Clinical and Functional Outcome of Intra-articular Methylprednisolone Acetate in Knee Osteoarthritis: An Observational Study

Dr. Abhinav Yadav [1*], Dr. Rajesh Bhatia [2], Dr. RL Sahu [3]
[1] Postgraduate Student, Department of Orthopedics, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India
[2] Professor & Head, Department of Orthopedics, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India
[3] Professor, Department of Orthopedics, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India

* Corresponding Author: **Dr. Abhinav Yadav**

Article Info

ISSN (online): 2582-8940
Volume: 07
Issue: 03
Received: 27-06-2026
Accepted: 25-07-2026
Published: 23-08-2026
Page No: 268-274

Abstract

Background: Knee osteoarthritis (OA) is a common degenerative joint disorder and a major cause of pain, stiffness, and functional limitation in the elderly. Although multiple conservative treatment options are available, many patients continue to experience significant symptoms. Intra-articular corticosteroid therapy is widely used for short-term symptomatic relief because of its anti-inflammatory action and cost-effectiveness.

Objective: To study the clinical and functional outcome of intra-articular methylprednisolone acetate in patients with knee osteoarthritis, with specific evaluation of pain, stiffness, and functional status before and after treatment.

Methods: This observational study was conducted in the Department of Orthopaedics, Saraswathi Institute of Medical Sciences, Hapur, after institutional ethical approval and written informed consent. Eighty patients aged more than 50 years with primary knee OA of Kellgren–Lawrence grade II or above were included. Baseline assessment was done using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC). Patients received an intra-articular injection of 80 mg methylprednisolone acetate with 2% lignocaine through the superolateral patellar approach under strict aseptic precautions. Follow-up was performed at 4, 12, and 24 weeks. Data were analysed using the paired-sample t-test, and $p < 0.05$ was considered statistically significant.

Results: The mean age of participants was 64.84 ± 7.11 years, and females constituted 65.0% of the study population. WOMAC pain score improved from 15.03 ± 2.78 at baseline to 9.26 ± 2.35, 10.07 ± 2.45, and 11.66 ± 2.54 at 4, 12, and 24 weeks respectively. WOMAC stiffness score improved from 5.61 ± 1.11 to 3.50 ± 1.01, 3.91 ± 1.07, and 4.56 ± 1.05. WOMAC functional score improved from 47.39 ± 7.85 to 32.67 ± 5.54, 36.41 ± 5.96, and 41.60 ± 7.19. Total WOMAC score improved from 67.88 ± 8.69 at baseline to 45.33 ± 6.46, 50.20 ± 6.74, and 57.79 ± 7.99 at the respective follow-ups. All improvements were statistically significant ($p < 0.001$) compared with baseline. No patient was lost to follow-up, and no significant adverse effects were observed.

Conclusion: Intra-articular methylprednisolone acetate is a safe, effective, and economical treatment modality for knee osteoarthritis, providing significant short- to medium-term reduction in pain and stiffness with improvement in functional ability. Maximum therapeutic benefit was observed at 4 weeks, though statistically significant improvement persisted up to 24 weeks

DOI: https://doi.org/10.54660/IJMBHR.2026.7.3.268-274

Keywords: Knee osteoarthritis, methylprednisolone acetate, intra-articular injection, WOMAC, pain, stiffness, functional outcome

1. Introduction

Osteoarthritis (OA) is the most common chronic joint disorder and a leading contributor to adult disability worldwide, characterised by osteophyte formation, subchondral bone remodelling, progressive articular cartilage degradation, and variable synovial inflammation [1]. An estimated 250 million people worldwide suffer from symptomatic OA, with the knee being the most commonly affected joint; prevalence ranges from 10–20% in individuals above 40 years to more than 40% in those above

60 years. In India, knee OA is a major cause of morbidity in the elderly, with a reported prevalence of 22–39% in urban and rural populations, disproportionately affecting women and individuals engaged in occupations requiring repetitive squatting or heavy physical labour [2].

