A comparative study on the efficacy of Intra articular Methylprednisolone with oral Etoricoxib in the pain management of Psoriatic arthritis

Prabhu Thilaak[1,*], B. Arun Kumar[2], G. Kannan[3], Sudhir Paul[4]

[1]Associate Professor, [2]Assistant Professor, [3]Professor & HOD, Dept. of Dermatology, [4]PG Student, Dept. of Anaesthesia, Vinayaka Missions Kirupananda Variyar Medical College, Salem

***Corresponding Author:**
Email: prabhuthilaak@gmail.com

Abstract

Background: Psoriatic arthritis is the major complication of psoriasis and the most common medication used for pain management is NSAID's, followed by intra-articular steroids.

Aim: To compare the efficacy of intra articular Methylprednisolone with oral Etoricoxib in the pain management of Psoriatic arthritis.

Materials and Methods: A prospective comparative study was conducted in the pain clinic of department of Anaesthesiology for a period of one year. A total of 120 patients with psoriatic arthritis were included for the study. The patients were divided into 2 groups of 60 in each group. Group A patients received oral etoricoxib 120 mg OD for 6 weeks and the Group B patients received only one dose of intra-articular methyl prednisolone in the dosage of 20 mg (1 ml). All the patients were followed for a period of 6 weeks with 2 follow-up visits. The outcome measures adopted were visual analogue pain scale and psoriatic arthritis quality of life score.

Results: The baseline score of both visual analogue pain score and PsAQAL was found to be high and the score decreases during the 1st (1st week) and 2nd (6th week) follow-up (P<.05). The similar type of results was also observed for intra-articular methyl prednisolone. The follow-up visit showed that the methylprednisolone had a lower score than the patients who received etoricoxib both in the 1st week and 6th week of follow-up (p<.05).

Conclusion: The intra-articluar methylprednisolone was found to be more beneficial than etoricoxib in terms of reduced pain score and psoriatic arthritis quality of life score.

Keywords: Intra-articular methylprednisolone, Etoricoxib, Visual analogue pain scale, Psoriatic arthritis quality of life score.

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Introduction

Psoriasis is a relapsing inflammatory skin disease that occurs in 1–3% of the world's population. Psoriatic arthritis (PsA) is one of the major complications associated with psoriasis. Studies have reported that the prevalence of psoriatic arthritis among the patients with psoriasis was 4–42%.[1] In a more recent study the prevalence of PsA was reported to be approximately 30% among patients with psoriasis with an overall prevalence of 0.3–1.0% among the general population[2,3]. The prevalence of PsA in the general population is variable depending on the geographic region and corresponds to the prevalence of psoriasis in that region[4]. Unlike psoriasis, in PsA there were no family studies (particularly on siblings) done in assessing their inheritance. However, it is generally accepted that PsA is characterized by non-Mendelian transmission, similarly to that of psoriasis[5].

The manifestation of psoriatic arthritis refers to four main areas: psoriatic skin lesions, the synovial membrane lesions, lesions of tendon and ligaments and inflammatory lesions within the bone and cartilage[6].

The clinical manifestation of PsA is quite distinctive and different from rheumatoid arthritis. In most of the cases it is less severe than rheumatoid arthritis[7]. Nonsteroidal anti-inflammatory drugs (NSAIDs) help with symptomatic relief, but they do not alter the disease course or prevent disease progression. Intra-articular steroid injections can be used for symptomatic relief[8]. Currently, the most effective class of therapeutic agents in the treatment of PsA is the TNF-α inhibitors; however few of the RCT's had found that these drugs had also shown a 30 to 40% primary failure rate[9-11].

The clinical effects of giving intra-articular steroids result from several different mechanisms of action. It readily reduces the synovial blood flow, it lowers the local leukocyte and inflammatory modulator response, and it also alters the local collagen synthesis[12]. These effects combine to reduce the pain and inflammation around the joints. The esters of Hydrocortisone were found to be more effective in producing these effects than their parent compounds. Branched esterification reduces the solubility and allows the steroids to remain at the injection site for a longer duration[13].

