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ORIGINAL ARTICLE

Outcome of Corticosteroid Injection in Patients with Plantar Fasciitis

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ABSTRACT

Background: Corticosteroid injection is frequently used for plantar heel pain (plantar fasciitis), although there is limited high-quality evidence to support this treatment.

Objective: The purpose of this study is to determine the outcomes of corticosteroid injection in reducing the intensity of pain in patients with plantar fasciitis

Methods: This descriptive study was conducted at Rawal Institute of Health Sciences –RIHS, Islamabad and comprised of 92 patients. After obtaining informed written consent from participants, demographic information such as age, gender, and body mass index (BMI) was collected. Each patient with plantar fasciitis who fulfilled the inclusion criteria had one intra-heel injection of triamcinolone and had two, six, and 12 week follow-up appointments in the outpatient department. The intervention's efficacy was assessed by measuring the amount of pain alleviation using the Visual Analogue Scale (VAS).

Results: There were 59 (64.1%) male patients and 33 (35.9%) female among all cases. The mean age of the included cases was 35.23±12.67 years and the BMI was 26.8±14.35 kg/m^2. 48 (52.2%) were married and 36 (39.1%) cases had urban residency. We found significantly reduction in pain score from baseline 5.72±4.24 to 1.03±2.11 with p value <0.005. Recurrence rate of pain was 2 (2.2%).

Conclusion: We found that injecting steroid painkillers into the heel area of the foot not only significantly lessens plantar fasciitis pain, but also improves quality of life and cuts down on the frequency and intensity of painkiller use.

Keywords: Corticosteroid, Pain, Vas, Plantar fasciitis

INTRODUCTION

As one of the most common reasons for heel discomfort, plantar fasciitis accounts for more than one million annual clinic visits in the US[1] Although most people with plantar fasciitis find relief within a few months, around 10% have the condition that doesn't go away. Despite the fact that most cases settle independently, this is nonetheless the case. Many people contact both their primary care physicians and foot specialists when the pain becomes too much to bear and interferes with their everyday lives and work[2,3]

One of the most common causes of heel pain, plantar fasciitis, is an inflammation of the plantar fascia. The exact origin of this condition is situational, however it might be the result of a single plantar fascia rupture or damage from several microtraumas. A degenerative, non-inflammatory form of plantar fasciopathy, plantar fasciosis is the main description given. There are degenerative processes that impact the junction of the calcaneus and the plantar fascia, leading to the development of this enthesopathy. Athletes and sedentary people, especially those in their middle and older years, are at increased risk of getting plantar fasciitis. Intrinsic risk factors include obesity, pes planus, pes cavus, and a shortened Achilles tendon[4]. Extrinsic risk factors include things like walking barefoot or on rough floors, carrying heavy objects for long periods of time, not stretching sufficiently, and wearing uncomfortable shoes. People whose jobs require them to travel long distances are more likely to suffer from this condition, according to research[5,6] Some researchers think the term "plantar fasciopathy" is more fitting for this condition because there are degenerative changes seen on ultrasonography and histology, but no typical inflammatory signs. The vast majority of patients have complete recovery within a year after receiving the appropriate medicine[8] Although several methods exist for alleviating plantar fasciitis, no solid clinical evidence has been found to back any one method. Conservative treatments for plantar fasciitis include NSAIDs, physical therapy, stretching, splints, calcaneal taping, sham taping, and other similar methods that alleviate discomfort. It has been noted, however, that the outcome of pain reduction is consistent across all of these methods[7,9] A tiny percentage of individuals who are resistant may need surgical treatment. About 75% of orthopaedic surgeons advise injecting their patients with corticosteroids when they suffer from plantar fasciitis[10]. Corticosteroid injections are a quick and cheap way to alleviate pain, but they don't work forever, and they might have side effects in some people. While autologous blood injections, platelet-rich plasma, and foot orthoses have all shown promise in treating plantar fasciitis, some research suggests that corticosteroid injections may be the most effective option.14 Nonetheless, some research has shown that corticosteroid injections aren't as effective as platelet-rich plasma injections when it comes to pain reduction[8-10]

Because of their strong anti-inflammatory properties, corticosteroids might potentially alleviate pain more quickly. Injecting a patient with corticosteroids can alleviate plantar fasciitis symptoms by halting the production of ground-substance proteins and fibroblasts. An injection of botulinum toxin into the plantar fascia and the gastrocnemius-soleus muscle complex may alleviate tension in the plantar fascia and the surrounding muscles[11] The natural healing mechanism of the body is aided by platelet-rich plasma (PRP), which enhances platelet growth factors. As a result, the plantar fascia recovers more quickly. Fasciostomy, a surgical technique for plantar fascia release[12], is often reserved for individuals with long-term, unresponsive heel pain that has not improved with non-surgical treatments. Our study's overarching goal was to ascertain whether or not injectable corticosteroids alleviated the pain that people with plantar fasciitis endure.

MATERIALS AND METHODS

We conducted this descriptive study in in Department of Orthopaedics, Rawal Institute of Health Sciences RIHS, Islamabad for the duration of one year from February, 2022 to February 2023. We included male and female adults of any age who had been experiencing plantar fasciitis symptoms for at least six weeks. The following conditions were not considered for inclusion: a prior injection of steroids or platelet-derived plasma (PRP), gout, surgery, infection, extreme obesity, or plantar fasciitis on both sides of the body. Written, informed consent was obtained from all participants, and the study was approved by our hospital's ethics

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committee. A full assessment was conducted on each patient, including a review of their medical history, a physical examination, and any diagnostic procedures deemed essential. Prior to injection, we measured the level of pain using VAS.

