Evidence-Based Physiatry

Treatment of Midportion Achilles Tendinopathy

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Achilles tendinopathy (AT) is a common musculoskeletal disorder that affects both the general population and athletes. Patients present with a combination of features, including tendon pain, swelling, morning stiffness, and restricted weight-bearing. The injury can be classified as midportion (noninsertional) and insertional AT based on primary location of pathology. Although both types of AT are often managed conservatively, insertional AT tends to be less responsive to nonsurgical treatments. Furthermore, coexisting conditions such as Haglund deformity should be considered in treatment protocols.

Eccentric exercises (ECCs) have been the mainstay in treatment of midportion AT based on the landmark study by Alfredson et al. Eccentric loading may stimulate tendon healing through multiple mechanisms including improving tendon strength and disrupting pain from neovascularization. However, a subset of patients may not respond to ECC and consider additional treatments. A limited number of direct comparisons among interventions create a challenge to clinical decision making for midportion AT. The Victorian Institute of Sports Assessment–Achilles is considered a valid outcome measure for Achilles tendon function. Two published network meta-analyses may help physiatrists determine the best evidence-based treatment using the Victorian Institute of Sports Assessment–Achilles to measure effectiveness between treatments.

WHAT IS A NETWORK META-ANALYSIS?

Whereas traditional meta-analysis (pairwise meta-analysis) focuses on a single treatment comparison, a network meta-analysis (NMA) allows for comparisons among all treatment options using both direct and indirect results from studies that use a common measure. For example, intervention A was shown to be superior to intervention B in one study, and intervention B was superior to intervention C in a separate study. The NMA can help determine the relative effectiveness of interventions A, B, and C using mathematical models to determine effect size. The NMA specific to midportion AT identified 22 studies with 978 patients that used the Victorian Institute of Sports Assessment–Achilles to measure outcomes divided into time frames of 3 mos or less and 3 to 12 mos.

WHAT TREATMENT IS AVAILABLE FOR EARLY MANAGEMENT (≤3 MOS)?

Across interventions, acupuncture and ECC combined with high-volume injection with steroid were each shown to improve pain and function. However, because high-volume injection is composed of saline and anesthetic and can have steroid added, safety concerns such as atrophy and tendon rupture should be considered. ECC alone did not have predictable gains, suggesting synergy in combining treatment for functional improvements in early treatment.

WHAT TREATMENTS ARE MOST EFFECTIVE FOR LONGER-TERM MANAGEMENT OF 3–12 MOS?

Natural history (wait-and-see) was inferior to all other treatment options. ECC does demonstrate benefits after 3 mos. However, greater effects of ECC were identified when combined with high-volume injection with steroid and extracorporeal shockwave therapy. Although findings suggest that platelet-rich plasma as a monotherapy and platelet-rich plasma combined with ECC improve outcomes compared with a wait-and-see approach, results from the NMA suggest that these interventions do not have favorable outcomes above ECC. Tolerability and safety in adverse outcomes were similar across interventions studied.

LIMITATIONS IN INTERPRETING NMA

Limitations in NMA should be considered when interpreting findings, including differences in methodology, inclusion criteria, and choice of outcome measures. As a result, other available treatment options such as glyceryl trinitrate patch, prolotherapy, or adipose-derived stromal vascular fraction injection may not have qualified to be included within the recent NMAs. Furthermore, results from a single study can influence overall results. Acupuncture was shown effective in both short- and longer-terms based on the results of a single study. Furthermore, injection therapies were grouped together in one NMA.

HOW DOES THIS CHANGE PHYSIATRY PRACTICE?

Despite its limitations, the findings from the NMA provide guidance for evidence-based practice in the management of midportion AT. The wait-and-see approach is not recommended. Acupuncture was shown to be effective in both short- and longer-term outcomes, but the results derived from a single
study. Both platelet-rich plasma alone and platelet-rich plasma combined with ECC did not have favorable outcomes compared with ECC. Because of wide availability and low cost, ECC should be considered for initial management but may more reliably demonstrate improvement after 3 mos. The NMA showed that all interventions for midportion AT have a comparable safety profile while providing effective treatment over wait and see to 1 yr. The effects of each intervention and safety concerns, including tenotoxicity in high-volume injection with corticosteroids and anesthetics, should be considered when interpreting studies limited to 12 mos. Consequently, when treating midportion AT, physiatrists should offer treatment above the wait-and-see approach. This should include physical therapy with progressive tendon loading as an initial treatment. In the authors’ opinion, offering combined ECC with extracorporeal shockwave therapy is reasonable given good safety profile and the mechanisms for action of combined treatment to stimulate tendon healing, address pain, and restore function.

REFERENCES