In today's practice, methylprednisolone acetate (Depo-Medrol) is the most commonly used intra-articular steroid, followed by triamcinolone hexacetonide and triamcinolone acetonide[14]. Many physicians empirically use triamcinolone hexacetonide (low solubility, longer duration of action) for intra-articular injection, and betamethasone (high solubility, shorter duration of action, fewer cutaneous side effects) for soft tissue injections. As of today very few studies had been conducted in assessing the efficacy of steroids over NSAID's in the pain management for psoriatic arthritis, so this study was undertaken in assessing the efficacy between steroids and NSAID's in the pain management of PsA.

The aim of the study is to compare the efficacy of intra articular Methylprednisolone with oral Etoricoxib in the pain management of Psoriatic arthritis.

Methodology

A prospective comparative study was conducted in the pain clinic of department of Anaesthesiology for a period of one year between Jan 2015 – Dec 2015. A total of 120 patients with psoriatic arthritis involving the distal interphalangeal joints were included for the study. Patients with infected joints, uncontrolled diabetes, cardiovascular diseases, pregnant ladies and patients with oral anticoagulants were excluded from the study. The study was started after obtaining the clearance from the institutional ethical committee and the informed consent was obtained from all the patients who were involved in the study.

The patients were divided into 2 groups of 60 in each group. Group A patients received oral etoricoxib 120 mg OD for 6 weeks and the Group B patients received only one dose of intra-articular methyl prednisolone in the dosage of 20 mg (1 ml). All the patients were followed for a period of 6 weeks with 2 follow-up visits. The first follow up was at the end of 2nd week after the initiation of treatment and the 2nd follow-up was done at the end of 6th week.

The following scores are used for interpretation of the study:

1. Visual Analog scale (VAS).
2. Psoriatic arthritis quality of life(PSAQOL).

Pain is noted on scale of 1-10, with 1 being no pain and 10 being the worst possible pain.

Psoriatic arthritis quality of life assessment was done by using a 20 item scale adopted from Academic Unit of Musculoskeletal and Rehabilitation Medicine, The University of Leeds. The following are the 20 items which was used for assessing the quality of life among the psoariatic arthritis patients.

1. I feel tired whatever I do
2. I find it difficult to have a good wash
3. It's too much effort to go out and see people
4. I feel there's no enjoyment in my life
5. I feel I am losing my independence
6. I often get angry with myself
7. I can't do the things I want to do
8. I feel older than my years
9. I'm unable to join in activities with my friends or family
10. It limits the places I can go
11. I have to push myself to do things
12. I am easily irritated by other people
13. I have to keep stopping what I'm doing to rest
14. I feel dependent on others
15. It takes me a long time to get going in the morning
16. I take it out on people close to me
17. I can't do things on the spur of the moment
18. I feel like a prisoner in my own home
19. I have to limit what I do each day
20. It puts a strain on my personal relationships

All the questions are answered as true or false. Each true response is 1 point on a 20-point scale, for a possible total score of 0–20.Higher scores indicate worse health-related QOL. The PsAQoL is a valuable tool for assessing the impact of interventions for psoriatic arthritis in clinical studies and trials. It is well accepted by patients, taking about three minutes to complete, is easy to administer, and has excellent scaling and psychometric properties. The bias in the study was excluded by doing age and sex wise matching among the two groups and the baseline value of both the visual analogue pain scale and quality of life score were almost similar.

All the data were entered and analysed by using the statistical software, SPSS version 16. The mean, SD and 95% CI was calculated for all the parametric variables and the student T test was used to derive the statistical inference with respect to the pain score and the quality of life score between the etoricoxib and methyl prednisolone group ($P<.05$ is considered as statistically significant)

Results

Table 1 shows the age and sex wise distribution of the study population. The male and female subjects in group A was almost in equal numbers, whereas in group B the male subjects were comparatively higher than the female subjects. The mean age in both the groups was almost similar which ranges between 50 – 52 years. The minimum age in both the group was 40 and the maximum age was 62 years.

The visual analogue pain scale and the psoriatic arthritis quality of life score among the patients who had received etoricoxib were depicted in Table 2. The VAS was measured in the range of 1 – 10 and the PsQAL was measured with the score of 0 – 20. In both the measurements higher the values more severe the pain. It is seen that the baseline score of both the VAS and PsAQAL was found to be high and the score readily decreases during the 1st (1st week) and 2nd (6th week) follow-up and this decrease in the score was

found to be statistically significant (P<.05). The similar type of results was also observed for patients who had received the intra-articular methyl prednisolone (Table 3).