The knee joint is particularly vulnerable to OA because of its weight-bearing role and constant exposure to mechanical stress, most often affecting the patellofemoral and medial tibiofemoral compartments [3]. Its pathogenesis is multifactorial, involving ageing, obesity, prior joint injury, genetic predisposition, and repeated microtrauma [4]. At the tissue level, an imbalance between anabolic and catabolic activity in cartilage leads to matrix degradation, with chondrocytes overexpressing matrix metalloproteinases (MMPs) and aggrecanases under the influence of mechanical stress and inflammatory mediators such as interleukin-1β (IL-1β), tumour necrosis factor-alpha (TNF-α), and prostaglandins [5,6]. Synovial inflammation, though milder than in rheumatoid arthritis, contributes significantly to pain generation through sensitisation of nociceptors and synovial angiogenesis [7]. Concurrent meniscal degeneration and periarticular muscle weakness further compromise joint stability and mobility, manifesting clinically as activity-related pain, morning stiffness, and progressive functional limitation [8].

The burden of knee OA is particularly significant in low- and middle-income settings where access to rehabilitation and surgical care is limited [9]. Management is aimed at reducing pain, improving function, and enhancing quality of life through a combination of non-pharmacological measures (weight loss, physiotherapy, exercise) and pharmacological therapy (analgesics, NSAIDs, intra-articular injections) [10]. Because systemic medications can cause cardiovascular, renal, and gastrointestinal adverse effects — particularly in elderly patients — local intra-articular therapy has gained increasing acceptance as it maximises drug concentration at the target joint while minimising systemic exposure [11].

Among intra-articular agents, corticosteroids remain the most widely used for rapid symptom relief. Methylprednisolone acetate exerts potent anti-inflammatory action by suppressing local inflammatory responses, stabilising lysosomal membranes, and inhibiting leukocyte infiltration into the synovium, thereby reducing the release of pro-inflammatory cytokines, prostaglandins, and cartilage-degrading enzymes [12,13]. When administered under strict aseptic technique and at appropriate intervals, intra-articular corticosteroids are considered a safe and cost-effective option, although judicious use is warranted because of potential adverse effects such as post-injection flare, infection, transient hyperglycaemia, and a theoretical risk of cartilage change with repeated use [14]. Given the continuing clinical relevance of this widely available and inexpensive intervention, the present study was undertaken to evaluate the clinical and functional outcome — specifically pain, stiffness, and functional status — of intra-articular methylprednisolone acetate in patients with knee osteoarthritis over a 24-week follow-up period.

1.1. Aim and Objectives

Aim: To study the clinical and functional outcome (pain relief and improved range of motion during walking, sitting, and standing) of intra-articular methylprednisolone acetate in knee osteoarthritis.

Objectives

1. To evaluate the functional outcome of patients after intra-articular methylprednisolone acetate injection.
2. To evaluate pain in patients before and after intra-articular methylprednisolone acetate injection.
3. To evaluate stiffness in patients before and after intra-articular methylprednisolone acetate injection.

2. Materials and Methods

2.1. Study Design and Setting

This was a prospective observational study conducted in the Department of Orthopaedics, Saraswathi Institute of Medical Sciences (SIMS), Anwarpur, Hapur, Uttar Pradesh, over a period of two years (March 2023 – February 2026).

2.2. Ethical Considerations

The study protocol was approved by the Institutional Ethics Committee of SIMS, Hapur (Reg. No. EC/NEW/INST/2022/UP/0125), and written informed consent was obtained from every participant prior to enrolment. Good Clinical Practice guidelines were followed throughout the conduct of the study.

2.3. Sample Size

The sample size was calculated using a reported knee OA prevalence of 28.7% in the Indian population [2], with a 95% confidence interval (Z = 1.96) and an allowable error of 10%, using the formula $n = Z^2pq/E^2$. This yielded a minimum sample size of 78.5, rounded up to 80 patients.

