Platelet-rich plasma

Platelet-rich plasma (PRP) is a milieu of bioactive factors, including platelet-derived growth factor, transforming growth factor beta, among many others.

see Platelet rich plasma scaffolds.

see Platelet gel.

Intradiscal Platelet-Rich Plasma

Intradiscal Platelet-Rich Plasma

Case series

The aim of a study was to investigate and compare the efficacy of corticosteroid and platelet-rich plasma (PRP) therapy that they have injected in epidural and foraminal spaces under the guidance of epiduroscopy in the operated or unoperated patients with radicular pain.

The retrospective study was conducted with 62 patients (40 females, 22 males; mean age: 48±12.3 years; range, 20 to 75 years) between January 2014 and September 2020. Of the patients, 32 were unoperated, whereas 30 were operated. All the patients had radicular pain. All the patients were evaluated by the Visual Analog Scale (VAS) and the Oswestry Disability Index (ODI) at the start, on the 10th day, and at one and six months after the procedure by polyclinic control and by a phone call for their last follow-up.

The VAS and ODI scores of patients treated with corticosteroid and PRP were decreased on the 10th day, at one and six months and the last follow-up, and this decrease was statistically significant.

Both PRP and corticosteroid injections were effective in pain scores during short-term and long-term follow-ups owing to the contribution of epiduroscopic intervention by allowing local administration of PRP or corticosteroids and analgesic agents as well as its mechanical adhesiolysis effect ¹⁾.

Intraarticular injection with Autologous Platelet Rich Plasma

19 patients with lumbar facet joint syndrome (8 men, 11 women; mean ages: 52.53 ± 6.79 years, range: 38 - 62 years) were enrolled to receive lumbar facet joint injection with autologous PRP under x-ray fluoroscopic control. Patients were followed up immediately, at one week, one month, 2 months, and 3 months following treatment, and the elements of this analysis included low back pain visual analogue scale (VAS) at rest and during flexion, Roland-Morris Disability Questionnaire (RMQ), Oswestry Disability Index (ODI), and modified MacNab criteria for the pain relief.

All the 19 patients completed the intra-articular injections with autologous PRP successfully. At one week after treatment, low back pain reduced significantly compared with prior to treatment both at rest and during flexion. The outcomes were assessed as "good" or "excellent" for 9 patients (47.37%)

immediately after treatment, 14 patients (73.68%) at one week, 15 patients (78.95%) at one month, 15 patients (78.95%) at 2 months, and 15 patients (78.95%) at 3 months. Statistically significant differences were observed based on RMQ and a more than 10% improvement in lumbar functional capacity was observed based on ODI between pre-treatment and post-treatment. In addition, there were no severe relevant complications during the whole process of injection and follow-up period.

A control group and the curative effect observations with longer follow-up may lead to a more convincing result for our study.

In the short-term period of 3 months, the new technique of lumbar facet joint injection with autologous PRP is effective and safe for patients with lumbar facet joint syndrome. Key words: Low back pain, lumbar facet joint syndrome, autologous platelet rich plasma, intra-articular injection²⁾.

PRP used with cancellous bone substitute increases the rate of fusion and bone density joining osteoinductive and osteoconductive effect ³. Moreover, this preparation has low production costs and is easy to apply ⁴

Despite accumulating evidence on PRP's safety and efficacy for treating musculoskeletal injuries, limited studies have been performed using PRP in brain disorders.

A study aimed to explore the potential benefits of administration of human PRP lysate after ischemic stroke in rats. An ischemic stroke model was generated by occlusion of the right middle cerebral artery, then 90 min later, stroke rats were randomly assigned to receive local infusion to the ischemic area of human PRP lysate, human albumin solution (HSA), saline or no treatment at all. An additional group of stroke rats received systemic infusion of human PRP lysate to further assess the therapeutic effects of this treatment. Results showed that while local infusion of HSA or saline, and systemic administration of human PRP lysate, compared to no treatment significantly reduced infarct volume (37.4%, 40.1%, and 39.9% vs 49.7%) and neurological deficit score (2.2, 2.6, and 2.8vs 3.7), the greatest neuroprotection (31.0% infarct volume and 1.6 neurological deficit score) was found in stroke animals that received local intra-arterial infusion of human PRP lysate (p's<0.05). In conclusion, administration of human PRP attenuates brain injury after focal ischemia. These results suggest PRP should be investigated further as a potential point-of-care biomaterial following stroke ⁵⁾.

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Demirci AY. The retrospective analysis of platelet-rich plasma and corticosteroid injection under epiduroscopic guidance for radiculopathy in operated or unoperated patients for lumbar disc herniation. Turk J Phys Med Rehabil. 2022 Aug 25;68(3):409-417. doi: 10.5606/tftrd.2022.9005. PMID: 36475103; PMCID: PMC9706794.

Wu J, Du Z, Lv Y, Zhang J, Xiong W, Wang R, Liu R, Zhang G, Liu Q. A New Technique for the Treatment of Lumbar Facet Joint Syndrome Using Intra-articular Injection with Autologous Platelet Rich Plasma. Pain Physician. 2016 Nov-Dec;19(8):617-625. PubMed PMID: 27906940.

Tarantino R, Donnarumma P, Mancarella C, Rullo M, Ferrazza G, Barrella G, Martini S, Delfini R. Posterolateral arthrodesis in lumbar spine surgery using autologous platelet-rich plasma and cancellous bone substitute: an osteoinductive and osteoconductive effect. Global Spine J. 2014 Aug;4(3):137-42. doi: 10.1055/s-0034-1376157. Epub 2014 May 3. PubMed PMID: 25083353; PubMed Central PMCID: PMC4111944.

Landi A, Tarantino R, Marotta N, Ruggeri AG, Domenicucci M, Giudice L, Martini S, Rastelli M, Ferrazza

G, De Luca N, Tomei G, Delfini R. The use of platelet gel in postero-lateral fusion: preliminary results in a series of 14 cases. Eur Spine J. 2011 May;20 Suppl 1:S61-7. doi: 10.1007/s00586-011-1760-3. Epub 2011 Mar 17. PubMed PMID: 21416280; PubMed Central PMCID: PMC3087038.

Zhang Y, Ying G, Ren C, Jizhang Y, Brogan D, Liu Z, Li S, Ding Y, Borlongan CV, Zhang J, Ji X. Administration of human platelet-rich plasma reduces infarction volume and improves motor function in adult rats with focal ischemic stroke. Brain Res. 2015 Jan 12;1594:267-73. doi: 10.1016/j.brainres.2014.10.035. Epub 2014 Nov 6. PubMed PMID: 25452023.

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