritis knee by using knee society score (KSS) and visual analog scale (VAS).

Methods: This retrospective study was conducted in the Department of Orthopedics, Madhubani Medical College and Hospital, Madhubani, Bihar, India for one year. A retrospective study of 42 patients (50 knees) diagnosed with osteoarthritis of knee were given 80mg of intra-articular methylprednisolone injection.

Results: 42 patients (50 knees) between 58 to 84 years of age with a mean age of 67 years were part of the study. 10 patients had bilateral OA knee, 24 males and 18 females. Thus in our study, the p value for knee society score pre- injection and post-injection was found to be >0.05 which was statistically not significant and the p value for visual analog score pre-injection and post-injection was found to be <0.05 which was statistically significant.

Conclusion: Intra-articular steroid injection for osteoarthritis of knee produces significant pain relief for most patients even in severe cases but this does not translate to better functional outcomes.

Keywords: Osteoarthritis, Methylprednisolone acetate injection, Knee society score, Visual analog score

Introduction

Osteoarthritis (OA) of the peripheral joints is frequently related with physical disability and decline in health-related quality of life (QOL), deciphering into a significant burden on people and humankind. [1,2] Although OA affects all joints, the most frequently encountered joints are the hip, knee, and hand. From the past few years to the present, there has been a sharp increase in both the prevalence and incidence of OA. This is mainly accredited to growing prevalence of obesity and to the elderly population. [3,4]

In contrast, there has been an increased incidence of OA among active young adults. [3,5] In India, the most commonly occurring joint disorder is OA with a prevalence of 22%–39%, making it the second most commonly encountered rheumatological disorder. [6] Among the genders, women are more frequently affected than men; however, the occurrence sharply increases with aging. The symptoms of OA are evident in nearly half of women >65 years of age, while majority of them show radiologic evidence in >65 years of age. [7] Mobility impairment, especially in women, is mainly caused by OA of knee.

The 10th leading cause of nonfatal burden is estimated to be OA. The management of OA mainly aims to control pain, reviving and preserving the mobility and joint function, thus enhancing one's QOL with no scope for retrogressing the OA process. At present, OA is treated with pharmacological and nonpharmacological approaches. These can be offered alone or in combination. The nonpharmacological management consists of patient counseling, with occupational or physical therapy being a prime component of OA treatment. Numerous drugs are available to treat OA, and these include acetaminophen, nonspecific nonsteroidal anti-inflammatory drugs, and COX-2-specific inhibitors. Although these drugs have shown proven results, few of them possess serious adverse effects. Other treatment approaches for OA include nonsurgical intervention such as injectable compounds and visco supplements that imitate synovial fluid or surgical interventions. These treatment options are considered when medical management of OA fails. [8] Over the past few years, intra-articular (IA) corticosteroid injections have been in use to control pain and inflammation in OA. [9] However, from two recent studies, the predictors of response could not be recognized. [10]

The aim of the present study was to assess the effect of intra-articular steroid injection for osteoarthritis knee by using knee society score (KSS) and visual analog scale (VAS).

Materials and Methods

This retrospective study was conducted in the Department of Orthopedics, Madhubani Medical College and Hospital, Madhubani, Bihar, India for one year. A retrospective study of 42 patients (50 knees) diagnosed with osteoarthritis of knee were given 80mg of intra-articular methylprednisolone injection.

Inclusion Criteria

Patients with primary osteoarthritis of knee. Kellgren Lawrence grades 2 to 4 who were symptomatic were included in the study. Even very severe cases of osteoarthritis knee who were not willing for surgery were included.

Exclusion Criteria

Secondary osteoarthritis and past history of Intra-articular injection were excluded.

Procedure

All the patients were given Injection Methylprednisolone

80 mg (2 ml) without local anesthesia into lateral tibiofemoral compartment with knee flexed. In our study we evaluated the patients before administration of injection with routine blood investigations, any abnormal values such as sugars, thyroid function were corrected before injection.

Follow up

The effect was assessed using KSS (as per Insall modification, 1993) and VAS scores, pre injection and 3 months post injection and the results were compared.

