

Platelet Rich Plasma in the Lumbar and Cervical Spine: Intradiscal, Epidural and Intra-Articular Application—A New Strategy for Treating Pain from Degenerative Disc and Facet Disease

Erick Manuel Cabrera Castedo^{2,3*}, Martín Estévez^{1,2}, Fernando Kirchner⁴, Sandra Mirón³, Mariana Vilariño³ and Veronica Gimenez³

¹ TMR Buenos Aires, Buenos Aires, Argentina.

² Clínica Modelo Lanús, Buenos Aires, Argentina.

³ Pedro Fiorito Hospital - Health - Province of Buenos Aires, Argentina.

⁴ Agrupacion Médica del Maresme - Instituto de Traumatología Barcelona, Mataró, Barcelona, España.

***Corresponding Author:** Erick Manuel Cabrera Castedo, Clínica MOMS determined pain relief as a fundamental human right. The decrease in quality of life, depression, dependence on opioids, multiple surgical odelo Lanús, Buenos Aires, Argentina.

DOI: <https://doi.org/10.58624/SVOAOR.2024.04.081>

Abstract

The treatments and early abandonment of work activity, entail a cost of living for the patient as well as an important economic one in terms of health and public spending. That is why new treatments seek to improve these indices. In recent years, various studies have been published internationally that have demonstrated the successful results of Platelet Rich Plasma (PRP) in relieving joint pain and improving spinal pathologies. Therefore, we consider it of great importance to carry out these treatments in Argentina, taking into account the benefits and reduction of risks associated with being an autologous component, conducting a retrospective study of our cases and comparing them with international scientific studies. Our results were encouraging, with 94% of our patients having more than 50% improvement, without needing to take pain medication, thus concluding that PRP treatment is an effective and safe treatment that is an option for spinal pain.

Keywords: PRP, Cervical pain, Low back pain, Regenerative medicine.

Introduction

Spinal conditions have a high epidemiological impact and are one of the main reasons for consultation in the city and province of Buenos Aires (15). The lifetime prevalence of these conditions varies, with reports ranging between 11% and 84% for lumbar spine conditions, and between 22% and 70% for cervical spine conditions (5).

The chronicity of these conditions has a negative effect on patients, limiting their quality of life and, in many cases, causing depression, dependence on opioids and/or early work abandonment (2, 3, 4).

Currently, in our country, pain treatment is initially based on changes in hygienic-dietary habits, such as weight loss and exercise. Kinesiological rehabilitation, the provision of NSAIDs and the option of intervention to generate analgesia for a period of time and/or reduce inflammation in the affected area are also considered. If these measures are not effective, the surgical option is resorted to, which addresses the underlying cause of the pain, such as a herniated disc, narrow canal, or radiculopathy. However, it does not resolve the origin of the pathology, which is associated with degenerative and mechanical factors that trigger the symptoms mentioned above.

In recent years, various studies have been published internationally that have demonstrated the successful results of Platelet Rich Plasma (PRP) in relieving joint pain and improving spinal pathologies (2, 3, 4, 13, 14). Therefore, we consider it of great importance to carry out these treatments in Argentina, taking into account the benefits and reduction of risks associated with being an autologous component.

Furthermore, we propose to compare our results with the works already published in the scientific literature with the objective of evaluating the results of treatment with Platelet Rich Plasma through intradiscal, epidural and intra-articular infiltrations guided by fluoroscopy as a therapeutic option for pain caused by degenerative phenomena in the spine.

