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Original Research

A comparative evaluation of Etodolac and diclofenac sodium in patients of Osteoarthritis of knee joint

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ABSTRACT:

Introduction: Osteoarthritis (OA) is a chronic progressive disease of the weight-bearing joints characterized by degeneration of articular cartilage, subchondral sclerosis, osteophyte, and cyst formation. The present study compared Etodolac and diclofenac sodium in patients of OA of knee joint. **Materials & Methods:** The present study was conducted on 68 patients of osteoarthritits of both genders. Patients were divided into 2 groups of 34 each. Group I patients were given tablet etodolac 400 mg bid and in group II patients, tablet diclofenac sodium 50 mg tid was given. Patients were reassessed at 3, 6, and 12 weeks after starting treatment according to the Visual Analog Scale (VAS), Western Ontario and McMaster Universities Osteoarthritis index (WOMAC). **Results:** Group I patients revealed very good response in 2, good in 30 patients and fair in 2 patients, group II patients revealed very good response in 1, good in 28 patients and fair in 5 patients. The difference was significant (P< 0.05). The mean Western Ontario and McMaster Universities Osteoarthritis score in group I was 45.2, 34.2, 20.6 and 14.6 at 0 week, 3 weeks, 6 weeks and 12 weeks. In group II was 50.2, 40.1, 25.8 and 18.5 at 0 week, 3 weeks, 6 weeks and 12 weeks. The difference was significant (P< 0.05). The mean VAS score in group I was 70.2, 50.8, 30.2 and 14.6 at 0 week, 3 weeks, 6 weeks and 12 weeks. In group II was 70.4, 62.4, 35.1 and 20.4 at 0 week, 3 weeks, 6 weeks and 12 weeks. The difference was significant (P< 0.05). **Conclusion:** Authors found that etodolac found to be better as compared to diclofenac sodium in patients of knee osteoarthritis.

Key words: osteoarthritis, etodolac, Diclofenac sodium

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INTRODUCTION

Osteoarthritis (OA) is a chronic progressive disease of the weight-bearing joints characterized by degeneration of articular cartilage, subchondral sclerosis, osteophyte, and cyst formation. These pathological changes result clinically in joint pain, stiffness, crepitus, swelling, limited movement leading to significant disability, loss of productivity, and impaired quality of life.[1]

The knee is the largest synovial joint in humans, it is composed by osseous structures (distal femur, proximal tibia, and patella), cartilage (meniscus and hyaline cartilage), ligaments and a synovial membrane.[2] The latter is in charge of the production of the synovial fluid, which provides lubrication and nutrients to the avascular cartilage. Unfortunately, given the high use and stress of this joint, it is a frequent site for painful conditions including OA.[3] OA is classified into two groups according to its etiology: primary (idiopathic or non-traumatic) and secondary (usually due to trauma or mechanical misalignment). The severity of the disease can also be graded according to the radiographical findings by the Kellgren–Lawrence (KL) system described in 1957.[4] It was believed that OA was exclusively a degenerative disease of the cartilage, however, latest evidence has proven that OA is a multifactorial entity, involving multiple causative

factors like trauma, mechanical forces, inflammation, biochemical reactions, and metabolic derangements. Etodolac is a potent NSAID with balanced cycloxygenase-1/-2 inhibition which offers faster and better pain relief as compared to diclofenac with improved GI tolerability.[5]

The present study compared Etodolac and diclofenac sodium in patients of OA of knee joint.

MATERIALS & METHODS

The present study was conducted in the department of Pharmacology. It comprised of 68 patients of osteoarthritits of both genders. All were informed regarding the study and written consent was obtained. Ethical clearance was taken before starting the study.

General information such as name, age, etc. was recorded. Patients were divided into 2 groups of 34 each. Group I patients were given tablet etodolac 400 mg bid and in group II patients, tablet diclofenac sodium 50 mg tid was given. Patients were reassessed at 3, 6, and 12 weeks after starting treatment according to the Visual Analog Scale (VAS), Western Ontario and McMaster Universities Osteoarthritis index (WOMAC). Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Parameters	Group I	Group II
Drug	Etodolac 400 mg	Diclofenac sodium 50 mg
Male	18	19
Female	16	15

