

## Original Research

### Assessment of efficacy of oral nonsteroidal anti-inflammatory medication in the treatment of plantar fasciitis

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#### ABSTRACT:

**Background:** Plantar fasciitis is a common cause of heel pain, involving inflammation of the plantar fascia, a thick band of tissue that runs across the bottom of the foot and connects the heel bone to the toes. The present study was conducted to assess efficacy of oral nonsteroidal anti-inflammatory medication (NSAID) in the treatment of plantar fasciitis. **Materials & Methods:** 86 cases of plantar fasciitis of both genders were divided into 2 groups. Group I patients were prescribed 200 mg of celecoxib once a day for 30 days and group II was placebo. Each group comprised 43 patients. Pain score and disability scores were made at the time of diagnosis, 2 months, and 6 months. **Results:** In group I, males were 23 and females were 20 and in group II, males were 18 and females were 25. Changes in pain scores from baseline to 1 month was 2.59 and 1.51, from baseline to 2 months was 3.91 and 2.92 and from baseline to 6 months was 6.72 and 4.31 in group I and group II respectively. The difference was significant ( $P < 0.05$ ). Changes in disability scores from baseline to 1 month was 1.83 and 0.94, from baseline to 2 months was 2.64 and 2.15 and from baseline to 6 months was 4.96 and 3.76 in group I and group II respectively. The difference was significant ( $P < 0.05$ ). **Conclusion:** When combined with a conservative treatment plan, the use of an NSAID may help individuals with plantar fasciitis have less discomfort and disability.

**Keywords:** Celecoxib, plantar fasciitis, Pain

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#### INTRODUCTION

Plantar fasciitis is a common cause of heel pain, involving inflammation of the plantar fascia, a thick band of tissue that runs across the bottom of the foot and connects the heel bone to the toes. This condition is often characterized by stabbing pain that typically occurs with the first steps in the morning.<sup>1</sup> Plantar fasciitis occurs when there is excessive strain or tension on the plantar fascia, leading to small tears and inflammation. Factors contributing to this condition include prolonged standing, walking, or running, especially on hard surfaces, flat feet, high arches, or an abnormal walking pattern. Increased weight adds strain to the plantar fascia. More common in people aged 40-60. Jobs requiring long periods of standing or walking.<sup>2</sup>

There is no one standard method for treating plantar fasciitis; instead, a variety of conservative therapy are

often effective in healing the problem.<sup>3</sup> Commonly employed modalities include rest, ice massage, plantar fascia and Achilles tendon stretching, NSAIDs, corticosteroid injections, taping, foot padding, altered shoes (advanced rocker bottom and steel shank), arch supports, heel cups, customized foot orthoses, night splints, ultrasound, and casting.<sup>4</sup> Celecoxib is a nonsteroidal anti-inflammatory drug (NSAID) that selectively inhibits cyclo-oxygenase-2 (COX 2) and spares cyclo-oxygenase-1 (COX-1) activity in vitro.<sup>15</sup> Prospective randomized controlled trials have shown that celecoxib is effective in treating osteoarthritis (OA) and rheumatoid arthritis.<sup>5</sup> The present study was conducted to assess efficacy of oral nonsteroidal anti-inflammatory medication (NSAID) in the treatment of plantar fasciitis.

**MATERIALS & METHODS**

The present study was conducted on 86 cases of plantar fasciitis of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. All patients were given a home heel-cord stretching program, night splint, and viscoelastic heel cups.