2.4. Inclusion Criteria

(1) Age more than 50 years; (2) symptomatic knee pain of ≥ 6 weeks duration; (3) radiologically confirmed Kellgren–Lawrence (KL) grade ≥ 2 osteoarthritis of the knee; (4) diagnosed primary knee OA; (5) prior conservative treatment (physical therapy, analgesics) for OA; (6) ambulatory patients; (7) random blood sugar (RBS) < 140 mg/dL; and (8) willingness to provide written informed consent.

2.5. Exclusion Criteria

(1) Secondary inflammatory arthropathy (rheumatoid arthritis, Reiter's syndrome, psoriatic arthritis, gout, ankylosing spondylitis); (2) uncontrolled diabetes mellitus; (3) untreated symptomatic knee injury (acute traumatic, cruciate or collateral ligament injury); (4) presence of surgical hardware or other foreign body for arthritis or cartilage-related pathology in either knee; and (5) use of systemic immunosuppressants within 6 weeks of screening.

2.6. Procedure

All participants underwent a detailed history and clinical examination of the knee joint. Radiological severity was graded using the Kellgren–Lawrence system on anteroposterior and lateral standing radiographs, and baseline pain and functional status were recorded using the WOMAC index. The injection was performed in the minor operation theatre under strict aseptic precautions with the patient supine and the knee extended. After cleaning the joint with povidone-iodine and confirming lignocaine sensitivity and RBS within acceptable limits, 2 mL of 2% lignocaine was infiltrated subcutaneously over the superolateral or superomedial margin of the patella for local anaesthesia. An 18-gauge needle attached to a syringe containing 2 mL (80 mg) of methylprednisolone acetate mixed with 4 mL of 2%

lignocaine was then inserted transversely just above the upper border of the patella, with correct intra-articular placement confirmed by gentle aspiration before the solution was injected slowly into the joint cavity. The site was dressed with a sterile bandage, and patients were observed for at least 30 minutes for any immediate adverse effects and advised to avoid strenuous activity for 24 hours.

2.7. Outcome Assessment and Statistical Analysis

Clinical and functional outcomes — pain relief, reduction in stiffness, and improved mobility — were assessed using the WOMAC index at baseline and at 4, 12, and 24 weeks after injection. Data were entered in Microsoft Excel and analysed using SPSS software version 29.0. Descriptive statistics were expressed as mean ± standard deviation, and inferential comparison between baseline and follow-up scores was performed using the paired-sample t-test, with $p < 0.05$ considered statistically significant.

3. Results

Eighty patients who fulfilled the inclusion and exclusion criteria were enrolled and completed the full 24-week study protocol; complete data were available for all variables at every time point, and no patient was lost to follow-up.

3.1. Demographic and Clinical Characteristics

Participant age ranged from 55 to 82 years (mean 64.84 ± 7.11 years, median 65 years); the largest proportion of patients (31.3%) was ≤ 60 years old. Females predominated, constituting 65.0% (n = 52) of the cohort. Bilateral knee involvement was the most common presentation (50.0%), followed by right-sided (27.5%) and left-sided (22.5%) unilateral disease. On Kellgren–Lawrence grading, Grade III disease was most frequent (45.0%), followed by Grade II (35.0%) and Grade IV (20.0%). These findings are summarised in Table 1 and illustrated in Figures 1–3.

Table 1: Demographic and clinical characteristics of study participants (n = 80)

Characteristic	n	Percentage (%)
Age group (years)		
≤ 60	25	31.3
61–65	23	28.7
66–70	12	15.0
71–75	14	17.5
76–80	5	6.3
≥ 81	1	1.3
Mean ± SD (years)	64.84 ± 7.11	—
Sex		
Female	52	65.0
Male	28	35.0
Side of knee involvement		
Bilateral	40	50.0
Right	22	27.5
Left	18	22.5
Kellgren–Lawrence grade		
Grade II	28	35.0
Grade III	36	45.0
Grade IV	16	20.0
Total	80	100.0

