PLATELET-RICH PLASMA FOR RHEUMATOID ARTHRITIS: A CASE SERIES

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Background

Rheumatoid Arthritis (RA) is a chronic disease characterized by severe inflammation, that leads to the degradation of articular cartilage and the formation of bony erosions. Unfortunately, this condition affects about 5 in 1000 individuals worldwide, peaking in the sixth decade of life [1].

Today, anesthesiology-led pain management clinics have begun to take special consideration into the treatment of patients with RA, as this progressive disease impairs work capacity and impacts a patient's wellbeing due to chronic pain [2]. The growing utilization of platelet-rich plasma (PRP) as a regenerative medicine therapy in many musculoskeletal pathologies has prompted expanding its use to patients with RA. We present clinical cases in which PRP was used for the treatment of RA in patients seeking a new therapy to control their chronic disease and alleviate pain.

References

1. Aletaha, D. and J.S. Smolen, *Diagnosis and Management of Rheumatoid Arthritis: A Review.* JAMA, 2018. **320**(13): p. 1360-1372.
2. Scott, D.L., *Pursuit of optimal outcomes in rheumatoid arthritis.* Pharmacoeconomics, 2004. **22**(2 Suppl 1): p. 13-26.

Methodology

Figure 1. Initial physical examination of right middle finger PIP joint of patient 1. Moderate tenderness to palpation and grade 2 synovitis. PAS II score of Q1 was a 6 out of 10 and of Q2 was a 5 out of 10.

At the bedside, venous blood was drawn into 12mL tubes and PRP was created with a centrifugation system. A 7 mL sample of PRP was mixed with 1 mL of lidocaine into a syringe. Each patient received 0.5 mL per affected interphalangeal joint and 1.5 mL peri-articularly. The Patient Activity Scale II (PASII) was employed as a standardized method to assess RA disease severity, recorded on the day of injection, at 3 months, and at 6 months. The following questions were primarily used to determine disease severity throughout the course of this report: (Q1) "How much pain have you had because of your illness in the past week on a scale of 0 to 10, with 0 being no pain and 10 severe pain" and (Q2) "Considering all the ways that your illness affects you, rate how you are doing on the following scale of 0 to 10 with 0 being very well and 10 very poor."

Results

All the included patients, age 49-63, received a diagnosis of RA within the proximal interphalangeal (PIP) and/or metacarpal phalangeal joints (MCP) of the hand. Over the course of 6 months, 2 of the patients reported a 20% reduction in pain from the initial visit and a 30% improvement in overall well-being. The third patient noted a 50% decrease in pain from the initial visit and a 50% improvement in overall well-being. PRP treatment consistently resulted in subjective functional improvement for each of the three patients treated, while reducing long term pain and inflammation.

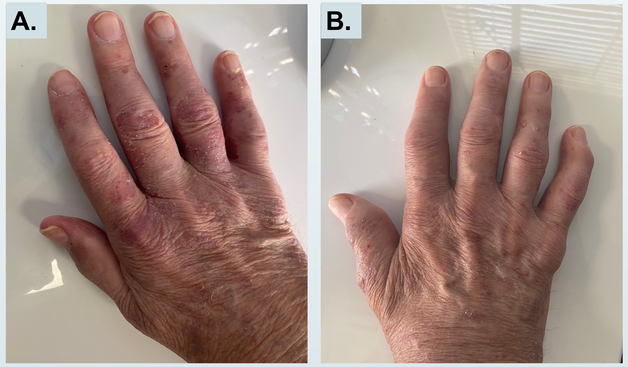

Figure 2A. Primary evaluation of 1st-3rd finger MCP joints and 3rd-4th PIP joints. **2B.** Re-evaluation at three months post-injection with a PAS II score of 4 out of 10 for both Q1 and Q2.

Conclusion

In conclusion, initial clinical and laboratory-based studies have shown that autologous plasma, rich in platelets, serves as a source of an abundance of growth factors once activated. The multitude of these growth factors directly injected into the diseased joint accelerates healing and improves functionality in patients with Rheumatoid Arthritis. PRP is likely to be a safe and beneficial therapy in patients with any stage of RA. Intra-articular administration of PRP in outpatient settings is an easily adoptable treatment strategy, with growing emergence in Board-Certified Pain-Medicine practices. This serves as both a surgery-sparing option and viable alternative to the toxic and expensive DMARDs usually recommended for RA treatment. Overall, we believe that PRP should be further evaluated in clinical trials to outline the long-term clinical benefits associated with the improvement of joint structure and composition, as well as quality of life in patients with RA.

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