Patients were divided into 2 groups. Group I patients were prescribed 200 mg of celecoxib once a day for 30 days and group II was placebo. Each group comprised 43 patients. Pain score and disability scores were made at the time of diagnosis, 2 months, and 6 months. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

**RESULTS**

**Table I Distribution of patients**

Groups	Group I	Group II
M:F	23:20	18:25

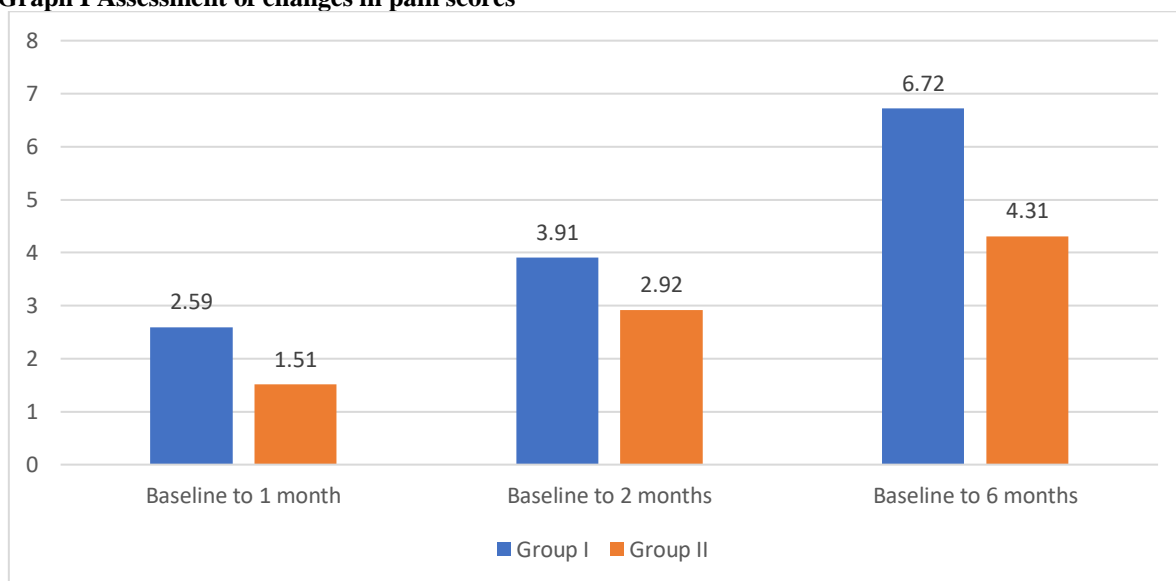
Table I shows that in group I, males were 23 and females were 20 and in group II, males were 18 and females were 25.

**Table II Assessment of changes in pain scores**

Changes in pain scores	Group I	Group II	P value
Baseline to 1 month	2.59	1.51	0.05
Baseline to 2 months	3.91	2.92	
Baseline to 6 months	6.72	4.31	

Table II, graph I shows that changes in pain scores from baseline to 1 month was 2.59 and 1.51, from baseline to 2 months was 3.91 and 2.92 and from baseline to 6 months was 6.72 and 4.31 in group I and group II respectively. The difference was significant (P< 0.05).

**Graph I Assessment of changes in pain scores**



**Table III Assessment of changes in disability scores**

Changes in disability scores	Group I	Group II	P value
Baseline to 1 month	1.83	0.94	0.03
Baseline to 2 months	2.64	2.15	
Baseline to 6 months	4.96	3.76	

Table III shows that changes in disability scores from baseline to 1 month was 1.83 and 0.94, from baseline to 2 months was 2.64 and 2.15 and from baseline to 6 months was 4.96 and 3.76 in group I and group II respectively. The difference was significant (P< 0.05).

**DISCUSSION**

Treatment for plantar fasciitis aims to reduce inflammation, relieve pain, and promote healing of the plantar fascia.<sup>6</sup>Home remedies such as rest reduce activities that aggravate the condition. Apply ice to the

affected area for 15-20 minutes several times a day to reduce inflammation. Stretching the plantar fascia, Achilles tendon, and calf muscles. Wear shoes with good arch support and cushioning.<sup>7</sup>A physical therapist can guide specific exercises to stretch and