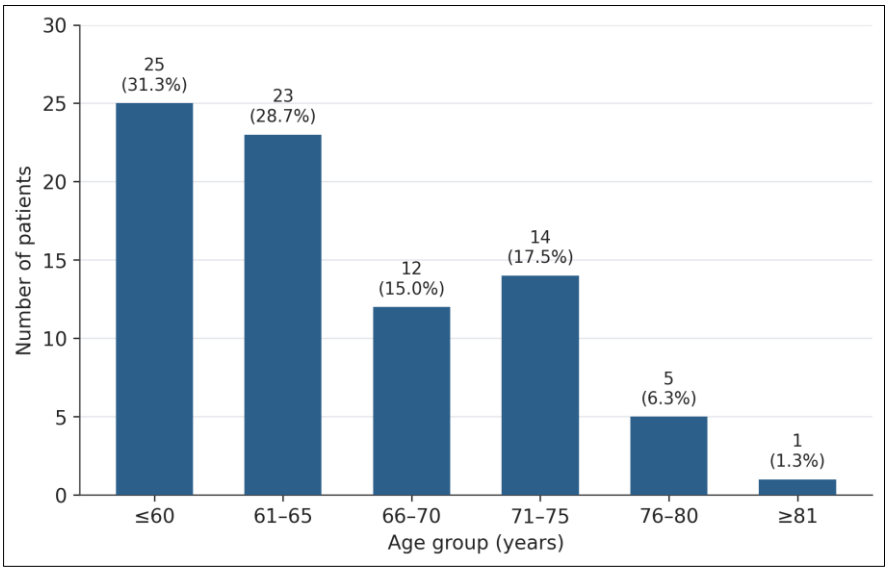

Fig 1: Age group–wise distribution of patients (n = 80)

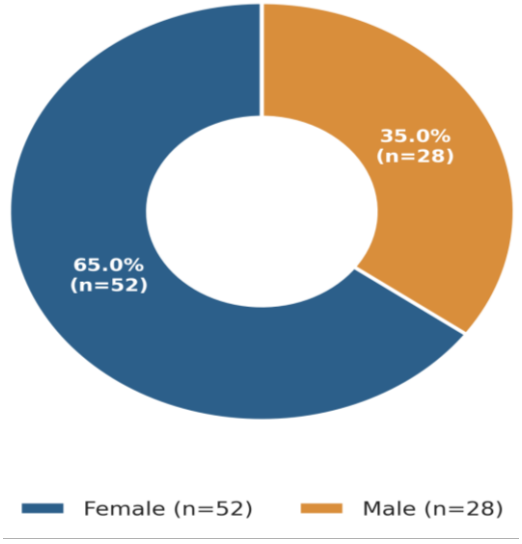

Fig 2: Sex-wise distribution of patients (n = 80)

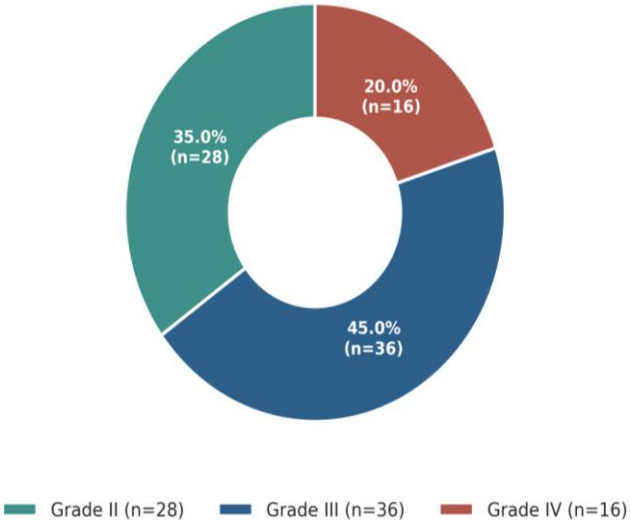

Fig 3: Distribution according to Kellgren–Lawrence radiological grade (n = 80)

3.2. Baseline WOMAC Scores

At baseline, the mean WOMAC pain score was 15.03 ± 2.78 (range 9–19), the mean stiffness score was 5.61 ± 1.11 (range 3–7), the mean functional score was 47.39 ± 7.85 (range 30–60), and the mean total WOMAC score was 67.88 ± 8.69 (range 48–84), reflecting a substantial burden of pain, stiffness, and functional limitation across the cohort prior to treatment.