Patients were contacted over telephone if they were not coming for follow up. No patients were lost for follow up at the end of 3 months. At presentation we assessed for pain using VAS and we assessed for any improvement in functional outcome using KSS.

Knee Society Score

At the initial stage before injection all the patients had a mean KSS of 72 with a range of 54 to 82. At 3 months post injection their KSS were 73. This showed that there was no improvement in KSS pre and post steroid injection. The p value was found to be >0.05 which was statistically not significant.

Visual Analog Score

At the initial stage before injection all the patients had a mean VAS of 7.2 with a range of 5 to 9. At 3 months post injection their VAS was 4.3. This showed that their VAS score improved considerably pre and post steroid injection. The p value was found to be <0.05 which was statistically significant.

Results

Table 1: Demographic data

Gender	**N**	**%**
Male	24	57.14
Female	18	42.86
Age groups in years		
<30	5	11.90
31-50	20	47.62
51-70	15	35.71
>71	02	4.76
Laterality n=50		
Unilateral	40	50
Bilateral	10	20

42 patients (50 knees) between 58 to 84 years of age with a mean age of 67 years were part of the study. 10 patients had bilateral OA knee, 24 males and 18 females.

Table 2: Scoring

	Pre injection	**Post injection (3 months)**	**P value**
Visual analog score	7.2	4.3	<0.05
Knee society score	72	73	>0.05

Thus, in our study, the p value for knee society score pre- injection and post-injection was found to be >0.05 which was statistically not significant and the p value for visual analog score pre-injection and post-injection was found to be <0.05 which was statistically significant.

Discussion

Osteoarthritis of knee is a progressive chronic degenerative disease characterized by varying degrees of joint cartilage loss with local inflammation usually affecting the elder population. The disease processes involves the entire joint, including the articular cartilage, subchondral bone, ligaments, capsule, synovial membrane and periarticular muscles. [11] The exact mechanism causing pain in Osteoarthritis knee is not well understood, probably a complex and multifactorial pathophysiology involving structural, psychosocial and neurophysiology factors. [12]

Patients presents with pain, swelling, stiffness and deformity of the joint thereby affecting their daily activities. [13] Non operative measures of treatment include weight loss, physical therapy, oral analgesics, NSAID's, Interferential therapy and intra-articular injections. 42 patients (50 knees) between 58 to 84 years of age with a mean age of 67 years were part of the study. 10 patients had bilateral OA knee, 24 males and 18 females. Thus in our study, the p value for knee society score pre-injection and post-injection was found to be >0.05 which was statistically not significant and the p value for visual analog score pre-injection and post-injection was found to be <0.05 which was statistically significant. In our study we used Injection Methylprednisolone (80 mg) 2 ml for injection into the lateral tibiofemoral compartment without local anesthesia. Cooper et al in his study published in 2017 used intra-articular Hyaluronic acid for osteoarthritis of knee and showed good results. In a comparative study between Methylprednisolone and Hyaluronic acid for osteoarthritis knee Leighton et al [14] in his study published in 2014 concluded that the effect of Methylprednisolone and Hyaluronic acid were same upto 12 weeks but at 26 weeks the effect of hyaluronic acid was maintained but the effect of methylprednisolone declined.

Wernecke et al in his study published in 2015 did a systematic review using 1929 articles and he stated that maximum dose of methylprednisolone acetate injected should be not more than 30 mg, higher doses of injection causes damage to articular cartilage. [15] In our study we injected 80 mg of methylprednisolone acetate, At this dose if it really causes damage to articular cartilage was not assessed in this study but we found good improvement with respect to pain with this dose. In a study published by Beyaz et al [16] in 2012 he assessed the efficacy of intra-articular morphine and steroid in patients with osteoarthritis and concluded that intra- articular morphine was as effective as intra-articular steroid for analgesia in patients with osteoarthritis knee and intra-articular morphine is possibly a better option than intra-articular steroid as it has lesser side effects.

Conclusion

Intra-articular steroid injection for osteoarthritis of knee produces significant pain relief for most patients even in severe cases but this does not translate to better functional outcomes.

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