

ORIGINAL RESEARCH

Comparative Analysis of Efficacy of Oxaceprol Versus Tramadol for Knee Osteoarthritis: An Institutional Based Study

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ABSTRACT

Background: The most common form of arthritis with approximately 250 million people worldwide conservatively estimated to be suffering from osteoarthritis of the knee alone. The present study was conducted to compare Oxaceprol and tramadol for knee osteoarthritis.

Material and methods: This prospective, comparative study was carried among patients diagnosed as Osteoarthritis. A total of 200 patients randomized in two study groups of 100 patients each. Each group was given either oxaceprol 200 mg capsule or tramadol 50 mg capsule, thrice daily after food, for 12 weeks. The primary efficacy variable for this study was symptom relief and was assessed by Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC). The data have subjected to Paired and Independent t-test as applicable. P values less than 0.05 were considered as significant.

Results: In the present study a total of 200 patients randomized in two study groups of 100 patients each were included in the study. Each group was given either oxaceprol 200 mg capsule or tramadol 50 mg capsule. In tramadol group 45% were males and 55% were females and mean age of participants was 51.37yrs whereas in Oxaceprol group 48% were males and 52% were females and mean age of participants was 50.42 yrs. No statistically significant difference was observed between groups for WOMAC scores. Significant reduction in pain, stiffness and physical function was observed between oxaceprol and tramadol group at baseline and after 6 months follow-up.

Conclusion: The present study concluded that Oxaceprol efficacy and tolerability was comparable with tramadol and the drug can be considered as an alternative to low-potency opioids in the management of knee osteoarthritis.

Keywords: Oxaceprol, Tramadol, Osteoarthritis.

INTRODUCTION

Osteoarthritis (OA) is a common degenerative joint disorder, characterized by loss of articular cartilage, typically presents with pain and stiffness in the joints. Pain is experienced particularly after prolonged activity and weight bearing; whereas stiffness is experienced after inactivity. It commonly affects the joints of spine and large weight-bearing joints, such

as hips and knees. It is the most common joint disease and is the most common cause of locomotor disability in the elderly.¹ In Asia, it is estimated to be the fourth leading cause of disability.² The prevalence of osteoarthritis in Indian population is about 4% in urban and 6% in rural areas.^{3,4} Oxaceprol (INN) is an amino acid derivative, which has been used for decades for the symptomatic treatment of degenerative and inflammatory joint disease in Europe.^{5,6} Oxaceprol has anti-inflammatory and analgesic efficacy comparable to the conventional non-steroidal antiinflammatory drugs (NSAIDs) but has a different mode of action. Instead of inhibiting the synthesis of prostaglandins oxaceprol prevents leukocyte infiltration into the joints, thus inhibiting an early step of inflammatory cascade and presenting a novel class of anti-inflammatory agents.⁷ Tramadol augments serotonergic and noradrenergic neurotransmission, although its main active metabolite, O-desmethyltramadol.⁸ Guidelines suggest tramadol as the first-line drug for mild to moderate pain.⁹ Also it has been observed that tramadol is modestly effective for osteoarthritis-related pain in placebo-controlled trials.¹⁰ The present study was conducted to compare Oxaceprol and tramadol for knee osteoarthritis.

MATERIALS AND METHODS

This prospective, comparative study was carried among patients diagnosed as Osteoarthritis. Before the commencement of the study ethical approval was taken from the ethical committee of the institute and informed consent was taken from the patient. A total of 200 patients were included in the study with knee joint pain intensity of at least 35 mm on a 100 mm visual analog scale (VAS) present for at least preceding 3 months and with confirmed degenerative changes in knee skiagram. Patients with morning stiffness of over 30 min, secondary osteoarthritis, knee injury or diagnostic arthroscopy of signal knee within 6 months advanced osteoarthritis, deformed joint, and any serious concomitant disease were excluded from the study. Participants were randomized in two study groups of 100 patients each. Each group was given either oxaceprol 200 mg capsule or tramadol 50 mg capsule, thrice daily after food, for 12 weeks. The primary efficacy variable for this study was symptom relief and was assessed by Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) for pain, stiffness, and physical function measured on a 100 mm visual analog scale (VAS). Patient's Clinical Global Impression (CGI) was reported on a 5-point Likert scale as much worsened, worsened, no change, improved and much improved. Rescue medication used during the study period was also recorded. Complete blood count, blood glucose, liver function tests, and serum creatinine was recorded at the start of the study and. Vital signs were recorded at each visit and adverse events were reported. The data have subjected to Paired and Independent t-test as applicable. P values less than 0.05 were considered as significant.

