

Chen PC, Wu KT, Chou WY, et al. **Comparative Effectiveness of Different Nonsurgical Treatments for Patellar Tendinopathy: A Systematic Review and Network Meta-analysis.** *Arthroscopy.* 2019 Nov;35(11):3117-3131.e2. doi: 10.1016/j.arthro.2019.06.017. (Systematic review)

Abstract

PURPOSE: To investigate the functional improvement and pain reduction of different nonsurgical treatments for patellar tendinopathy (PT), a systematic review with network meta-analysis was performed.

METHODS: Studies were comprehensively searched for without language restrictions in the CENTRAL, MEDLINE, EMBASE, Web of Science, Physiotherapy Evidence Database, and SPORTDiscus databases from inception to May 2018. Randomized controlled trials about nonsurgical treatments for PT were included. The outcome measurements were the Victorian Institute of Sports Assessment (VISA) scale and pain scores (such as the visual analog scale or Numerical Rating Scale). Study quality was evaluated using the Physiotherapy Evidence Database score. Direct comparisons were performed using pairwise meta-analysis, whereas network meta-analysis was performed using a frequentist method in a multivariate random-effects model.

RESULTS: Eleven studies with 430 affected patellar tendons were included in the systematic review. The summary mean difference of improvement in the VISA scale versus the control group for corticosteroid injection was -23.00 (95% confidence interval [CI] -36.73 to -9.27), for leukocyte-rich platelet-rich plasma (LR-PRP) was 13.22 (95% CI 2.37-24.07), for focused extracorporeal shockwave therapy (ESWT) was -1.28 (95% CI -6.25 to 3.68), for radial ESWT was -6.68 (95% CI -20.20 to 6.84), for ultrasound was -0.70 (95% CI -11.23 to 9.83), for autologous blood injection was -0.60 (95% CI -9.30 to 8.10), for dry needling was 17.51 (95% CI -2.57 to 37.60), for topical glyceryl trinitrate was -0.90 (95% CI -13.07 to 11.27), and for skin-derived tendon-like cells was 10.40 (95% CI -1.59 to 22.39). LR-PRP (Surface Under the Cumulative Ranking curve [SUCRA] = 87.5%) or dry needling (SUCRA = 90.5%) was most likely to be ranked the best in terms of improvement on the VISA scale. Compared with the control group, the summary mean difference of the change in pain score for corticosteroid injection was 0.80 (95% CI -3.48 to 5.08), for LR-PRP was -1.87 (95% CI -3.28 to -0.46), for focused ESWT was 0.13 (95% CI -0.68 to 0.93), for radial ESWT was 0.03 (95% CI -1.92 to 1.98), for ultrasound was -0.20 (95% CI -1.49 to 1.09), for autologous blood injection was 0.60 (95% CI -0.73 to 1.93), for dry needling was -0.37 (95% CI -2.71 to 1.97), and for topical glyceryl trinitrate was -0.50 (95% CI -2.55 to 1.55). The treatment most likely to be ranked the best in terms of change in pain score was LR-PRP (SUCRA = 94.9%).

CONCLUSIONS: The network meta-analysis demonstrated that LR-PRP has the greatest functional improvement and pain reduction for PT compared with other treatment options. However, the treatment effect estimates can be biased by the possible intransitivity and should not be overestimated.

LEVEL OF EVIDENCE: Level I, meta-analysis of Level I studies.

Ratings

Discipline Area	Relevance to Practice	Is this News?
Physician	★★★★★★★	★★★★★★★

Comments from MORE raters

Physician rater

Leukocyte-rich PRP - a bit of inflammation may do some good.

Comments from PAIN+ CPN subscribers

No subscriber has commented on this article yet. Click the button below to be the first!

