**INTRODUCTION:**

Knee osteoarthritis (OA) is a disease common in older adults. Current treatment is aimed at minimizing pain, maintaining or improving joint mobility, and decreasing functional impairment. In the pathogenesis of knee OA, biomechanical stresses that affect the articular cartilage and subchondral bone have been implicated as important inciting factors (1, 2, 3). During the midstance phase of gait, about 60 to 80 percent of the load is distributed through the medial compartment of the normal knee (4) which is one of the reasons knee OA is frequent and involves the medial compartment. Varus angulation deformity may occur in medial compartment knee OA & contributes to the progression of OA (5).

An alternate nonoperative approach has been to realign the weight-bearing load through footwear modification. Shoe modifications, such as lateral-wedge insoles or shock absorbing shoes with insoles, have been recommended for conservative therapy of mild knee OA but with little objective data on Indian patients.

**OBJECTIVE:**

This prospective study was done to study the effect of lateral heel sole wedging (insole) in the patients of OA of knee (medial compartment) and its relation to function, pain and stiffness parameters status on VAS and WOMAC scale and to see the requirement of the number of Aceclofenac tablets.

**METHODS:**

60 patients fulfilling the inclusion criteria were enrolled and divided into intervention group A (30) and nonintervention Group B (30) with random allocation. Paired t-test, Wilcoxon sign rank test and Man Whitney U test were applied at significant p-value of <0.05%.

**RESULTS:**

The reduction of mean difference in pain on VAS and WOMAC scale, improvement in Mean difference in function parameters the mean reduction of pain in standing/ walking, bending and ascending/descending at WOMAC scale was significantly higher in intervention group. Also the mean reduction in the need for aceclofenac was significantly lower in intervention group evident from fourth week onward to fifth and sixth week.

**CONCLUSION:**

The lateral wedging in shoes in medial joint osteoarthritis is beneficial and it can be cost-effective conservative treatment modalities in early osteoarthritis patients, particularly in developing countries as it can reduces the requirement of NSAIDS and improve functional level of patients by reducing pain in various activities.

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**KEY WORDS:**

Osteoarthritis (OA)
items are rated on a numerical rating scale of 0 (no symptoms/disability) to 10 (maximal symptoms/disability). The un weighted arithmetic mean of at least 4/5 pain, 1/2 joint stiffness, and 14/17 disability items make up the WOMAC scales, where by 0 again represents the best and 10 the worst health condition. In, the patients of osteoarthritis of medial compartment of knee and follow up was done after a period of six weeks duration. Assessments performed at the end of 6 weeks included adverse events, frequency of aceclofenac use frequency use of the insert, and the group B, it was not significant statistically. end of 6 weeks included adverse events, frequency of period of six weeks duration. Assessments performed at the worst health condition. In, the patients of osteoarthritis of medial compartment of knee and follow up was done after a period of six weeks duration. Assessments performed at the end of 6 weeks included adverse events, frequency of aceclofenac use frequency use of the insert, and the group B, it was not significant statistically. Though mean difference reduction in stiffness at 6 weeks from baseline in lateral wedging group was significantly higher than lateral wedge with mean duration of 7.38 ± 1.038 hours standard deviation, ranging from minimum of five hours to maximum of ten hours. Compliance to lateral wedge wearing was good and in our study none of the patient reported any adverse effect or discomfort with lateral wedge insole the reduction of mean difference for pain on VAS and WOMAC scale along with pain subcomponents viz., pain while walking on flat surface, pain while going upstairs and pain in bed at 6 weeks from baseline in group A was significantly higher than group B. The mean difference reduction for subcomponent pain in sitting/lying and pain on standing upright was not significant. As shown in table 1.

Results: Total sixty cases in both groups were enrolled but out of sixty, six cases dropped out. Among the 54 cases consisting of 21 male and 33 females, the mean age was 50.07 years and mean duration of symptoms was 41.57 months. 30 cases of 21 male and 33 females, the mean age was 50.07 years and mean duration of symptoms/disability) to 10 (maximal symptoms/disability) to 10 (maximal symptoms/disability).

The reduction in mean difference in function parameters at 6 weeks from baseline in group A was significantly higher than group B. The mean reduction was also significantly more in group A as compared to group B for subcomponents viz. bending to floor, walking on flat, rising from sitting, getting in/out of car, going shopping and rising from bed. Though it was also more in group A than B for other subcomponents of function viz. descending stairs, ascending stairs, putting on socks and taking off socks but was not significant statistically.

**DISCUSSION:**

The reduction in mean difference at 6 weeks from baseline in lateral wedging group was significantly higher than non-intervention group for pain score on VAS & WOMAC scale along with pain subcomponents viz., pain while walking on flat surface, pain while going upstairs and pain in bed. The mean difference reduction for subcomponent pain in sitting/lying and pain on standing upright was not significant. The reduction in pain is most likely due to decrease in adduction moment. It seems that wedges increase the valgus moment arm at the subtal joint, causing a lateral shift in the center of pressure location (10). This lateral shift likely decreases the length of the knee joint moment arm.

These findings of our study are in concurrence Ogata et al.
(11). While studying the relationship between radiographic severity of OA, had also found that the amplitude of first acceleration peak decreased with the usage of valgus insoles in all 50 knees with medial OA, and the mean reduction in first acceleration amplitude with the usage of insoles was 23.7% & found pain relief so recommend the usage of insoles. T Pham (12) also noted in his study on 156 patients prospective randomized controlled study to compare the clinical effects of laterally wedged insoles and neutrally wedged insoles in patients with medial femoro-tibial joint OA at the end of 2 years he found that the NSAIDS requirement is lower in lateral wedge group as compare to neutral wedge insole. (T±173 days vs. 127±193 days, P=0.003 so they Conclude the reduced NSAIDS intake and the better compliance in the treatment group are in favor of a beneficial effect of laterally-wedged insoles in medial OA knee. laterally wedge insoles are proposed for the treatment of knee medial compartment osteoarthritis. The clinical effect is probably limited, but the treatment may reduce the digestive and renal side effects of prolonged use of non-steroidal anti-inflammatory drugs.

Barrios JA, et al (13). They found while studying the clinical efficacy of individually prescribed laterally wedge orthosis and walking shoes in the treatment of medial knee osteoarthritis by using a prospective, single-blind, block-randomized controlled design on Sixty-six subjects both groups were improved at each follow-up in the WOMAC subscales for pain, stiffness (p<0.001) and physical function. Both groups also improved in 6-minute walk test distance, stair negotiation test time, and stair negotiation test pain change Van Raaij et al (14) in there study also concluded that & suggest lateral wedge insole may be alternative for valgus brace & conservative treatment for medial joint knee osteoarthritis. Hameed et al (15) in there study of lateral wedge insoles on 48 knees also suggested clinically symptomatic improvement significant p values on most of womac subscales & suggest lateral wedging as conservative treatment in early medial knee osteoarthritis.

CONCLUSION: From the study following conclusions could be drawn lateral wedging in shoe in a patient of medial joint OA knee reduces the requirement of non-steroidal anti-inflammatory agents. Lateral wedging in shoes improves function in day to day life and improves quality of life by reducing pain. In nutshell it can be said that the lateral wedging in shoes in medial joint osteoarthritis is beneficial and it can be a good conservative treatment modalities in early osteoarthritis patients. Particularly in developing countries especially India it might be a better alternative as well as the cost effective treatment modalities of osteoarthritis that can reduce the requirement of NSAIDS and improve functional level of patients by reducing pain in various activities.

REFERENCES