

# Diacerein Efficacy in Knee Osteoarthritis: Pain and Structural

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## Research Article

**Abstract:** The Aims of this study is to evaluate efficacy of Diacerein and to know whether Diacerein brings about functional as well as structural improvement in osteoarthritis of knee joint.

**Study Design and Methods:** 320 male and female patients within an age range of 35 years to 60 years were selected. This prospective study was done at father Muller medical college Hospital, Kankanady, Mangalore. Diacerein 50 mg tab was administered orally once daily to them for period of four months. All patients with Primary osteoarthritis diagnosed clinically and radiologically {Kellgren-Lawrence grade1-3} were between 35 to 60 years of age. Those patients were excluded from the present study who were of age less than 35 years or more than 60 years, hepatic and renal impairment, were diagnosed to have any inflammatory arthritis, gout or acute trauma of the knee, hip or spine; accompanying OA of the hip of sufficient severity to interfere with the functional assessment of the knee, Pts had previous or ongoing treatment with oral DMOAD (e.g., glucosamine sulphate, chondroitin sulphate, diacerein); pregnant females and those who were planning their pregnancy during the study, known hypersensitivity to diacerein, persistent diarrhoea ; severe gastrointestinal disorders and who received oral, intramuscular, intraarticular injections of corticosteroids within last eight weeks before receiving the first dose of the diacerein, or had undergone joint lavage and arthroscopic procedures in the previous 6 months, were also excluded. **Findings:** Out of the 320 cases seen for the period of four months all of them improved on the pain scale. Improvements seen on the X-ray images assessed by joint space preservation and increase after four months of diacerein therapy were the characteristic findings. **Interpretation:** We can conclude from the results that Diacerein is very useful, disease modifying drug for Osteoarthritic patients bringing about structural and functional changes in the joints of OA patients with less adverse effects.

**Keywords:** Osteoarthritis, DMOAD, Adverse drug reactions, Diacerein.

## Introduction

Osteoarthritis (OA) also known as degenerative arthritis or degenerative joint disease is a clinical syndrome in which low grade inflammation results in pain in the joints. Studies in United States estimate that 80% population will have radiographic evidence of OA by age 65 years although only 60% of those will be symptomatic. Osteoarthritis is derived from greek words "Osteo" meaning the bone, "ortho" meaning joint, and "itis" which means inflammation. OA affects nearly 21

million people in United states accounting for 25% of visits to primary care physicians and half of all NSAID prescriptions. There is hereditary susceptibility to this condition a number of studies have shown greater susceptibility in sibling and twins. Etiopathology has been re-studied and several new etiological factors which can be targeted for drug therapy have been found out. Research has shown that Cytokines and Chemokines are involved in joint degeneration. New drugs have the ability to target these. One of these kinds of drugs is Diacerein. The object of the intervention is to use one of these new disease modifying agents like Diacerein. Disease modifying agents like Glucosamine and Chondroitin Sulfate have been tried but their efficacy has been questionable. A meta-analysis R and C trial by Schererm *et al.* (2007) "Of the knee or hip", meta-analysis by Richenbach, Chondroitin for Osteoarthritis by S. Sterchir found no benefit for chondroitin Sulfate.

## Diacerein

Diacerein is the drug to be proved as disease modifying agent. Diacerein [4,5-bis[acetyloxy]-9,10-dioxo-dioxo-2-anthracene] is an Anthracene derivative. It is converted to active metabolite "Rhein" which has anti inflammatory effects through inhibition of Interleukin-1B. It reduces the fibrinolytic synovial Fibroblasts. It also dose dependently inhibits chemotaxis and super oxide anion production. It consequently reduces collagenase production in the intraarticular cartilage which spontaneously occurs in the body during destructive inflammation.

## Materials and Methods

In our study of 320 cases were included. The diagnosis was done clinically and confirmed by radiologically and Kellgren-Lawrence grading was labelled. The pain scale selected was Visual Analogue scale. Functional WOMAC scores also labelled. Structural Improvement radiographically assessed by joint space width measured by computerized radiography. Out of 320 patients 170 were males and 150 were females. Even for bilateral cases, only unilateral knee joints were considered in our

study. 166 right knee and 154 were left knees. Of the 320 we had 130 cases which were classified as very severe (more than 7.5 on VAS scale), 80 which were moderate cases (5-7.5), 110 mild cases (< 5). All of the cases showed improvement on the VAS scale by at least 2-3 scales after administration of Diacerein 50mg for 2 months. WOMAC scores also improved drastically after four months of diacerein. After 2 months of diacerein therapy 62% of patients improved more than 43 scores. All patients showed improvement in all subscales of WOMAC that is pain, stiffness and function. All patients' joint space width is assessed by computerized radiography by a single radiographer. After 2 months of diacerein therapy, again joint space width measured by same radiographer (as inter-observer variations are very high), the actual readings are tabulated and statistically correlated. All patients had either increase in joint space or maintaining same joint space width. The adverse effect in our series was diarrhoea in 20 cases and 14 cases had red coloured urine. As far as possible the NSAIDs were avoided except during early phases when Diacerein administration was started. Diacerein is slow acting drug its effect is noticed after 7 to 15 days period. In our study Diacerein was given to patients in 50 mgs dosage. We noticed structural effects on the radiographic images after 2 months of treatment.

### Conclusions

In our study of 320 cases all the cases improved on pain scale. All the features improved on the VAS scale, WOMAC score. Another interesting conclusion that was brought about after administration of Diacerein for 2 months was the structural improvement seen on radiographs. The structural improvement suggested by

joint space measurements on computerized radiographs. The adverse effects in our series were minimal. We conclude that Diacerein is a safer drug with least side effects and which could result in beneficial structural changes in the joints.

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