

REFERENCES for **PLATELET RICH PLASMA (PRP)**

Daif ET. Autologous blood injection as a new treatment modality for chronic recurrent temporomandibular joint dislocation. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2010 Jan; 109(1): 31-6.

“This study was carried out to assess autologous blood injection into the TMJ for treatment of chronic recurrent TMJ dislocation.

“We conclude from this study that the injection of autologous blood into the TMJ in patients with chronic recurrent dislocation is a simple, safe and cost-effective technique. So, we encourage injection of autologous blood to the SJS [superior joint space] and PT [pericapsular tissues] for treatment of patients with chronic recurrent TMJ dislocation, as it has shown better clinical and radiographic results than its injection only to the SJS.”

Machon V, et. al. Autologous blood injection for the treatment of chronic recurrent temporomandibular joint dislocation. J Oral Maxillofac Surg. 2009 (Jan): 67(1): 114-9.

“Twenty-five patients diagnosed with chronic recurrent TMJ dislocation were treated by bilateral injections of autologous blood into the upper joint space and around the TMJ capsules bilaterally.

Eighty percent had a successful outcome and required no further treatment at their 1-year follow-up.

This procedure has proven to be safe, simple, and cost effective for the treatment of chronic recurrent TMJ dislocation.”

Matsuo A, et. al. Mandibular reconstruction using a tray with particulate cancellous bone and marrow and platelet-rich plasma by an intraoral approach. J Oral Maxillofac Surg. 2001 June; 69(6): 1807-14.

“PURPOSE: To evaluate the possibility of immediate mandibular reconstruction using particulate cancellous bone and marrow (PCBM), platelet-rich plasma (PRP), and a tray, we compared the postsurgical infection rate and bone formation in patients who received mandibular reconstruction with this method using either an intraoral or extraoral approach.

CONCLUSION: We conclude that mandibular reconstruction using a tray with PCBM and PRP is a safe and reliable method for cases of benign tumor and trauma, even if immediate reconstruction is performed by an intraoral approach.

Robiony M, et. al. Osteogenesis distraction and platelet-rich plasma: combined use in restoration of severe atrophic mandible. Long-term results. Clin Oral Implants Res. 2008 nov; 19(11): 1202-10.

“Long-term results allow us to confirm the combination of autologous bone-platelet gel with alveolar DO as an effective and predictable procedure in restoration of severe atrophic mandible.”

Non-TMJ specific references

Sampson S, et. al. Platelet rich plasma injection grafts for musculoskeletal injuries: a review. Curr Rev Musculoskeletal Med. 2008 Dec; 1(3-4): 165-74.

“In Europe and the United States, there is an increasing prevalence of the use of autologous blood products to facilitate healing in a variety of applications. Recently, we have learned more about specific growth factors, which play a crucial role in the healing process. With that knowledge there is abundant enthusiasm in the application of concentrated platelets, which release a supra-maximal quantity of these growth factors to stimulate recovery in non-healing injuries. For 20 years, the application of autologous PRP has been safely used and documented in many fields including: orthopedics, sports medicine, dentistry, ENT, neurosurgery, ophthalmology, urology, sound heading, cosmetic, cardiothoracic, and maxillofacial surgery... In summary, PRP provides a promising alternative to surgery by promoting safe and natural healing.”

Rutkowski JL, et. al. Platelet rich plasma to facilitate wound healing following tooth extraction. J Oral Implantol. 2010; 36(1): 11-23.

“It required 6 weeks for control extraction sites to reach comparable bone density that PRP treated sites achieved at week 1. Postoperative pain, bleeding, and numbness were not significantly affected by BC-PRP application. Results suggest that this simple technique may be of value to clinicians performing oral surgery by facilitating bone regeneration following tooth extraction.”

Marukawa E, et. al. Reduction of bone resorption by the application of platelet-rich plasma (PRP) in bone grafting of the alveolar cleft. J Craniomaxillo Surg. 2001 Jun; 39(4): 278-83.

“Autogenous cancellous bone grafting with PRP, which significantly reduces postoperative bone resorption, is a reliable technique for alveolar bone grafting of cleft patients.”

Simonperi A, et. al. Current knowledge and perspectives for the use of platelet-rich plasma (PRP) and platelet-rich fibrin (PRF) in oral and maxillofacial surgery. Part 2: Bone graft, implant and reconstructive surgery. Curr Pharm Biotechn. 2011 Jul 8. [Epub ahead of print]

“The history of platelet concentrates in oral and maxillofacial surgery finally demonstrates also how the techniques evolve and sometimes promote the definition of new therapeutical concepts and clinical protocols in today’s era of regenerative medicine.”

Mendonca-Caridad JJ, et. al. Frontal sinus obliteration and craniofacial reconstruction with platelet rich plasma in a patient with fibrous dysplasia. Int J Oral Maxillofac Surg. 2006 Jan; 35(1): 88-91.

“A patient with severe symptomatic fronto-orbital fibrous dysplasia underwent reconstruction with PRP. After an uneventful recovery there was complete remission of the symptoms and early bone formation; 18 months after surgery the patient remains asymptomatic and free from sequels. PRP associated to an allograft or to cortical bone shavings seems to be a safe and simple treatment with the advantage of the absence of donor site surgery and morbidity.”