strengthen the plantar fascia. Custom or over-the-counter shoe inserts can help support the arch and distribute pressure more evenly. Nonsteroidal anti-inflammatory drugs (NSAIDs) like ibuprofen can help reduce pain and inflammation. Wearing a splint at night can keep the foot in a stretched position, reducing morning pain.<sup>8</sup> Advanced treatments such as corticosteroid injections can reduce inflammation and pain, but are typically considered if other treatments fail. Extracorporeal shock wave therapy (ESWT) uses sound waves to stimulate healing in the plantar fascia. Surgery is rarely needed, but may be considered if conservative treatments fail after 6-12 months. Surgery involves partially detaching the plantar fascia from the heel bone.<sup>9,10</sup> The present study was conducted to assess efficacy of oral nonsteroidal anti-inflammatory medication (NSAID) in the treatment of plantar fasciitis.

We found that in group I, males were 23 and females were 20 and in group II, males were 18 and females were 25. Donley et al<sup>11</sup> in their study 29 patients with the diagnosis of plantar fasciitis were treated with a conservative regimen that included heel-cord stretching, viscoelastic heel cups, and night splinting. They were randomly assigned to either a placebo group or an NSAID group. In the NSAID group, celecoxib was added to the treatment regimen. Pain and disability mean scores improved significantly over time in both groups, although there was no statistical significance between the placebo and NSAID groups at 1, 2, or 6 months. There was a trend towards improved pain relief and disability in the NSAID group, especially in the interval between the 2 and 6-month follow-up. Pain improved from baseline to 6 months by a factor of 5.2 and disability by 3.8 in the NSAID group compared to 3.6 and 3.5, respectively, in the placebo group. Even though at baseline the pain and disability scores were higher in the NSAID group, the final pain and disability scores were subjectively lower in the NSAID group than in the placebo group (1.43 for pain and 1.16 for disability in the NSAID group compared to 1.86 and 1.49, respectively, in the placebo group).

We found that changes in pain scores from baseline to 1 month was 2.59 and 1.51, from baseline to 2 months was 3.91 and 2.92 and from baseline to 6 months was 6.72 and 4.31 in group I and group II respectively. Emery et al<sup>12</sup> in their study 655 patients with adult-onset rheumatoid arthritis of at least 6 months' duration were randomly assigned oral celecoxib 200 mg twice daily or diclofenac SR 75 mg twice daily for 24 weeks. Anti-inflammatory and analgesic activity and tolerability were assessed at baseline, every 4 weeks, and at week 24. 430 patients underwent endoscopy (celecoxib n=212, diclofenac n=218). The two drugs were similar in management of rheumatoid arthritis pain and inflammation. Gastrointestinal ulcers were detected endoscopically in 33 (15%) patients treated with diclofenac and in eight (4%) in the celecoxib group (p<0.001). The rate of withdrawal

for any gastrointestinal-related adverse event, most commonly abdominal pain, diarrhoea, and dyspepsia, was nearly three times higher in the diclofenac-treated group than in the celecoxib group (16 vs 6%; p<0.001).

We found that changes in disability scores from baseline to 1 month was 1.83 and 0.94, from baseline to 2 months was 2.64 and 2.15 and from baseline to 6 months was 4.96 and 3.76 in group I and group II respectively. Basford et al<sup>13</sup> determined whether low-intensity laser irradiation, a widespread but controversial physical therapy agent, is an effective treatment of plantar fasciitis. It included 32 otherwise healthy individuals with plantar fasciitis of more than 1 month's duration. Morning pain, pain with toe walking, tenderness to palpation, windlass test response, medication consumption, and orthotic use were evaluated immediately before the study, as well as at the midpoint and end of treatment. Subjects were also evaluated at a follow-up 1 month after their last treatment. No significant differences were found between the groups in any of the outcome measures either during treatment or at the 1-month follow-up. Treatment, however, was well tolerated and side effects were minimal.

The shortcoming of the study is small sample size.

## CONCLUSION

Authors found that when combined with a conservative treatment plan, the use of an NSAID may help individuals with plantar fasciitis have less discomfort and disability.

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