

# Small Studies Back Injections for Tennis Elbow

BY KATE JOHNSON

MONTREAL — Four different injection therapies appear to be effective for refractory lateral epicondylitis (tennis elbow) and offer additional treatment options for patients who have failed conservative care, suggest results of a systematic review.

"We know that 80% of these injuries get better on their own, but for the ones that don't, these injection therapies make sense," Dr. David Rabago said at the annual meeting of the North American Primary Care Research Group.

Dr. Rabago of the University of Wisconsin, Madison, reviewed the evidence for prolotherapy, polidocanol injection, autologous whole-blood injection, and platelet-rich plasma injection therapies (Br. J. Sports Med. 2009;43:471-81).

Out of 21 possible studies, 9 studies met inclusion criteria: 5 prospective case series and 4 controlled trials. Three studies focused on prolotherapy, two on polidocanol injection, three on autologous whole-blood injection, and one on platelet-rich plasma injection.

The total number of patients in all studies combined was 201, and they ranged in age from 19 to 66 years old. Refractory elbow pain ranged any-

where from 3 to 25 months, and the follow-up periods ranged from 9 to 108 weeks.

Reduced pain was the primary outcome of each study, rated according to a visual analog scale or pain questionnaire. Improvement from baseline or compared with controls ranged from 51% to 94%, said Dr. Rabago. Secondary outcomes, which included elbow function and a decrease in abnormalities or vascularity on ultrasound, also showed improvement in all studies.

These moderate to large effect sizes were sustained over 12-25 months, and "far exceed minimal clinically relevant effect sizes for chronic pain," said Dr. Rabago.

There were no adverse events reported.

Polidocanol is a vascular sclerosant that is injected into areas of high intratendinous blood flow in the elbow, using high-resolution ultrasound and color Doppler visualization. Its mechanism of action is believed to be the interruption of neovascular pathology, which is associated with pain and degeneration. Polidocanol is the most commonly used therapy worldwide, but is not available in the United States.

Prolotherapy also involves the injec-

tion of vascular sclerosants (most often hypertonic dextrose or morrhuate sodium), but does not require ultrasound guidance.

Autologous whole blood involves drawing blood from the patient and injecting it into the painful area to trigger a healing response.

Platelet-rich plasma is centrifuged from autologous whole blood and injected into the painful area to trigger healing with platelet-derived growth factors.

While prolotherapy is the easiest of the four therapies to implement, the reviewed studies showed that it required three treatment sessions, compared with the one or two sessions needed for the other therapies, Dr. Rabago noted.

With some basic training and equipment, all four therapies can be performed

in a family medicine office on an outpatient basis, Dr. Rabago said in an interview.

"Each of the studies reviewed is small, and their methodological limitations prevent a consensus recommendation on the use of any of the three therapies, compared with another, at this time. However, the large effect sizes reported by all studies are compelling and suggest several areas of clinical, theoretical, and research interest," wrote Dr. Rabago and his coauthors in their paper.

One of Dr. Rabago's coauthors is a consultant and lecturer for Harvest Technologies, a manufacturer of centrifuge and ancillary equipment for platelet-rich plasma injection therapy. Harvest had no direct or indirect role in the study. No other coauthor reported any conflict of interest. ■

## Plasma Injections Fail to Ease Achilles Tendinopathy

BY MARY ANN MOON

Injections of platelet-rich plasma failed to improve pain or function in the first blinded, randomized placebo-controlled trial of the new technique for Achilles tendinopathy, results from a small study

jected through three puncture locations. Five small depots were left at each location, within the degenerative area of the main body of the tendon.

All subjects underwent a standard rehabilitation program that included daily stretching and eccentric exercises—pri-

suggest. The treatment also delivered no more patient satisfaction than placebo injections, nor did it facilitate a return to sports activity.

"These findings are important and clinically relevant as PRP is thought to be growing in popularity, and recent reviews supported its use for chronic tendon disorders," said Dr. Robert J. de Vos of Erasmus University Medical Center, Rotterdam, the Netherlands, and his associates (JAMA 2010;303:144-9).

Platelet-rich plasma injections "raised high expectations" when they were introduced because PRP contains several growth factors that are known to play a role in tissue repair.

It was thought that relatively high concentrations of vascular endothelial growth factor, platelet-derived growth factor, and transforming growth factor-beta could help regenerate tendon tissue "through increased tendon cell proliferation, collagen synthesis, and vascularization."

In their trial, Dr. de Vos and his colleagues compared PRP injections with placebo injections in 54 patients who were treated at the sports medicine outpatient department of a single large hospital for chronic midportion Achilles tendinopathy.

The pain was located approximately 2-7 cm proximal to the tendon's insertion on the calcaneus.

The tendon structure was examined using ultrasound, and the fluid was in-

VITALS

**Major Finding:** Patients with chronic midportion Achilles tendinopathy received no benefit from injections of platelet-rich plasma (PRP).

**Data Source:** In a blinded, randomized, placebo-controlled trial, 27 patients were treated with PRP injections and 27 were treated with placebo injections.

**Disclosures:** Funded by Biomet Biologics. No other disclosures were reported.

marily "heel drops" performed on a step, which stretched the Achilles tendon while concurrently contracting the calf muscle.

At 6, 12, and 24 weeks' follow-up, scores were no different between the 27 patients who received active injections and the 27 who received placebo injections, on a measure of pain and activity specifically addressing Achilles tendinopathy.

Subjective patient satisfaction also was not significantly different between the two groups, according to the results. The same was true for the number of subjects able to return to their desired sport after 24 weeks.

The use of PRP injections in clinical practice has been based on the findings of laboratory studies and a few small clinical studies that did not include a proper control group and were not blinded, Dr. de Vos and his associates noted.

Given the results of their clinical trial, "we do not recommend this treatment for chronic midportion Achilles tendinopathy," they said. ■

  
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### CONTRAINDICATIONS

None.

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