Crane D, et. al. Platelet rich plasma matrix grafts. Practical Pain Management. 2008; Jan/Feb: 12-26.

“PRP matrix grafts along with other biologic grafting techniques are becoming more prevalent in the treatment paradigms of musculoskeletal medicine. These PRP matrix grafts provide effective, safe, relatively low-cost treatment options to patients who have the time and wherewithal to allow collagen synthesis and maturation at the graft site. PRP matrix grafts appear to restore tissue homeostasis and biotensegrity of collagen. Other pain inhibiting effects are also present in PRP matrix grafts which allow earlier resumption of pain free activity.”

Gosens T, 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. 2001 Jun; 39(6): 1200-8.

“Treatment of patients with chronic lateral epicondylitis with PRP reduces pain and increases function significantly, exceeding the effect of corticosteroid injection even after a follow-up of 2 years.”

Mishra A and Pavelk T. Treatment of chronic elbow teninosis with buffered platelet-rich plasma. Am J Sports Med. Nov 2006; 34: 1774-1778.

Background: Elbow epicondylar tendinosis is a common problem that usually resolves with nonoperative treatments. When these measures fail, however, patients are interested in an alternative to surgical intervention.

Hypothesis: Treatment of chronic severe elbow tendinosis with buffered platelet-rich plasma will reduce pain and increase function in patients considering surgery for their problem.

Study Design: Cohort study; Level of evidence, 2.

Methods: One hundred forty patients with elbow epicondylar pain were evaluated in this study. All these patients were initially given a standardized physical therapy protocol and a variety of other nonoperative treatments. Twenty of these patients had significant persistent pain for a mean of 15 months (mean, 82 of 100; range, 60–100 of 100 on a visual analog pain scale), despite these interventions. All patients were considering surgery. This cohort of patients who had failed nonoperative treatment was then given either a single percutaneous injection of platelet-rich plasma (active group, n = 15) or bupivacaine (control group, n = 5).

Results: Eight weeks after the treatment, the platelet-rich plasma patients noted 60% improvement in their visual analog pain scores versus 16% improvement in control patients ($P = .001$). Sixty percent (3 of 5) of the control subjects withdrew or sought other treatments after the 8-week period, preventing further direct analysis. Therefore, only the patients treated with platelet-rich plasma were available for continued evaluation. At 6 months, the patients treated with platelet-rich plasma noted 81% improvement in their visual analog pain scores ($P = .0001$). At final follow-up (mean, 25.6 months; range, 12–38 months), the platelet-rich plasma patients reported 93% reduction in pain compared with before the treatment ($P < .0001$).

Conclusion: Treatment of patients with chronic elbow tendinosis with buffered platelet-rich plasma reduced pain significantly in this pilot investigation. Further evaluation of this novel treatment is warranted. Finally, platelet-rich plasma should be considered before surgical intervention.

Books

Marx RE, Garg AK. Dental and Craniofacial Applications of Platelet-Rich Plasma. 2005; Quintessence Publishing Co. Ltd.: Chicago, IL

Introduction

Co-written by the researcher who first explained the scientific mechanism of PRP and a clinician with expertise on its use, this authoritative handbook presents clear and easy-to-follow guidelines for routinely incorporating PRP into a broad spectrum of dental and craniofacial procedures in order to obtain its documented benefits of enhanced healing and improved outcomes. The authors explain PRP's biologic mechanism of action, the in-office procedure for developing PRP, and most importantly, its application and expected benefits in procedures such as implant placement, periodontal bone and soft tissue surgery, sinus lifts, jaw reconstructions, soft tissue facial augmentations, and facial cosmetic surgeries.

Preface

Our understanding of the scientific mechanism of growth factors remains in its infancy. Primitively established in 1965 by the discovery of bone morphogenetic protein, the field of growth factor technology made stellar advances for many years despite a total lack of clinical applications. Beginning in 1998, however, the clinical science of growth factors grew exponentially, primarily as a result of studies involving the composite of growth factors known as platelet-rich plasma (PRP). Over the next 7 years, a large body of excellent clinical studies was gradually amassed to define PRP as a legitimate tool in wound healing and essentially the first set of autologous human growth factors directly available to clinical surgeons. PRP is a catalyst for success in routine as well as major reconstructive surgeries and is a critical factor in the healing of compromised wounds. However, it is only an adjunct to healing; it cannot replace the basic principles of sterility, blood supply, and the careful handling of tissues.

This book describes the science, technology, and clinical applications of PRP within several disciplines of dentistry and facial surgery. It shows definitive outcomes and scientific proof of its efficacy as well as the proper techniques necessary to obtain PRP's greatest benefits. This book also answers controversies with scientific data and experience to reassure the reader of the safety of all growth factor applications in addition to those involving PRP. It provides practical information for the reader who wishes to learn phlebotomy techniques, as well as a consent form for harvesting autologous blood, both of which are essential to the clinical application of PRP.

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