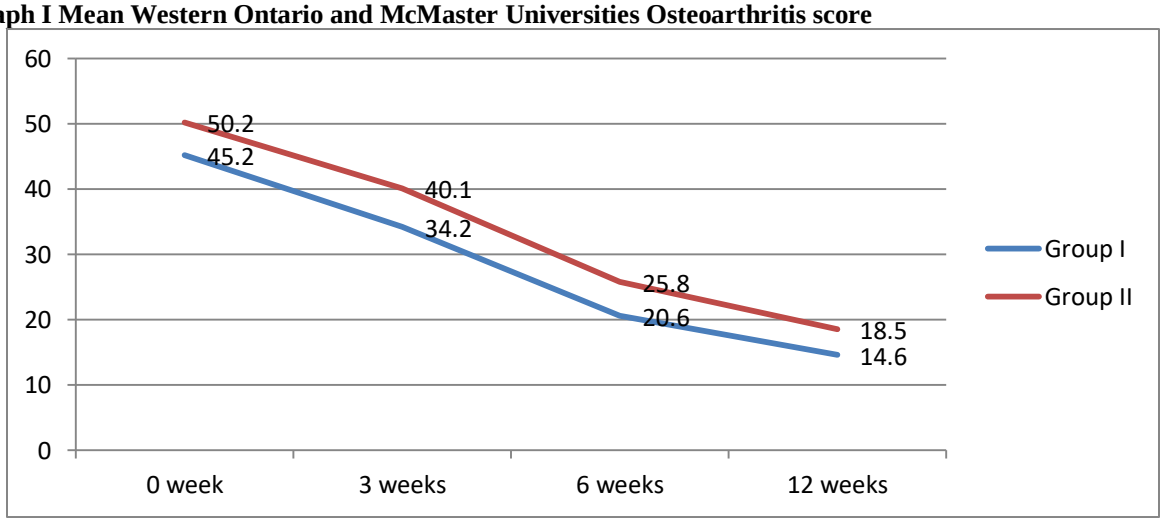
Table I shows that group I patients were given tablet etodolac 400 mg bid and in group II patients, tablet diclofenac sodium 50 mg tid was given. There were 18 males and 16 females in group I patients, and 19 males and 15 females in group II.

Table II Patient's global assessment

Response	Group I	Group II	P value
Very good	2	1	0.05
Good	30	28	
Fair	2	5	
Poor	0	0	
Very poor	0	0	

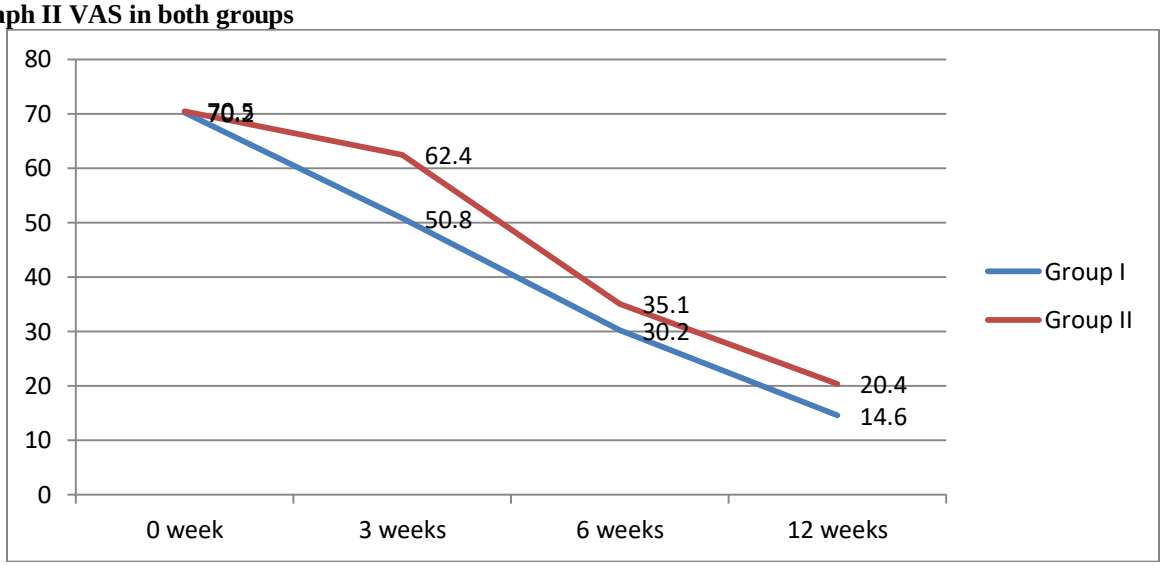
Table II shows that group I patients revealed very good response in 2, good in 30 patients and fair in 2 patients, group II patients revealed very good response in 1, good in 28 patients and fair in 5 patients. The difference was significant (P< 0.05).