3.3. Change in WOMAC Scores After Intra-articular Injection

Following intra-articular methylprednisolone acetate injection, all four WOMAC domains showed a statistically significant improvement at every follow-up interval compared with baseline (paired t-test, p <.001 at 4, 12, and 24 weeks for pain, stiffness, function, and total score). The greatest improvement in all domains was observed at 4 weeks, with a gradual, though still statistically significant, reduction in the magnitude of benefit at 12 and 24 weeks. Pain scores improved from 15.03 ± 2.78 at baseline to 9.26 ± 2.35 at 4 weeks, 10.07 ± 2.45 at 12 weeks, and 11.66 ± 2.54 at 24 weeks. Stiffness scores improved from 5.61 ± 1.11 to 3.50 ± 1.01, 3.91 ± 1.07, and 4.56 ± 1.05 at the respective intervals. Functional scores improved from 47.39 ± 7.85 to 32.67 ± 5.54, 36.41 ± 5.96, and 41.60 ± 7.19, and the total WOMAC score improved from 67.88 ± 8.69 to 45.33 ± 6.46, 50.20 ± 6.74, and 57.79 ± 7.99. These results are summarised in Table 2 and Figure 4. No significant adverse effects were observed over the study period.

Table 2: Comparison of WOMAC pain, stiffness, function, and total scores at baseline and follow-up (n = 80)

WOMAC domain	Baseline (Mean ± SD)	4 weeks (Mean ± SD)	12 weeks (Mean ± SD)	24 weeks (Mean ± SD)	p value*
Pain	15.03 ± 2.78	9.26 ± 2.35	10.07 ± 2.45	11.66 ± 2.54	<.001
Stiffness	5.61 ± 1.11	3.50 ± 1.01	3.91 ± 1.07	4.56 ± 1.05	<.001
Function	47.39 ± 7.85	32.67 ± 5.54	36.41 ± 5.96	41.60 ± 7.19	<.001
Total WOMAC	67.88 ± 8.69	45.33 ± 6.46	50.20 ± 6.74	57.79 ± 7.99	<.001

*Paired-sample t-test comparing each follow-up time point with baseline.

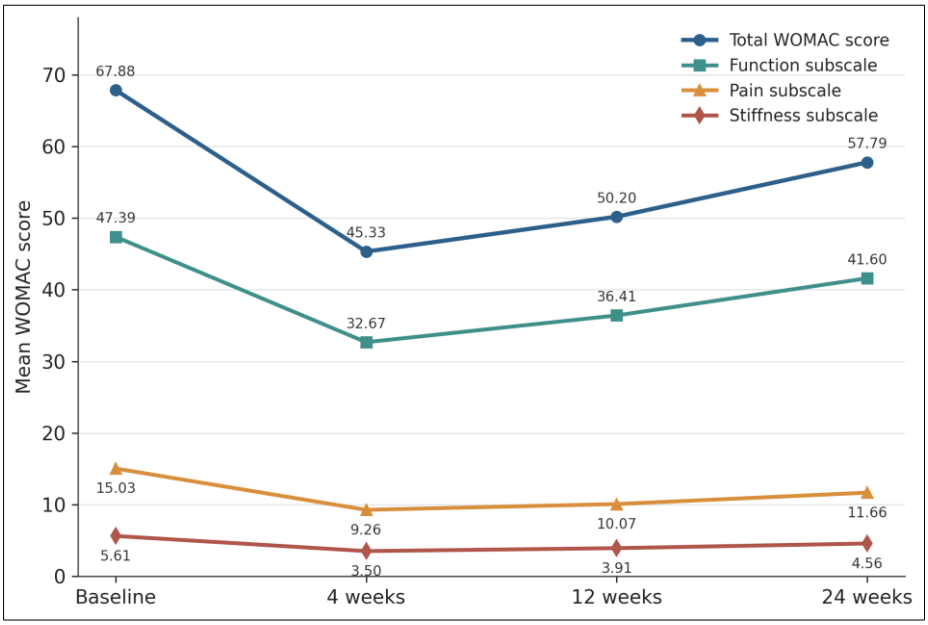

Fig 4: Trend of mean WOMAC pain, stiffness, function, and total scores at baseline and at 4, 12, and 24 weeks of follow-up (n = 80)