A single, sterile injection of 1 milliliter each of triamcinolone (Kenacort) and a local anesthetic (plain xylocaine 2%) was administered to each subject. Injections were made into the most delicate area of the heel using the palpation technique. The procedure was performed as an outpatient procedure. After the patients began taking a three-day course of tablet Paracetamol 1 TDS, they were visited in the outpatient department twice, six weeks, and twelve weeks later. The clinical evaluation and mean VAS score were calculated at both the initial visit and the subsequent follow-up appointments.

When entering and analyzing data, we utilized SPSS version 25. Continuous variables, including age, mean VAS, and duration of pain, were represented by means and standard deviations. Gender and foot side are two examples of the categorical characteristics that were represented by percentages and proportions. We used a sample t-test to get the P value. A P value<0.05 was considered significant.

RESULTS

There were 59 (64.1%) male patients and 33 (35.9%) female among all cases. The mean age of the included cases was 35.23±12.67 years and the BMI was 26.8±14.35 kg/m^2. 48 (52.2%) were married and 36 (39.1%) cases had urban residency.(table 1)

Most common symptom of plantar fasciitis was foot arch pain, followed by heel pain, swelling, redness of heel and a constant ache.(figure 1)

We found significantly reduction in pain score from baseline 5.72±4.24 to 1.03±2.11 with p value <0.005.(table 2)

Recurrence of pain was found in 2 (2.2%) cases.(table 3)

Table-1: Demographics of the presented cases

Variables	No./percentage
Gender	
Male	59 (64.1%)
Female	33 (35.9%)
Mean age (years)	35.23±12.67
Mean BMI (kg/m^2)	26.8±14.35
Marital Status	
Married	48 (52.2%)
Unmarried	44 (47.85)
Residency	
Urban	36 (39.1%)
Rural	56 (60.9%)

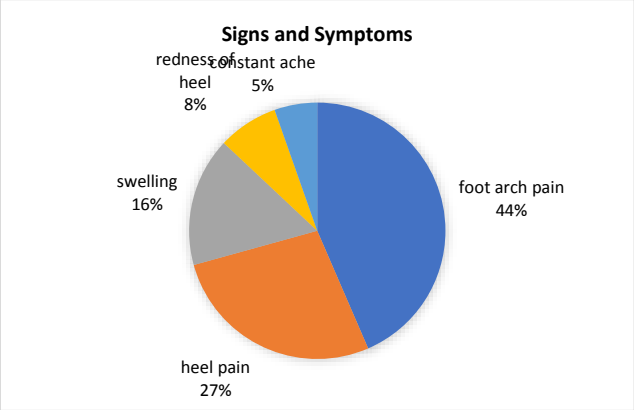

Figure-1: Signs and symptoms of plantar fasciitis

Table-2: Pre and post injection intensity of pain

Pain score VAS (Pre)	Pain score VAS After 2 weeks	Pain score VAS After 6 weeks	Pain score VAS After 12 weeks	P Value
5.72±4.24	3.68±4.51	2.97±5.35	1.03±2.11	<0.005

Table-3: Frequency of pain recurrence rate

Variables	No./%age
Recurrence of pain	
Yes	2 (2.2%)
No	90 (97.8%)

DISCUSSION

Plantar fasciitis is most common in people in their 30s and 40s, according to the literature.in[13] The majority of our patients are in this age range as well, according to our data. While our study did find a little male predominance (64.1%), previous research has shown that this illness is more common in females and becomes more dangerous as people get older[14]

Importantly, injecting a corticosteroid into a painful area has no more effect than injecting a placebo. Many medical professionals have noticed that patients have less pain following corticosteroid injections, which contradicts the results of this study. But this may be explained by more systemic effects such expectancy effects, regression to the mean, natural resolution, or the placebo effect[15,16]. Our findings may suggest that the corticosteroid medicine has little particular benefit, and it is hard to disregard these non-specific adverse effects. More than half of the overall effect of corticosteroid injection in related trials on knee osteoarthritis was due to non-specific side effects[17].

We found significantly reduction in pain score from baseline 5.72±4.24 to 1.03±2.11 with p value <0.005. After 12 weeks of follow-up, the pain level of 150 patients with plantar fasciitis went down from 9.48 on the visual analog scale (VAS) before the injections to 2.52 according to Ahmad and Kumar[18]. Researchers Shakir and colleagues[19] injected triamicinolone into half of their fifty plantar fasciitis patients and autologous blood into the other half. In contrast to 4.28±2.08 with autologous blood injection, the VAS with steroid injection was 2.74±1.34 after 8 weeks of therapy (P <0.05).In a second four-arm experiment, Kalaciet al[20] found that compared to the peppering method, corticosteroid injection alone significantly increased the VAS score for heel pain.

In our study, recurrence of pain was found in 2 (2.2%) cases. Results were similar to the previous study[21] The use of steroid infusions on a regular basis, however, carries the risk of complications.In[22], a Buccilliet al.[23] documented a case of a foot abscess that developed after a close injection of steroids. Such a dilemma did not arise for us. In addition, in 97.8% of the cases, we did not find any problems. We observed that the groups that received steroid injections had a significant improvement in the Heel Tenderness Index compared to the placebo group, which is consistent with the findings of Ball et al[24] at the 12-week follow-up.

CONCLUSION

We found that injecting steroid painkillers into the heel area of the foot not only significantly lessens plantar fasciitis pain, but also improves quality of life and cuts down on the frequency and intensity of painkiller use.

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