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## SCIENTIFIC ARTICLE

# Comparison of the effectivity of oral and intra-articular administration of tenoxicam in patients with knee osteoarthritis

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### KEYWORDS

Osteoarthritis;  
Tenoxicam;  
Knee;  
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administration

### Abstract

**Background and objectives:** Tenoxicam is widely used in osteoarthritis treatment and we aimed to compare the effectivity of oral and intra-articular administration of tenoxicam in osteoarthritis treatment.

**Methods:** This study was performed between 2011 and 2012 by retrospectively analyzing and comparing the findings of 60 patients who were clinically and radiologically diagnosed with knee degenerative osteoarthritis in Bünyan state hospital pain policlinic. 60 patients included in the study were divided into two groups. The first group (tenoxicam IA,  $n = 30$ ) included patient findings of those subjected to intra-articular injection of 20 mg tenoxicam to the knee once a week for three weeks and the second group (oral tenoxicam,  $n = 30$ ) included patients who were administered 20 mg oral tenoxicam once a day for three weeks. All patients were clinically evaluated pre-treatment and in the 1st week, 1st month and 3rd month post-treatment according to specified criteria.

**Results and conclusions:** Twenty two of 60 patients included in the study were male and 38 were female. In both groups significant improvements were detected in all of the observed parameters: visual analog scale, Western Ontario McMaster Osteoarthritis Index (pain, physical activity, knee stiffness) and Lequesne index scores and in the evaluations performed in 1st week, 1st month and 3rd month with respect to pre-treatment values. Besides, a better compliance to treatment and gastrointestinal system tolerability in tenoxicam IA group was also observed. Intra-articular tenoxicam administration could be thought as an alternative treatment method in patients with knee osteoarthritis who cannot use oral tenoxicam especially due to systemic gastrointestinal system side effects and those who have difficulties in adapting to treatment.  
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**PALAVRAS-CHAVE**

Osteoartrite;  
Tenoxicam;  
Joelhos;  
Administração  
intra-articular

## Comparação da eficácia de tenoxicam administrado por via oral e intra-articular a pacientes com osteoartrite de joelhos

**Resumo**

*Justificativa e objetivos:* Tenoxicam é amplamente usado no tratamento da osteoartrite (OA) e o nosso objetivo foi comparar a eficácia de tenoxicam administrado por via oral (VO) e intra-articular (IA) no tratamento da OA.

*Métodos:* Este estudo foi conduzido entre 2011 e 2012 por meio de análise retrospectiva e comparação dos resultados de 60 pacientes que foram clínica e radiologicamente diagnosticados com OA degenerativa de joelhos na Policlínica de Tratamento da Dor do Hospital Estadual de Bünyan. Os 60 pacientes incluídos no estudo foram alocados em dois grupos. O primeiro grupo (tenoxicam IA, n=30) incluiu resultados de pacientes submetidos à injeção nos joelhos por via IA de 20 mg de tenoxicam uma vez por semana durante três semanas e o segundo grupo (tenoxicam VO, n=30) incluiu pacientes que receberam 20 mg de tenoxicam por VO uma vez por dia durante três semanas. Todos os pacientes foram avaliados clinicamente na fase basal pré-tratamento e em uma semana, um mês e três meses pós-tratamento, de acordo com os critérios especificados.

*Resultados e conclusões:* Dos 60 pacientes, 22 eram do sexo masculino e 38 do sexo feminino. Em ambos os grupos, melhorias significativas foram detectadas em todos os parâmetros da escala visual analógica, do índice *Western Ontario and MacMaster* (Womac – dor, atividade física e rigidez dos joelhos) e do índice de Lequesne nas avaliações feitas em uma semana, um mês e três meses e comparadas aos valores basais. Além disso, uma melhor adesão ao tratamento e tolerabilidade ao sistema gastrointestinal no grupo tenoxicam IA também foram observadas. A administração de tenoxicam IA pode ser considerada como um método opcional de tratamento em pacientes com OA de joelhos que não podem usar tenoxicam por VO, especialmente por causa dos efeitos colaterais sobre o sistema gastrointestinal, e naqueles com dificuldades de adaptação ao tratamento.

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**Introduction**

Osteoarthritis (OA) is the arthritis form most commonly encountered in the world. OA is primarily defined as a repair process developed against joint degeneration and joint destruction that cause a series of biochemical and morphologic changes in joint capsule and synovial membrane and against erosion in joint cartilage, osteophytic hypertrophy of bones in joint edges, subchondral sclerosis.<sup>1</sup> OA is especially one of the leading causes of morbidity that affects life quality of geriatric patients negatively. Pain is the most encountered and the most important symptom. OA pain is complicated and complex. Tissues other than cartilage in the joint have a rich nociceptive net. OA treatment should be conducted with pharmacological and non-pharmacological method. The primary aim in OA treatment is to stop the pain; mainly acetaminophen and NSAID drugs are used for this purpose. But the physicians try to develop new treatment alternatives because the above stated treatment options remain inadequate and side effects develop in the long term.<sup>2,3</sup> Analgesics and NSAID (Nonsteroidal anti-inflammatory) drugs are widely used in OA treatment. But care should be taken in the administration of these drugs in elderly patients due to their serious side effects and the weakness of their effectivity.<sup>4</sup> They must reach a specific concentration in the blood for anti-inflammatory characteristics of NSAID drugs to appear and but their potential side effects cause patients to decrease the

dose they use and generally effective dose concentration cannot be reached. Tenoxicam is widely used in OA treatment. Furthermore it is shown that intra-articular injection of tenoxicam is commonly used in OA treatment and has beneficial effects.<sup>5</sup>

With this study we estimated that IA tenoxicam treatment in patients with OA provided a more effective treatment than oral tenoxicam (TXO), with less side effects.

**Methods**

This study was performed by retrospectively analyzing and comparing findings of 60 patients diagnosed clinically and radiologically with knee degenerative OA in Bünyan state hospital between 2011 and 2012. Required consents were obtained from the patients by explaining them the disease and the treatment to be performed. Consent of Çanakkale 18 Mart University Clinical Research Ethics Committee was also obtained (15.05.2013/11-08; Aksulu HA). Data of 50–80 years old patients in ASA I–III group were included in the study.

OA diagnosis was established following clinical story, radiographic changes and physical examination. Radiographies of both knees, standing, frontal and posterior and lateral were taken from all patients. The findings of patients with knee arthritis according to American Rheumatism Society, without any laboratory pathology, between 0 and III grade according to Kellgren-Lawrence classification were

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