Comparison between Platelet-Rich Plasma and Corticosteroid Injection in Treatment of Plantar Fasciitis:

A Systematic Review of Literature

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بسم الله الرحمن الرحيم

"ذلك فضل الله

يؤتيه من يشاء والله

ذو الفضل العظيم"

صدق الله العظيم

(سورة الجمعه)

" ايه (٤) "

Abstract

Background: with the increasing interest in platelet-rich plasma (PRP) injection as a treatment for chronic plantar fasciitis (pf), we intended to compare the clinical difference between the use of PRP and cortisone injection in the treatment of chronic pf.

Methods: Four electronic database were searched (PubMed ,Medline ,google scholar, Cochrane) using the following keywords (plantar fasciitis, corticosteroid injection in plantar fasciitis, PRP in plantar fasciitis) with inclusion criteria (English literature only , human study only and randomized control trial & case series related to treatment of plantar fasciitis with PRP and corticosteroid.) and exclusion criteria (duplicated articles by the same authors unless with longer follow-up studies and non-English studies). All patients in these studies underwent injection after at least 3 months of complain and failure of conservative treatment. Follow-up duration was (1.5, 3&6 months) in most of these studies.

Results: our search revealed 8 studies accounting for total of 376 patients (188 patients in PRP group and 188 patients is steroid group) diagnosed as chronic plantar fasciitis included in the final analysis. Their ages ranged from 21 to 85 years old with a mean age 47.13 year for steroid group and 44.95 years for PRP group. Mean VAS (Visual analogue scale) for pain results at baseline and at end of follow-up in steroid group are 7.3 & 3.01

respectively and in PRP group are 7.3 & 2 respectively. Mean AOFAS results at baseline and at end of follow-up in steroid group are 52.2& 74.69 respectively and in PRP group are 50.46 & 89.95 respectively. (P value <0.05).

Conclusion: PRP injection is better than steroid injection in relieving the pain of planar fasciitis and improvement function of the patient foot.

Keywords: Plantar fasciitis; Corticosteroid injection in plantar fasciitis; PRP in plantar fasciitis

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List of Abbreviations

AOFAS	American Orthopedic Foot and Ankle Society
bFGF	Basic Fibroblast Growth Factor
BMP	Bone Morphogenetic Protein
ECGF	Endothelial Cell Growth Factor
EGF	Epidermal Growth Factor
EMG	Electromyogram
ESWT	Extracorporeal Shock Wave Therapy
IGF	Insulin-Like Growth Factor
MRI	Magnetic Resonance Imaging
NSAIDs	Non-steroidal Anti-Inflammatory Drugs
PD-EGF	Platelet-Derived Epidermal Growth Factor
PDGF	Platelet-Derived Growth Factor
PF	Plantar Fascia
PRP	Platelet-Rich Plasma
TGF	Transforming Growth Factor
TGF-β	Transforming Growth Factor Beta
VAS	Visual Analogue Scale
VEGF	Vascular Endothelial Growth Factor

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Introduction

Plantar fasciitis is a disorder that results in pain in the heel and bottom of the foot. [1] Pain is usually most severe with the first steps of the day or following a period of rest. [2] Pain is also frequently brought on by bending the foot and toes up towards the shin and may be worsened by a tight Achilles tendon. [3] The condition typically progresses slowly. [3] In about a third of people both legs are affected.[1] Typically there are no fevers or night sweats. [3]

Risk factors include overuse such as from long periods of standing, an increase in exercise, and obesity.[1]It is also associated with inward rolling of the foot and a lifestyle that involves little exercise.[1]while heel spurs are frequently found it is unclear if they have a role in causing the disease. Plantar fasciitis is a disorder of the insertion site of the ligament on the bone characterized by micro tears, breakdown of collagen, and scarring. [1] As inflammation plays a lesser role, many feel the condition should be renamed plantar fasciosis.[4] The diagnosis is typically based on signs and symptoms with ultrasound sometimes used to help.[1] Other conditions with similar symptoms include osteoarthritis, ankylosing spondylitis, heel pad syndrome, and reactive arthritis.[5]

Most cases of plantar fasciitis resolve with time and conservative methods of treatment.[7] Usually for the first few weeks people are advised to rest, change their activities, take pain medications, and stretch. If this is not sufficient physiotherapy, orthotics, splinting, or steroid injections may be options. When plantar fasciitis occurs, the pain is typically sharp[8]and usually unilateral (70% of cases).[7]Heel pain worsens by bearing weight on the heel after long periods of rest.[9]Individuals with plantar fasciitis often report their symptoms are most intense during their first steps after getting out of bed or after prolonged periods of sitting.[2] Improvement of symptoms is usually seen with continued walking.[6]Rare, but reported symptoms include numbness, tingling, swelling, or radiating pain.[10]. Typical signs and symptoms of plantar fascia rupture include a clicking or snapping sound, significant local swelling, and acute pain in the sole of the foot.[8]

Many modalities are available to treat this condition, of which corticosteroid injection is, perhaps, the most popular. However, recent years have seen an increased interest in the use of platelet-rich plasma (PRP) injections in various clinical situations such as plantar fasciitis. [3]

Both methods are effective and successful in treating plantar fasciitis. When the potential complication of corticosteroid treatment is taken into consideration, platelet-rich plasma (PRP) injection seems to be safer and at least having same effectivity in the treatment of plantar fasciitis. [11]

Chapter (1):

ANATOMY

The anatomy of the foot is the foundation on which is built an understanding of function in the treatment of disabling conditions. (12)

Plantar fascia (PF):

The plantar fascia or aponeurosis is composed of collagen and elastin fibers, the densely compacted collagen fibers oriented mainly longitudinally, but also transversely. Its medial and lateral parts overlie the intrinsic muscles of the hallux and fifth toe, its dense central part overlies the long and short digital flexors. (13)

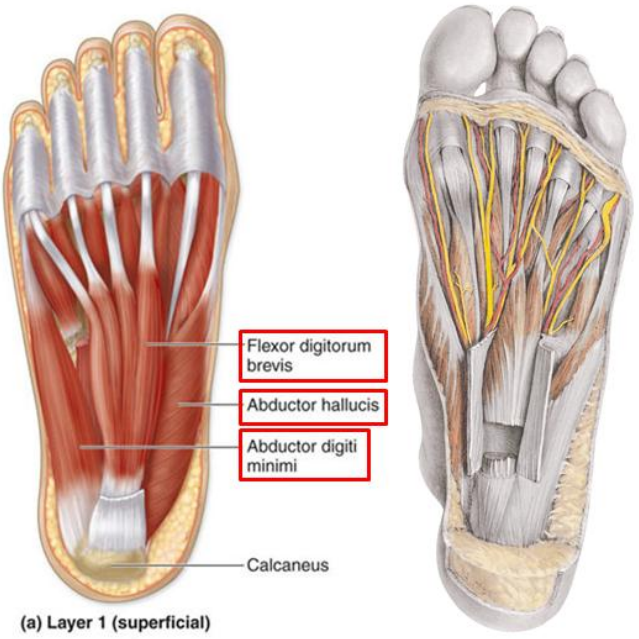

Fig. (1): *Superficial planter muscles of the foot. B. Planter fascia.*(14)