4. Discussion

Knee osteoarthritis remains one of the leading causes of pain, functional disability, and reduced quality of life in the elderly, and its burden is rising in developing countries with increasing life expectancy, obesity, and sedentary lifestyles. Despite the availability of multiple conservative modalities, intra-articular corticosteroid injection continues to be widely used for short- to intermediate-term symptom control because of its potent anti-inflammatory effect, rapid onset of action, and cost-effectiveness.

The predominance of patients aged ≤ 65 years in this cohort (mean age 64.84 years) is consistent with epidemiological data showing that knee OA prevalence rises sharply after the age of 50 [2]. Indian patients have been reported to present with symptomatic knee OA at a comparatively younger age than Western populations, plausibly related to lifestyle factors such as frequent squatting, cross-legged sitting, and floor-level activity [2]. The female predominance observed in this study (65.0%) mirrors the well-documented epidemiological pattern of knee OA, and bilateral involvement in half of the cohort is consistent with reports that 40–70% of patients with symptomatic OA have bilateral disease, reflecting the systemic and biomechanical nature of the condition [17,18]. The predominance of Kellgren–Lawrence Grade III disease reflects the study's inclusion criteria (Grade ≥ II), while the inclusion of a spectrum of severities, including 20% Grade IV disease, improves the generalisability of the findings, since radiological severity does not always correlate directly with clinical symptoms [16].

The most pronounced finding of this study was the significant reduction in WOMAC pain, stiffness, and functional scores at 4 weeks following injection, consistent with the known pharmacology of intra-articular corticosteroids, which inhibit phospholipase A2 activity, reduce prostaglandin synthesis, and suppress pro-inflammatory cytokines such as IL-1 and TNF-α. Comparable early pain relief has been reported by Pyne *et al*., who demonstrated significant pain reduction within weeks of methylprednisolone acetate injection [21], and by Dieppe *et al*., who documented early symptomatic improvement with intra-articular steroids compared with placebo [18]. Although pain, stiffness, and functional scores showed a gradual increase between 4 and 24 weeks, all domains remained significantly better than baseline throughout the follow-up period — a pattern consistent with the sustained benefit reported by Buyuk *et al*. up to 24 weeks [19] and the meta-analysis by Tian *et al*., which similarly reported significant reductions in WOMAC pain and total scores at 4, 12, and 24 weeks after methylprednisolone injection [20].

The improvement in stiffness observed in this study can be attributed to reduced synovial inflammation and joint effusion following corticosteroid injection, in agreement with Raynauld *et al*., who linked suppression of synovitis with improved joint mechanics and reduced stiffness after intra-articular steroid therapy [22]. The partial attenuation of stiffness relief by 24 weeks, while remaining below baseline, mirrors the pattern described by Frizziero and Pasquali Ronchetti, who reported improvement in stiffness up to 3 months with partial loss of effect thereafter [23]. Functional improvement followed a similar trajectory, with the greatest gain at 4 weeks and sustained, though attenuated, benefit at 24 weeks — consistent with the hospital-based study of Kikkuri *et al*., which documented functional benefit following intra-articular corticosteroid injection in knee OA [24].