RESULTS

In the present study a total of 200 patients randomized in two study groups of 100 patients each were included in the study. Each group was given either oxaceprol 200 mg capsule or tramadol 50 mg capsule. In tramadol group 45% were males and 55% were females and mean age of participants was 51.37yrs whereas in Oxaceprol group 48% were males and 52% were females and mean age of participants was 50.42 yrs. No statistically significant difference was observed between groups for WOMAC scores. Significant reduction in pain, stiffness and physical function was observed between oxaceprol and tramadol group at baseline and after 6 months follow-up.

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Table 1: Baseline characteristics

Parameters	Tramadol group (n=100)	Oxaceprol group (n=100)
Male n (%)	45 (45%)	48 (48%)
Female n (%)	55 (55%)	52(52%)
Age years (mean ± SD)	51.37±10.4	50.42±9.75

Table 2: Western Ontario and McMaster Universities Osteoarthritis Index score

		Baseline	After 6 months follow-up	p-value
		(mean ± SD)		
WOMAC Pain	Oxaceprol	317.06±54.87	202.5±56.76	<0.05
	Tramadol	323.18±65.54	200.21±95.51	
WOMAC stiffness	Oxaceprol	32.21±10.32	20.53±7.76	
	Tramadol	33.51±9.24	22.78±5.65	
WOMAC physical function	Oxaceprol	1047.51±202.8	767.4±276.21	
	Tramadol	1103.63±243.43	819.53±287.9	

DISCUSSION

OA is the most common joint disease associated with pain stiffness and disability. About 25% of the adult population, or more than 50 million people in the US, will be affected by this disease by the year 2020 and that OA will be a major cause of morbidity and physical limitation among individuals over the age of 40 years.¹¹

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Bauer et al. compared oxaceprol (200 mg thrice daily) with diclofenac (25 mg thrice daily) over 3 weeks in a multicenter, randomized, double-blind, study in Germany. Joint function, evaluated by Lequesne's indices, improved clinically in both treatment arms. In both groups VAS score for pain was reduced nearly 50%, joint mobility improved nearly 60% and pain-free walking period more than doubled. Differences between groups were not significant. The incidence of ADRs was similar in both groups but oxaceprol induced milder symptoms.¹²

The study published by Herrmann et al. also showed the equivalence of oxaceprol with diclofenac in a comparable study design but with higher dosage (diclofenac 3 x 50 mg/day orally and oxaceprol 3 x 400 mg / day orally). The Lequesne index improved by 2.5 points in the oxaceprol and by 2.8 points in the diclofenac group. The weight-bearing pain also improved clearly (oxaceprol -2.2 of 10 points, diclofenac -2.3 of 10 points).¹³

Swathi C et compare the effectiveness and tolerability of tramadol versus diclofenac in treating chronic pain due to knee OA. There was a 16.73% decrease in time taken to walk 100 feet in the diclofenac group and an 18.30% decrease in the tramadol group. There was a 42.85% decrease in pain score at rest in diclofenac and a 50.72% decrease in the tramadol group. A decrease in pain score during active movement was 32.4% in diclofenac and 44.8% decrease in the tramadol group.¹⁴

Mukhopadhyay K et al assess efficacy and safety of oxaceprol, in symptomatic knee osteoarthritis, in comparison to tramadol. From 91 patients recruited, 43 on oxaceprol and 36

on tramadol were evaluable. The WOMAC scores declined significantly from baseline in each arm but remained comparable between groups throughout the 12-week study period. The CGI ratings and 50% responder rates were also comparable at the final visit. Differences in dose up-titration and rescue medication requirements were statistically nonsignificant. So also were the adverse event counts. Compliance was satisfactory in both groups.¹⁵

CONCLUSION

The present study concluded that Oxaceprol efficacy and tolerability was comparable with tramadol and the drug can be considered as an alternative to low-potency opioids in the management of knee osteoarthritis.

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