The visual analogue pain score was compared between the two groups. The baseline value for both the groups was almost similar. Whereas the follow-up visit scores had shown that the patients who had received the methylprednisolone had a lower score than the patients who received etoricoxib both in the 1st week and 6th week of follow-up and the difference was found to be statistically significant (p<.05) (Table 4).

Similarly the psoriatic arthritis quality of life when compared between the two groups had shown that the baseline value being almost similar in both the groups and the follow-up scores was found to be much lesser in the methylprednisolone group when compared to the etoricoxib group during the 1st and 6th week of follow-up and the difference in the score was found to be statistically significant (p<.05) (Table 5).

Table 1: Age and sex wise distribution of the study population

Age group	Group A (etoricoxib)		Group B (methylprednisolone)	
	Male	Female	Male	Female
40–45	8(26.6%)	6(20%)	9(23.6%)	5(22.7%)
46–50	7(23.3%)	9(30%)	8(21%)	4(18.1%)
51–55	10(33.3%)	11(36.6%)	12(31.5%)	7(31.8%)
56–60	3(10%)	2(6.6%)	5(13.1%)	4(18.1%)
>60	2(6.6%)	2(6.6%)	4(10.5%)	2(9%)
Total	30(100%)	30(100%)	38(100%)	22(100%)
Mean (SD)	51.35(4.23)	50.15(3.25)	51.84(3.65)	50.25(4.25)

Table 2: Visual analogue pain score and psoriatic arthritis quality of life score among the group A subjects (Etoricoxib)

	VAS			P value (by using ANOVA)	PsA QAL score			P value (by using ANOVA)
	Baseline	1st week	6th week		Baseline	1st week	6th week	
Mean	6.03	4.11	4.01	.031	13.33	9.23	8.76	0.007
SD	1.93	1.23	1.21		2.56	1.58	1.33	
95% CI	5.55–6.45	3.89–4.42	3.75–4.26		12.86–13.69	8.83–9.60	8.43–9.12	

Table 3: Visual analogue pain score and psoriatic arthritis quality of life score among the group B subjects (Methyl Prednisolone)

	VAS			P value (by using ANOVA)	PsA QAL score			P value (by using ANOVA)
	Baseline	1st week	6th week		Baseline	1st week	6th week	
Mean	6.23	3.61	3.13	.015	13.16	8.12	7.45	0.006
SD	2.01	1.21	1.37		2.39	1.86	1.68	
95% CI	5.78 – 7.78	3.31 – 3.90	2.85 – 3.44		12.5 – 13.72	7.86 – 8.48	7.15 – 7.76	

Table 4: Comparison of the visual analogue pain scale between the two groups

Weeks of follow up	Group A (Etoricoxib) (mean score)	Group B (Methyl prednisolone) (mean score)	P value (by applying student T test)
Baseline	6.03	6.23	0.834
1st week	4.11	3.61	0.032
6th week	4.01	3.13	<.001

Table 5: Comparison of the Psoriatic arthritis quality of life scale between the two groups

Weeks of follow up	Group A (Etoricoxib) (mean score)	Group B (Methyl prednisolone) (mean score)	P value (by applying student T test)
Baseline	13.33	13.16	0.834
1st week	9.23	8.12	0.018
6th week	8.76	7.45	<.001

Discussion

Psoriatic arthritis (PsA) is an inflammatory arthropathy, which is a most common associated manifestation of psoriasis. It is characterized by stiffness, pain, swelling, and tenderness of the joints as well as the surrounding ligaments and tendons[15]. Cutaneous disease usually precedes the onset of PsA by an average of 10 years in most of the patients but certain studies had shown that about 15–20% of patients with PsA had developed symptoms of arthritis prior to the development of skin disease[7]. Psoriatic arthritis is classified as a seronegative spondyloarthritis because of its potential axial involvement, the contribution of enthesitis to its pathogenesis, and increased association with HLA-B27[8]. The presentation of psoriatic arthritis is variable and can range from a mild, nondestructive arthritis to a severe, debilitating, erosive arthropathy.