Compared with other intra-articular therapies such as hyaluronic acid and platelet-rich plasma, corticosteroids remain an attractive first-line option because of their rapid onset of action, low cost, and wide accessibility, although some evidence suggests other modalities may offer more durable benefit beyond the short term [25]. Trueba Davalillo *et al*. similarly reported that corticosteroids provided superior early pain relief compared with hyaluronic acid, although hyaluronic acid showed better outcomes at longer follow-up intervals [26]. These observations support the clinical use of intra-articular methylprednisolone acetate primarily for short- to medium-term symptom control, particularly in elderly patients with bilateral or radiologically advanced disease who are either being managed conservatively or are not immediate candidates for surgery.

This study has certain limitations. As an observational study without a control or placebo arm, causal inference regarding

the treatment effect is limited, and patient-reported outcome measures may be influenced by subjective factors. The effect of repeated injections and outcomes beyond 24 weeks were not evaluated. Future randomised controlled studies incorporating imaging and biochemical markers of inflammation, and comparing methylprednisolone with other intra-articular agents over a longer duration, would help to further define its optimal role in the management of knee osteoarthritis.

5. Conclusion

In this observational study of 80 patients with knee osteoarthritis, intra-articular injection of 80 mg methylprednisolone acetate produced statistically significant improvement in WOMAC pain, stiffness, functional, and total scores compared with baseline at 4, 12, and 24 weeks. The greatest therapeutic benefit was observed at 4 weeks, and although the magnitude of improvement declined gradually thereafter, all outcome measures remained significantly better than baseline throughout the 24-week follow-up period. No significant adverse effects were observed, confirming that intra-articular methylprednisolone acetate is a safe, effective, well-tolerated, and economical treatment option for the short- to medium-term management of pain and functional impairment in knee osteoarthritis, particularly for patients with moderate to severe symptoms who require symptomatic relief or who are not immediate candidates for surgery. Further long-term, controlled research is recommended to define optimal treatment protocols and the durability of benefit.

Conflict of Interest

The authors declare that there is no conflict of interest.

Source of Funding

Nil.