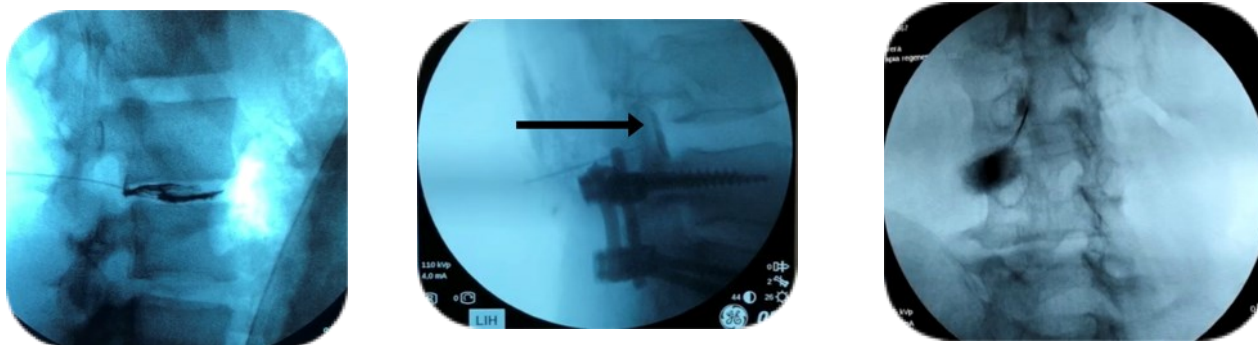
Methods

A retrospective study was carried out to evaluate the results of patients treated with Platelet Rich Plasma (PRP) for pain due to pathologies in the cervical, dorsal and lumbar spine, in the period between December 2021 and April 2023. The patients were selected according to inclusion and exclusion criteria.

The technique was carried out in the operating room, under outpatient sedation and with the medical supervision of the anesthesiologist. State-of-the-art fluoroscopy equipment was used to guide the infiltrations.

PRP was obtained using the closed technique: between 30 and 80 ml of the patient's blood was vacuum extracted into 10 ml tubes containing sodium citrate. Then, centrifugation was performed and the platelet phase was sterilely separated. The platelets were activated with 10% calcium and immediately.

Patients were followed up between 7 and 14 days after treatment as the first control, and between the 3rd and 5th month as the second control. The last control was carried out 1 month before the presentation of this work, using the numerical pain scale (NRS).



Inclusion criteria

Patients over 18 years of age who presented pain due to a spinal pathology diagnosed clinically and confirmed by imaging tests were included. Patients must have experienced a lack of response to conservative treatment.

Exclusion criteria

The following groups of patients were excluded:

Patients with surgical indication.

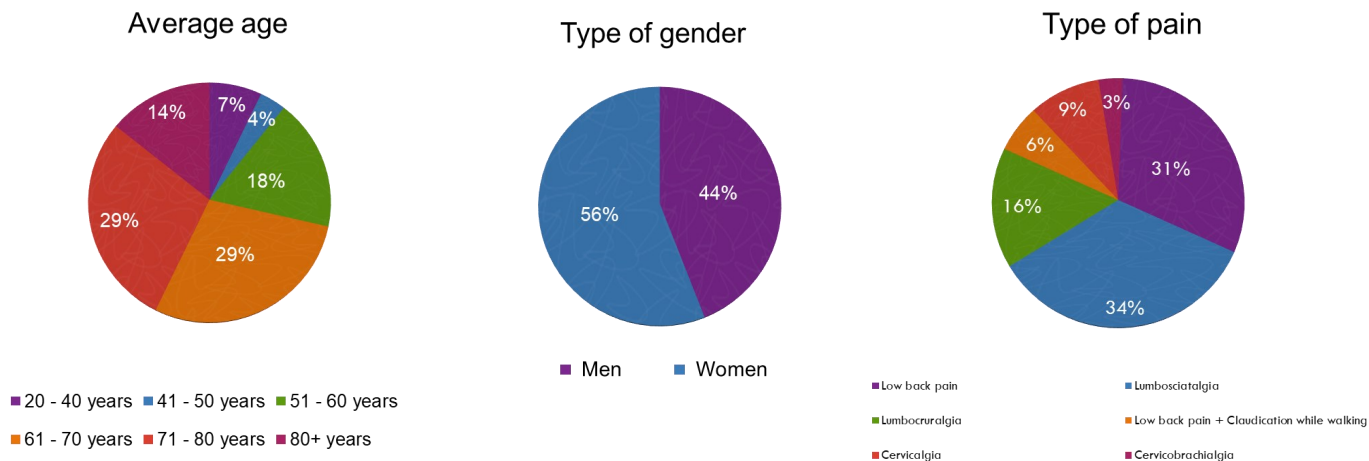
Patients who were receiving psychiatric treatment.

