

FPIN's Clinical Inquiries

Platelet-Rich Plasma vs. Corticosteroids for Refractory Plantar Fasciitis

Brian Atkinson, MD, and Katherine Holland Walker, DO

MAHEC Family Medicine Residency Program, Asheville, North Carolina

Sue Stigleman, MLS; Aaron Vaughan, MD; and Stephen Hulkower, MD

UNC Health Sciences at MAHEC, Asheville, North Carolina

Clinical Question

In patients with plantar fasciitis refractory to conservative therapies, do platelet-rich plasma injections improve pain and function compared with corticosteroid injections?

Evidence-Based Answer

Platelet-rich plasma injections are similar to corticosteroids for pain relief and improvement in function in patients with refractory plantar fasciitis lasting less than 12 weeks. (Strength of Recommendation [SOR]: B, based on inconsistent and low- to moderate-quality evidence.) Platelet-rich plasma injections may provide greater pain relief and improvement in function than corticosteroid injections in refractory plantar fasciitis lasting more than 12 weeks. (SOR: B, based on two meta-analyses of randomized controlled trials [RCTs] and two RCTs.)

Evidence Summary

A 2019 systematic review and meta-analysis compared corticosteroid therapy with several other treatments in patients with plantar fasciitis in whom conservative therapy was ineffective. The review included a subgroup analysis of eight RCTs comparing corticosteroid injections

with platelet-rich plasma injections ($n = 405$).¹ In the short (up to six weeks) and medium (seven to 12 weeks) terms, both treatments had a similar effect on pain and function. In the long term (13 to 52 weeks), corticosteroid and platelet-rich plasma were still similar in functional impact, but platelet-rich plasma was more effective for pain relief. The difference in pain response was reported to be clinically significant (standardized mean difference = 0.61; 95% CI, 0.16 to 1.06).

A 2017 meta-analysis of nine RCTs ($n = 430$) compared platelet-rich plasma injections with corticosteroid injections.² At four and 12 weeks, no significant differences were noted between the groups. At 24 weeks, platelet-rich plasma was more effective than corticosteroids at reducing pain scores on a 10-point visual analog scale (VAS; weighted mean difference = -0.95 ; 95% CI, -1.80 to -0.11 ; $P = .03$; $I^2 = 85\%$). There were no differences between the two treatments on the Foot and Ankle Disability Index (two trials; $n = 88$), American Orthopedic Foot and Ankle Society ankle-hindfoot score (three trials; $n = 138$), or the Roles and Maudsley score (two trials; $n = 138$).

A 2019 multicenter RCT in the Netherlands enrolled 115 adults with plantar fasciitis lasting at least six months in whom nonoperative treatment

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had been ineffective.³ The participants were randomized into a platelet-rich plasma group (n = 63) and a group that received a 40-mg injection of triamcinolone (n = 52). Outcomes were measured using the Foot Function Index (FFI; nine questions on pain, nine questions on disability, and five questions on activity, each question self-scored from 0 [no pain or difficulty] to 10 [worst pain imaginable or so difficult the patient requires help]). Both groups showed improvement over baseline at four, 12, and 26 weeks and at one year, with the corticosteroid group showing greater initial improvement. However, at one year, participants in the platelet-rich plasma group had significantly lower scores than the triamcinolone group, with a mean difference of 14.4 (95% CI, 3.2 to 25.6) on the 90-point FFI pain score (minimal important difference = 12.3) and a mean difference of 12.0 (95% CI, 2.3 to 21.6) on the 90-point FFI disability score (minimal important difference = 6.7).⁴

Another 2019 RCT in India enrolled 90 adult participants with plantar fasciitis in whom conservative therapy had been ineffective.⁵ The participants were randomized to three injection groups: platelet-rich plasma, methylprednisolone, and placebo (normal saline). Pain was measured at one and three weeks and at three, six, 12, and 18 months using a 10-point VAS. Function was measured at the same intervals with the four-point Roles and Maudsley score. The methylprednisolone group showed the greatest improvement in pain at one week, platelet-rich plasma was equivalent at three months, and platelet-rich plasma

was superior after 18 months. The mean VAS scores for platelet-rich plasma at baseline and 18 months were 8.2, lowered to 2.1, and for methylprednisolone were 8.8, lowered to 3.6. There was a statistically significant difference between the groups at 18 months ($P = .005$). Mean scores on the function scale at baseline and 18 months for platelet-rich plasma were 1.7 and 3.7 and for methylprednisolone were 1.2 and 3.1. A statistically significant difference was noted between the platelet-rich plasma and methylprednisolone groups at 18 months ($P = .05$).

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Address correspondence to Aaron Vaughan, MD, at aaron.vaughan@mahec.net. Reprints are not available from the authors.

References

1. Whittaker GA, Munteanu SE, Menz HB, et al. Corticosteroid injection for plantar heel pain: a systematic review and meta-analysis. *BMC Musculoskelet Disord*. 2019;20(1):378.
2. Yang WY, Han YH, Cao XW, et al. Platelet-rich plasma as a treatment for plantar fasciitis: a meta-analysis of randomized controlled trials. *Medicine (Baltimore)*. 2017;96(44):e8475.
3. Peerbooms JC, Lodder P, den Ouden BL, et al. Positive effect of platelet-rich plasma on pain in plantar fasciitis: a double-blind multicenter randomized controlled trial. *Am J Sports Med*. 2019;47(13):3238-3246.
4. Landorf KB, Radford JA. Minimal important difference: values for the Foot Health Status Questionnaire, Foot Function Index and Visual Analogue Scale. *Foot*. 2008;18(1):15-19.
5. Shetty SH, Dhond A, Arora M, et al. Platelet-rich plasma has better long-term results than corticosteroids or placebo for chronic plantar fasciitis: randomized control trial. *J Foot Ankle Surg*. 2019;58(1):42-46. ■