References

1. Saif ur Rehman SSU, Iqbal S, Shahid MU, Jahangir MS, Malik AL. Cartilage: structure, function, and the pathogenesis of osteoarthritis. In: Advancements in synovial joint science—structure, function, and beyond. IntechOpen; 2024.
2. Pal CP, Singh P, Chaturvedi S, Pruthi KK, Vij A. Epidemiology of knee osteoarthritis in India and related factors. Indian J Orthop. 2016;50(5):518-22.
3. Geng R, Li J, Yu C, Zhang C, Chen F, Chen J, *et al*. Knee osteoarthritis: current status and research progress in treatment. Exp Ther Med. 2023;26(4):1-11.
4. Li B, Yang Z, Li Y, Zhang J, Li C, Lv N. Exploration beyond osteoarthritis: the association and mechanism of its related comorbidities. Front Endocrinol (Lausanne). 2024;15:1352671.
5. Coaccioli S, Sarzi-Puttini P, Zis P, Rinonapoli G, Varrassi G. Osteoarthritis: new insight on its pathophysiology. J Clin Med. 2022;11(20):6013.
6. Batarfi WA, Yunus MHM, Hamid AA, Maarof M, Abdul Rani R. Breaking down osteoarthritis: exploring inflammatory and mechanical signaling pathways. Life (Basel). 2025;15(8):1238.
7. Vincent TL, Miller RE. Molecular pathogenesis of OA pain: past, present, and future. Osteoarthritis Cartilage. 2024;32(4):398-405.
8. Clunie G, Wilkinson N, Nikiphorou E, Jadon D. Oxford handbook of rheumatology. Oxford: Oxford University Press; 2018.
9. Eyles JP, Sharma S, Telles RW, Namane M, Hunter DJ, Bowden JL. Implementation of best-evidence osteoarthritis care: perspectives on challenges for, and opportunities from, low- and middle-income countries. Front Rehabil Sci. 2022;2:826765.
10. Zhu S, Qu W, He C. Evaluation and management of knee osteoarthritis. J Evid Based Med. 2024;17(3):675-87.
11. Testa G, Giardina SMC, Culmone A, Vescio A, Turchetta M, Cannavò S, *et al*. Intra-articular injections in knee osteoarthritis: a review of literature. J Funct Morphol Kinesiol. 2021;6(1):15.
12. Jones IA, Togashi R, Wilson ML, Heckmann N, Vangsness CT Jr. Intra-articular treatment options for knee osteoarthritis. Nat Rev Rheumatol. 2019;15(2):77-90.
13. Joshi A, Gharib M. Steroids and corticosteroids. PM&R KnowledgeNow. 2024.
14. Stone S, Malanga GA, Capella T. Corticosteroids: review of the history, effectiveness, and adverse effects in treatment of joint pain. Pain Physician. 2021;24(S1):S233.
15. Salehi R, Valizadeh L, Negahban H, Karimi M, Goharpey S, Shahali S. WOMAC, Lequesne index, AIMS-SF, and VAS in knee osteoarthritis: responsiveness and minimal clinically important differences. Disabil Rehabil. 2023;45(13):2185-91.
16. Altman R, Asch E, Bloch D, Bole G, Borenstein D, Brandt K, *et al*. Criteria for classification of osteoarthritis of the knee. Arthritis Rheum. 1986;29(8):1039-49.
17. Ringdahl E, Pandit S. Treatment of knee osteoarthritis. Am Fam Physician. 2011;83(11):1287-92.
18. Dieppe P, Sathapatayavongs B, Jones H, Bacon P, Ring E. Intra-articular steroids in osteoarthritis. Rheumatology (Oxford). 1980;19(4):212-7.
19. Buyuk AF, Kilinc E, Camurcu IY, Camur S, Ucpunar H, Kara A. Comparative efficacy of intra-articular methylprednisolone and triamcinolone. Acta Ortop Bras. 2017;25(5):206-8.
20. Tian K, Cheng H, Zhang J, Chen K. Intra-articular methylprednisolone for pain in knee osteoarthritis: systematic review and meta-analysis. Medicine (Baltimore). 2018;97(15):e0240.
21. Pyne D, Ioannou Y, Mootoo R, Bhanji A. Intra-articular steroids in knee osteoarthritis: comparison of triamcinolone hexacetonide and methylprednisolone acetate. Clin Rheumatol. 2004;23(2):116-20.
22. Raynauld JP, Buckland-Wright C, Ward R, Choquette D, Haraoui B, Martel-Pelletier J, *et al*. Long-term intraarticular steroid injections in knee osteoarthritis: randomized double-blind trial. Arthritis Rheum. 2003;48(2):370-7.
23. Frizziero L, Pasquali Ronchetti I. Intra-articular treatment of knee osteoarthritis: comparison between sodium hyaluronate and methylprednisolone acetate. J Orthop Traumatol. 2002;3(2):89-96.
24. Kikkuri RR, Kashyap V, Upadhay A, Kumar V, Reddy KS, Singhal R. Effect of intra-articular corticosteroid injection in knee osteoarthritis: hospital-based cross-sectional study. J Pharm Bioallied Sci. 2021;13(Suppl 2):S1162-7.
25. Bensa A, Albanese J, Boffa A, Previtali D, Filardo G. Intra-articular corticosteroid injections provide clinically

relevant benefit only at short-term follow-up in knee osteoarthritis. Knee Surg Sports Traumatol Arthrosc. 2024;32(2):311-22.
26. Trueba Davalillo CA, Trueba Vasavilbaso C, Navarrete Alvarez JM, Coronel Granado P, Garcia Jimenez OA, Gimeno del Sol M, *et al*. Clinical efficacy of intra-articular injections in knee osteoarthritis: randomized study comparing hyaluronic acid and betamethasone. Open Access Rheumatol. 2015;7:9-18.

How to Cite This Article
Yadav A, Bhatia R, Sahu RL. Clinical and functional outcome of intra-articular methylprednisolone acetate in knee osteoarthritis: an observational study. Int J Med All Body Health Res. 2026;7(3):268-274.
doi:10.54660/IJMBHR.2026.7.3.268-274.