Title: Platelet Rich Plasma Significantly Improves Clinical Outcomes in Patients with Chronic Tennis Elbow

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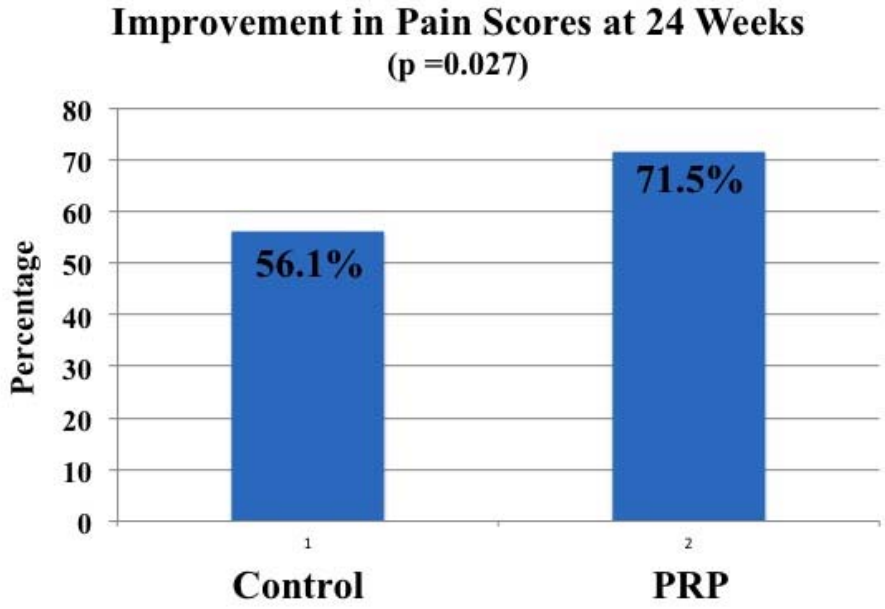
Abstract:

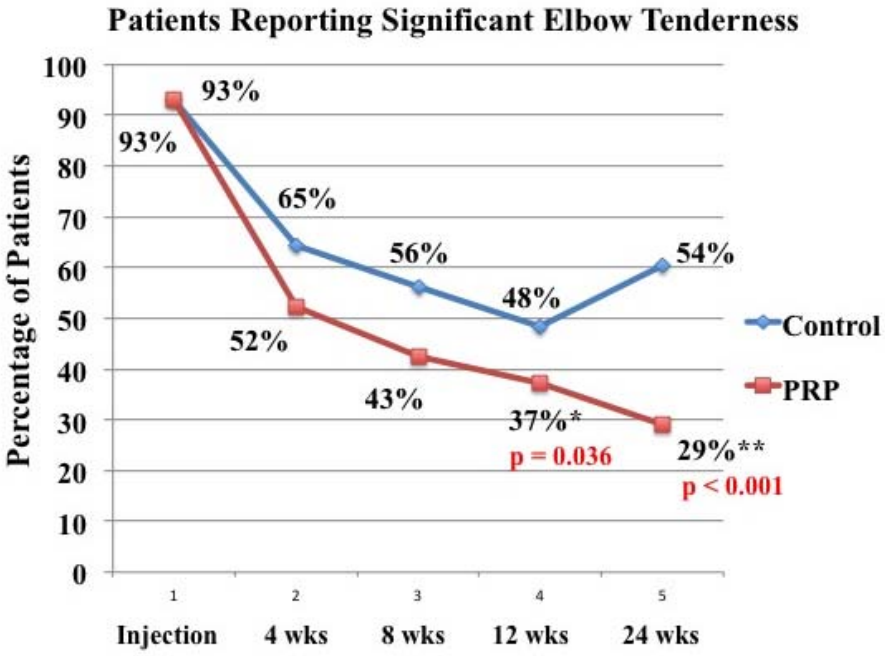
Introduction
Lateral epicondylar tendinopathy, also known as tennis elbow, is a common problem in orthopedic surgery that is manifested by pain with resisted wrist extension and local tenderness. The specific purpose of this study was to evaluate the clinical value of needling with PRP versus an active control of needling alone for this disorder.

Methods
230 patients (PRP: n =116, Active Control: n = 114) with chronic tennis elbow were given a local anesthesia block of 0.25% bupivacaine with epinephrine. Then, via a single skin penetration, the patients had the origin of their extensor tendons needled with or without PRP. No differences were noted in the groups prior to treatment. PRP was prepared from venous whole blood via a desktop centrifuge and a disposable canister at the point-of-care. The formulation of PRP contained concentrated platelets and concentrated white blood cells. All patients had at least three months of symptoms and had failed conventional therapy. A minimum baseline visual analog pain score of 50 out of 100 during resisted wrist extension was required. Local tenderness to palpation at the lateral epicondyle was another inclusion criteria and was also employed as an outcome measurement.

Results
Patients were followed for up to 24 weeks. At 12 weeks, the PRP patients reported 55.1% improvement in their pain scores compared to 47.4% improvement in the active control group ($p = 0.094$). At 24 weeks, the PRP patients reported 71.5% improvement in their pain scores compared to 56.1% in the control group ($p = 0.027$). The percentage of patients reporting significant elbow tenderness at 12 weeks was 37.4% in the PRP group versus 48.4% in the active control group ($p = 0.036$). At 24 weeks, 29.1% of the PRP patients reported significant elbow tenderness versus 54.0% in the control group ($p < 0.001$). (See graphs below) Importantly, no significant complications occurred in either group.

Conclusions
Treatment of chronic tennis elbow with platelet rich plasma is safe and results in clinically meaningful improvements in pain scores and local tenderness compared to an active control group.


Improvement in Pain Scores at 24 Weeks
(p =0.027)
Percentage
80
70
60
50
40
30
20
10
0
56.1%
71.5%
1
2
Control
PRP


Patients Reporting Significant Elbow Tenderness
Percentage of Patients
100
90
80
70
60
50
40
30
20
10
0
93%
93%
65%
56%
48%
54%
52%
43%
37%*
29%**
p = 0.036
p < 0.001
Control
PRP
1
2
3
4
5
Injection
4 wks
8 wks
12 wks
24 wks