Psoriatic arthritis usually affects men and women equally and typically presents at the age of 30 to 50 years[16]. In the present study also the demographic data of the patients shows that there was not much difference between the gender and the mean age of the patients in both the groups varied between 50 – 52 years.

In any of the arthritis, pain is the most common and the most worrisome symptom experienced by the patients which would definitely have an impact in their quality of life. So in this study we had taken two outcome measures one is the pain assessment and the second one is the assessment of the quality of life. For assessing the pain we utilised the visual analogue scale which is a unidimensional measure of pain intensity[17]. The pain VAS is a continuous scale comprised of a horizontal (HVAS) or vertical (VVAS) line, usually 10 centimeters (100 mm) in length, anchored by 2 verbal descriptors. The pain VAS is a single-item scale. For pain intensity, the scale is most commonly anchored by "no pain" (score of 0) and "pain as bad as it could be" or "worst imaginable pain" (score of 10 [10-cm scale]). The pain VAS requires little training to administer and score and has been found to be acceptable to patients and so we adapted this scoring system for assessing the pain in the patients with psoriatic arthritis[18].

Because of the severe pain in this condition the patients would experience different impairments, activity limitations, and finally resulting in participation restriction[19]. So this had led on for the assessment of quality of life in these patients. In rheumatology, Rasch analysis is increasingly seen as the standard approach ensuring quality of life measurement[20]. The Rasch model confirmed a unidimensional scale with good item stability over time The test-retest reliability and internal consistency of the PsAQoL are excellent, indicating that the instrument is suitable for use in individual patient[21]. In our study we adopted this Rasch model for assessment of the quality of life in psoriatic arthritis patients.

Etoricoxib exhibits a greater selectivity for COX-2 over COX-1. It produces markedly less interference with the cardioprotective COX-1-mediated antiplatelet activity of low-dose aspirin in vitro than any other NSAIDs[22]. Etoricoxib showed potent, dose-dependent efficacy similar to other NSAIDs in cases of acute inflammation, hyperalgesia, pyresis, and chronic adjuvant-induced arthritis.In healthy volunteers, oral etoricoxib is rapidly and completely absorbed. Clinical studies have shown that etoricoxib is more effective and has a similar efficacy to other traditional NSAIDs, in the treatment of arthritis[23]. A dose-ranging study in 617 patients with various types of arthritis etoricoxib with a dosage of 120 mg every day was found to be more effective than placebo after 6 weeks as measured by the Western Ontario and McMaster's University OA Index (WOMAC) pain subscale and patient and investigator global assessments ($p < 0.05$)[24]. Our study results almost substantiate the above findings by proving with the outcome measures of both VAS and PsA QOL of the patients on etoricoxib 120 mg for 6 weeks had shown marked improvement in both VAS and quality of life score in comparison with the baseline value and the difference was found to be statistically significant.

Many of the meta-analysis had proven that intra-articular corticosteroids in the management of arthritis had shown a beneficial role. The main effect is the pain relief, which would indirectly improve their quality of life[25,26]. In our study also it was proven that intra-articular methyl prednisolone had significantly reduced the pain and improved their quality of life when compared with the baseline values. So our study had proven that both the oral etoricoxib and the intra-articular methyl prednisolone had reduced the pain and improved the quality of life among the psoriatic arthritis patients.

As such very few studies were done in comparing the efficacy between NSAID's and intra-articular steroids in the treatment of arthritis and so far no such study was attempted in treating psoriatic arthritis. So our study is first of its kind in comparing the efficacy between an NSAID (etoricoxib) and an intra-articular steroid (methyl prednisolone). The present study had proven that intra-articular methyl prednisolone is more effective in the pain management of psoriatic arthritis, which was measured in terms of visual analogue scale and psoriatic arthritis quality of life assessment and it is in par with few of the other studies[27,28] showing the superiority of intra-articular steroids but one limitation is all those studies were done on patients with osteoarthritis.

Conclusion

Our study had proven that both the etoricoxib and intra-articular methyl prednisolone are effective in the

treatment of psoriatic arthritis but the intra-articluar methylprednisolone was found to be more beneficial than etoricoxib in terms of reduced pain score and psoriatic arthritis quality of life score. More number of multicentric and randomized controlled trials has to be conducted with large number of study subjects to further substantiate our findings.

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