Al-Abbad H, Simon JV. The effectiveness of extracorporeal shock wave therapy on chronic Achilles tendinopathy: a systematic review. Foot Ankle Int. 2013;34(1):33-41.

Design: Systematic review of clinical trials

Purpose of study: to explore the effectiveness of extracorporeal shock wave therapy (ESWT) on insertional and on noninsertional Achilles tendinopathy

Reasons not to cite as evidence:

- The search strategy and assessment of methodological quality are satisfactory, but the authors found only two studies which had blinding of participants
    - The search dates are not specified, but the search covered "the past 10 years" and did not include 2013
- In the setting of an intervention like ESWT, there is a high risk of bias in any study which does not blind participants by using a sham intervention, and the risk is that the effect of ESWT will be inflated when groups are compared
- Of the two studies which were appropriately blinded, only one (Costa 2005) used concealed allocation and reported treatment effects using point estimates and variability, and did not find statistically significant differences between ESWT (n=22) and sham ESWT (n=27) using several pain measures on a 100 point scale
    - For example, the group difference with respect to pain on walking showed a difference of 15.8 points in favor of ESWT, with wide 95% confidence intervals from 4.7 points in favor of sham ESWT to 36.2 points in favor of ESWT
    - Pain at rest had a difference of 7.8 points in favor of ESWT with 95% confidence intervals from 11 points in favor of sham ESWT to 26.7 points in favor of ESWT
    - Thus, Costa did not find evidence to support a statistically significant difference in favor of ESWT over sham, but did not rule out a clinically important treatment effect
- The second adequately blinded study, Rasmussen 2008, reported some differences between ESWT and sham with respect to functional scores, but presented these differences in graphs with p values rather than in terms of point estimates and variability, and the pain scores on walking, running, and working were not different between ESWT and control groups
- A more recent study, Rompe 2013, had not been published at the time of the search, compared eccentric exercise plus ESWT to eccentric exercise alone; the exercise alone group did not receive any form of sham ESWT, resulting in a high risk of bias which could inflate the estimated treatment effect of ESWT

Assessment: an adequate systematic review which does not provide evidence to support the conclusion that ESWT is superior to sham ESWT, but a clinically important effect has not been ruled out, and future research may change the unbiased estimate of the effect of ESWT.

References:

Costa ML, Shepstone L, Donell ST, Thomas TL. Shock wave therapy for chronic Achilles tendon pain: a randomised controlled trial. Clin Orthop Relat Res. 2005;440:199-204.

Rasmussen S, Christensen M, et al. Shockwave therapy for chronic Achilles tendinopathy: a double blind, randomized clinical trial of efficacy. Acta Orthopaedica 2008;79(2):249-256.

Rompe JD, Furia J, Maffulli N. Eccentric loading versus eccentric loading plus shock-wave treatment for midportion Achilles tendinopathy: a randomized controlled trial. Am J Sports Med. 2009;37(3):463-70