

## *trends* IN TREATMENT

### UPDATE ON SHOCKWAVE THERAPY

by Ben Pearl, DPM, FACFAS

**t**here are some emerging trends in the use of shockwave therapy (ESWT) for treatment of plantar fasciitis and Achilles tendonopathy. Briefly, ESWT involves using high-intensity sound waves to initiate a process of tissue repair called neovascularization. There are both low and high energy treatments; I believe the high energy treatments are more effective, often requiring only one treatment. The high energy treatments most prevalent in North America use electrohydraulic and electromagnetic devices.

One trend that has become clear is that long-term success rates, particularly in the case of plantar fasciitis, are dependent upon continuing preventive measures such as stretching, use of orthotics or high quality arch supports, activity modification and maintaining or reaching a healthy weight. In real life terms, this means that an obese patient who has a job involving heavy workloads or stands on his or her feet all day is going to have a much higher recurrence rate. For plantar fasciitis, the direct impact of heel strike makes the above preventive measures all the more important; the force on the insertion of the Achilles tendon is indirect.

Another trend is that patients with conditions that lead to poor tissue quality such as fibromyalgia and irritable bowel syndrome tend to be less responsive to ESWT. This makes sense intuitively because a normal healing cascade would not be expected in these individuals.

An anecdotal trend is that the success rate with ESWT on insertional Achilles tendonopathy may be as good or better than on plantar fasciitis. A recent multicenter controlled study by Weil et al. reported 60% of patients with plantar fasciitis had improvement of better than 50% after an electrohydraulic ESWT treatment versus 38% of patients in the control, "sham treatment," group. In a retrospective small trial by Gordon, Eickmeier et al. there were favorable outcomes in 60% of Achilles tendonopathies. But Eickmeier has noted that following their initial report they have refined their technique and are now projecting roughly 80% success rates with insertional Achilles tendonopathy. It should be noted that most protocols for Achilles treatment suggest four to six weeks of casting after the procedure to protect the Achilles. This effect will need to be evaluated in future controlled studies.

Trying to verify success rates with ESWT is a challenging task. First, there are varying intensity levels of the machines even within the categories of low and high intensity machines. Second, various studies have had different inclusion criteria regarding types and length of previous treatments. Roughly 90% of

patients with plantar fasciitis will respond to conservative therapy. A study that does not have an adequate trial of conservative treatment will not show as much difference when comparing the ESWT and non-ESWT groups because the second group would be expected to get better anyway.

This was a major critique of the controversial Buchbinder study published in ***IAMA***. This effect can also mislead the public into false expectations if there is no control group. For plantar fasciitis, six months of conservative treatment have been widely recommended. In the case of insertional Achilles tendonopathy, no clear time period has been established for conservative therapy but this condition is generally thought to have a worse prognosis with conservative therapy alone. Alfredson has cited a failure rate of 20 to 30%.

Finally, financial constraints have made it difficult to produce large controlled studies, as a well designed study can approach the one million dollar range. This has prevented FDA approval of a potentially beneficial application of ESWT on the Achilles tendon. Nevertheless, the future looks bright for ESWT. Once branded as a fad by skeptics, ESWT continues to refine its techniques and persist in the pantheon of available treatment options for those who wish to return more quickly to their active lifestyles.

*(personal corresp., Kimberly Eickmeier, DPM, FACFAS; Podiatry Today, Nov. 2004, pp. 61-65; Foot and Ankle Surgery, 2004, Vol. 10, pp. 125-130; Am. J. Sports Med., 1996, Vol. 24, No. 6, pp. 829-833)*

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