Graph I Mean Western Ontario and McMaster Universities Osteoarthritis score



Graph I shows that mean Western Ontario and McMaster Universities Osteoarthritis score in group I was 45.2 , 34.2, 20.6 and 14.6 at 0 week, 3 weeks, 6 weeks and 12 weeks. In group II was 50.2, 40.1, 25.8 and 18.5 at 0 week, 3 weeks, 6 weeks and 12 weeks. The difference was significant (P< 0.05).

Graph II VAS in both groups



Graph II shows that mean VAS score in group I was 70.2, 50.8, 30.2 and 14.6 at 0 week, 3 weeks, 6 weeks and 12 weeks. In group II was 70.4, 62.4, 35.1 and 20.4 at 0 week, 3 weeks, 6 weeks and 12 weeks. The difference was significant (P< 0.05).

DISCUSSION

The role of inflammation is not well-understood and there is an ongoing debate to determine if the inflammatory reaction triggers the OA changes, or instead, the inflammation is secondary to the OA changes. Different from inflammatory arthritis, inflammation in OA is chronic and low-grade inflammation, involving mainly innate immune mechanisms. Synovitis (infiltration of inflammatory cells into the synovium) is a common finding of OA and it can be present in early stages of the disease but is more prevalent towards the more advanced stages and can be related with severity.[6] In OA, the synovial fluid has been found to contain multiple inflammatory mediators including plasma proteins (C-reactive protein, proposed as a marker for development and progression of OA), prostaglandins (PGE2), leukotrienes (LKB4), cytokines (TNF, IL1β, IL6, IL15, IL17, IL18, IL21), growth factors (TGFβ, FGFs, VEGF, NGF), nitric oxide, and complement components. Locally, all of these components can induce matrix metalloproteinases and other hydrolytic enzymes (including cyclooxygenase two and prostaglandin E) resulting in cartilage breakdown secondary to proteoglycan and collagen destruction.[7] The present study compared management of OA of knee joint.

In present study, group I patients were given tablet etodolac 400 mg bid and in group II patients, tablet diclofenac sodium 50 mg tid was given. There were 18 males and 16 females in group I patients, and 19 males and 15 females in group II. Garg et al[8] in their study conducted in 90 patients of OA of knee joint diagnosed according to the American College of Rheumatology criteria. They were randomized in three groups of 30 patients each who received tablet etodolac 400 mg b.i.d, tablet lornoxicam 8 mg b.i.d, and tablet diclofenac sodium 50 mg t.i.d, respectively. After 12 weeks of treatment, pain intensity and functional indices in terms of visual analog scale and Western Ontario and McMaster Universities Osteoarthritis score were significantly better (*P*<0.05) in lornoxicam group as compared to etodolac or diclofenac group along with lesser rate of adverse effects.

We found that patient global assessment score group I patients was very good response in 2, good in 30 patients and fair in 2 patients, group II patients revealed very good response in 1, good in 28 patients and fair in 5 patients. The mean Western Ontario and McMaster Universities Osteoarthritis score in group I was 45.2 , 34.2, 20.6 and 14.6 at 0 week, 3 weeks, 6 weeks and 12 weeks. In group II was 50.2, 40.1, 25.8 and 18.5 at 0 week, 3 weeks, 6 weeks and 12 weeks.

Treatment for OA aims at reducing pain, maintaining mobility, and minimization of disability. Current medical management of OA is mostly palliative with nonsteroidal anti- inflammatory drugs (NSAIDs) being the mainstay of therapy. Reports of gastrointestinal (GI) adverse effects with traditional NSAIDs and cardiovascular adverse effects associated with selective cyclooxygenase-2 (COX-2) inhibitors have prompted the quest for a better tolerated NSAID.[9]

Results from the published studies suggest that lornoxicam is a potent NSAID with balanced Cyclooxygenase 2 inhibition which offers faster and

better pain relief as compared to diclofenac with improved GI tolerability. In vitro studies of etodolac have demonstrated that there was no alteration in cartilage repair response as the collagen phenotype waspreserved and proteoglycan and DNA synthesis was not affected in human chondrocytes grown in a culture in the presence of etodolac as compared to other NSAIDs.[10]

CONCLUSION

Authors found that etodolac found to be better as compared to diclofenac sodium in patients of knee osteoarthritis.

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