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New biologic treatment for tennis elbow may replace surgery for chronic sufferers

One-time injection with patient's own platelets reduces pain, allows return to activity

Rosemont, Ill. ‑October 23, 2006 ‑ A person suffering from tennis elbow may not have to look any further than his or her own body for the most effective treatment, according to a study published in the November issue of The American Journal of Sports Medicine.

Specially-prepared platelets taken from the patient which are then re-injected into the tendon of the affected elbow provides more relief than more commonly-used therapies which have failed to yield results, often resulting in surgery, concludes study authors Allan Mishra MD and Terri Pavelko, PAC, PT, of the Menlo Medical Clinic, Stanford University Medical Center, Menlo Park, Calif.

"Ours is the first in vivo human investigation of this novel biologic treatment for chronic severe elbow tendonitis in patients who have simply 'flunked out' of other treatments," says Dr. Mishra. "Ninety-three percent of patients in our study did well, which is as good a result as patients who have tendon surgery."

"There is very little risk here; we are using the patient's own blood taken right in the doctor's office, and the whole procedure takes less than an hour," Mishra says. "The results of our pilot study indicate this therapy is as effective as surgery, with sustained and significant improvement over time, no side effects, and high patient acceptance."

Tennis elbow (lateral epicondylitis or tendonitis) isn't restricted to those who frequent tennis courts, but is a common problem for people whose activities require strong gripping or repetitive wrist motions. It is a degeneration of the tendon above the elbow that controls the movements of the wrist and hand. Treatments such as rest, nonsteroidal anti-inflammatory drugs, bracing, physical therapy, and injections of corticosteroids (cortisone shots) are often

used but recent studies have called into question their efficacy. Those who suffer longest resort to surgical repair of the tendon when all other therapies have failed.

Mishra and Pavelko evaluated 140 patients who had tennis elbow for longer than 3 months and had scored at least a 60 of 100 using a visual analog scale (a continuum on which a person rates the severity of his/her pain: 0 = no pain; 100 = maximum pain). They all had completed a course of physical therapy and had tried some combination of anti-inflammatory medicines, bracing or cortisone shots, all without relief of symptoms. Twenty of the original 140 patients evaluated met these strict criteria and were enrolled in the study. These 20 represented the most severe tendonitis patients who had not improved with time or nonsurgical treatment.

Fifteen patients received a one-time injection of platelet-rich plasma (PRP) into their affected elbow. (Platelets are blood components responsible for the formation of clots in response to injury, but also contain powerful growth factors; plasma is the liquid portion of the blood.) Blood was drawn from a patient's unaffected arm and spun down in the physician's office lab to separate the blood's components. Approximately a half-teaspoon (2 to 3 mL) of this material ' over 500% richer in platelets than whole blood 'was then injected into the tendon of the sore elbow. These 15 patients had tennis elbow for 15 months and the average patient age was 48 years. Their baseline score on the pain scale was 80.3.

Five patients served as a control (non-PRP) group and received a 2 to 3 mL injection of a local anesthetic (bupivacaine with epinephrine) into the affected elbow. The mean duration of symptoms in this group was 12 months and average patient age was 42 years. Their baseline score on the pain scale was 86.

Twenty-four hours post-treatment both groups began a 2-week standardized stretching program and at 4 weeks patients were allowed to return to normal sporting and recreational activities. Follow-up visits were planned at 4 weeks, 8 weeks and 6 months post-treatment, with a final overall evaluation. Using the visual analog scale, at 4 weeks post-treatment the PRP-treated group reported a mean 46 percent improvement versus a mean 17 percent improvement in the control group. Eight weeks after treatment, the PRP patients reported a mean 60 percent improvement while the control group reported a mean 16 percent improvement. At eight weeks, 3 of the 5 control patients had either sought other treatment for their condition or had left the study, limiting further analysis to the PRP-treated patients.

At 6 months post-treatment, the PRP-treated patients' visual analog pain scores had improved 81 percent over their baseline scores. At a 2-year evaluation, 93 percent of these patients

reported "complete satisfaction" with the treatment and 7 percent were "partially satisfied." Nearly all of the PRP-treated patients had returned to the activities of daily living and over 90 percent had returned to work or sporting activities.

Platelet-rich plasma contains powerful growth factors that initiate healing in the tendon, but may also send signals to other cells in the body drawing them to the injured area to help in repair, Mishra theorizes. Early studies have shown PRP therapy to be useful in maxillofacial surgery, wound healing, microfracture repair, and in the treatment of plantar faciitis. Treatment with PRP is still considered investigational and further research is needed before it can be made available to the general population.

"The body has an extraordinary ability to heal itself," says Mishra. "All we did was speed the process by taking blood from a different area, concentrating it, and putting it back into an area where there was relatively poor blood supply to help repair the damage."

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