**Gosens T, Peerbooms J, van Laar W et al. Ongoing positive effect of platelet-rich plasma versus corticosteroid injection in lateral epicondylitis: a double-blind randomized controlled trial with 2-year follow-up. Am J Sports Med. 2011;39(6);1200-8.**

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Design: followup of a previously published randomized clinical trial

Purpose of study: in patients with chronic lateral epicondylitis, to compare the effectiveness of PRP with that of steroid injection 24 months after the beginning of a trial with a 12 month followup (Peerbooms et al 2010)

Population/sample size/setting:

* 100 patients (48 men, 52 women, mean age 47) treated for lateral epicondylitis (LE) at 2 university orthopedics departments in the Netherlands
* Inclusion criteria included LE for at least 6 months with pain of at least 50 on a 100 point scale
* Exclusion criteria included any history of surgery for LE, corticosteroid injection in the previous 6 months, history of carpal tunnel syndrome or cervical radiculopathy, diabetes, rheumatoid arthritis, and hepatitis
* LE defined as pain over the lateral epicondyle on direct palpation and on resisted wrist extension
* Patients had previously been treated with cast immobilization, corticosteroids, or physical therapy at some point during the course of their symptoms

Interventions:

* Randomized to one of two injections at the lateral epicondyle: either platelet-rich plasma (PRP, n=51) or steroid (n=49)
* Both treatment groups had 27 ml of blood drawn from the uninvolved arm
* The PRP group’s 27 ml of drawn blood was centrifuged into a 3 ml platelet-rich concentrate, placed into an opaque tube, and buffered with sodium bicarbonate; 1 ml was injected, together with bupivacaine HCl, into the affected lateral epicondyle at the point of maximum tenderness
* PRP injection was done without using an activation agent
* The steroid group received 1 ml of 40 mg of triamcinolone acetonide with bupivacaine in a manner identical to that of the PRP group
* Both groups had the same post-procedure protocol: 24 hours of rest, acetaminophen prn, 2 weeks of standardized stretching under the supervision of a physical therapist, and activity as tolerated after 4 weeks

Outcomes:

* Pain VAS and Disability of Arm, Shoulder, and Hand (DASH) scores were measured at baseline and then at 4, 8, 12, 26, and 52 weeks after the injection
* Any patient who required a re-intervention (either an operation or a second injection) was recorded as a treatment failure; at 6 months, there were 5 failures (3 operations, 2 re-injections) in the PRP group and 13 failures in the steroid group (6 operations, 7 re-injections)
* Failures were declared an average of 5 months after the injection (range was 2-6 months)
* Most of the re-injections were done with the injectate of the other group; both PRP re-injections received steroid, and 6 of the 7 steroid re-injections were done with PRP
* At 4 weeks, steroid response appeared to be slightly better than for PRP; steroid group had a 32.8% improvement in VAS and a 25.8% improvement in DASH, compared to a 21% improvement in VAS and a 15.7% improvement in DASH for the PRP group; neither difference was statistically significant
* At 8 and 12 weeks, the PRP group scores began to improve relative to the steroid group scores, but the two groups did not differ in a statistically significant way
* At 6 months, a statistically significant advantage was observed for the PRP group over the steroid group in pain VAS (53.5% improvement vs. 14.0% improvement), and in DASH (50.7% improvement in PRP group vs. 10.7% improvement for steroid group)
* At 12 months, PRP continued to show an advantage over steroid; greater improvements in pain VAS (63.9% vs. 24.0%) and in DASH (66% vs. 17.4%)
* Successful treatment had been defined a priori as a reduction of 25% in VAS or DASH; under the VAS criterion, the success rate was 73% for PRP vs. 49% for steroid; under the DASH criterion, the success rate was 73% for PRP and 51% for steroid
* PRP was not cost-effective compared with steroid on a short-term basis; the cost of PRP treatment would be approximately $840 vs. $300 for steroid
* At 24 months, the mean DASH scores continued to be lower for PRP (17.6 points) versus steroid (36.5 points), and PRP had lower VAS (21.3 points) compared to steroid (42.4 points)
* That is, the PRP group, unlike the steroid group, recorded an uninterrupted course of clinical improvement from baseline to 24 months for DASH and VAS

Authors’ conclusions:

* Between 12 months and 24 months, the advantage of PRP over steroid injection was maintained, and at no time did the PRP group show a deterioration in average DASH and VAS scores
* PRP improves pain and function more effectively than steroid injection in a manner which is sustained over a two year followup time

Comments:

* The original Peerbooms study was generally well-designed and executed, and the 24 month data support the conclusion that the short term effects of steroid injections are not maintained in the longer term
* Although PRP is superior to triamcinolone over the course of two years, this may be in part attributable to some disadvantage of steroid injections in patients with lateral epicondylitis, since deterioration following an initial therapeutic response is likely to be a common phenomenon in that setting

Assessment: High quality study supporting good evidence that PRP produces more favorable symptomatic and functional improvement than triamcinolone injection in patients with chronic lateral epicondylitis, with this advantage persisting for 24 months after treatment

Reference:

Peerbooms JC, Sluimer J, et al. Positive Effect of an Autologous Platelet Concentrate in Lateral Epicondylitis in a Double-Blind Randomized Controlled Trial. Am J Sports Med 2010;38(2):255-261.