Patients involved in labor disputes.

Patients who were processing a disability application.

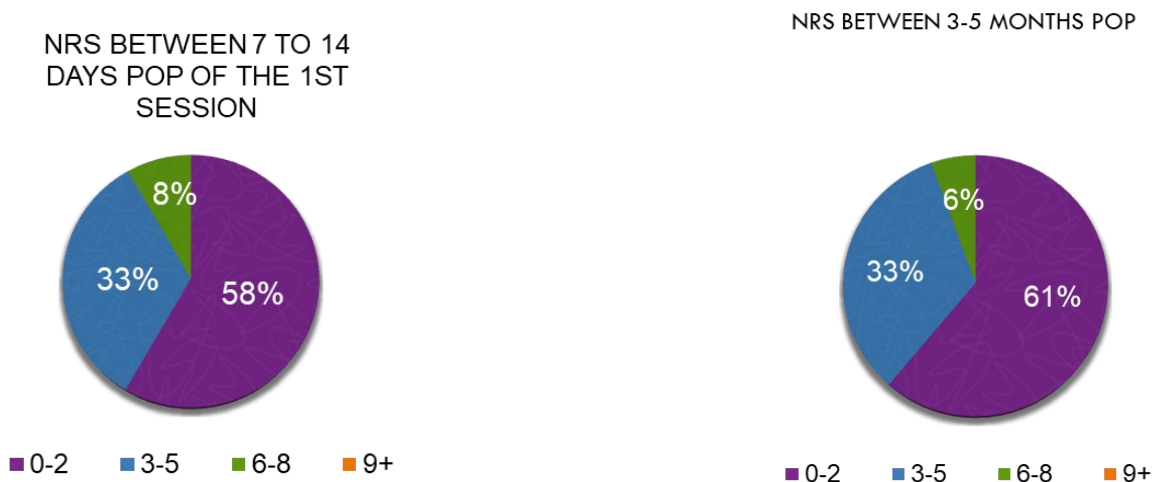
Pregnant or breastfeeding patients.

Patients who did not have presurgical values within normal ranges.



Results

This study included 34 patients who had a pain level of 10/10 on the numerical pain scale (NRS). Each patient received intervertebral, intra-articular and epidural disc infiltrations according to the therapeutic scheme designed for each specific case. The results show significant improvements in terms of pain, considering that the patients went from having a pain level of 10/10, being polymedicated and having received kinesiological treatments without improvement, to having a pain level of 0-2/10 at 14 days after the procedure in 58% of cases, without the need for analgesic medication. At 5 months after the procedure, the pain level was 0-2/10 in 61% of the patients, without the need for analgesic medication, and if pain levels of 3-5/10 are considered, a improvement of 33% at each control moment. These improvements have been maintained to this day. Our results agree with international studies carried out in this area.



Discussion

Our results were encouraging, with 94% of our patients having more than 50% improvement and without needing to take pain medication, thus concluding that PRP treatment is an effective and safe treatment that constitutes an option for pain in spine, the results of this study being consistent with the findings of research presented internationally, which support the effectiveness of PRP as a treatment for pain in pathologies of the spine. (1, 2, 3, 4, 14).

Conclusion

PRP treatment for pain in the spine is an effective and safe therapeutic option in cases of degenerative disc, joint, root and epidural injuries. It is essential to establish an accurate clinical and radiological diagnosis, since this aspect is crucial in determining the structures that must be infiltrated.

Conflicts of Interest

The authors declare no conflict of interest.

References

1. Kirchner F, Pinar A, Milani I, Prado R, Padilla S, Anitua E. "Plasma infiltrations Vertebral intraosseous injection rich in growth factor (PRGF-Endoret) as a strategy novel for the treatment of degenerative lesions of the vertebral end-plate in lumbar pathology: description of the technique and presentation of a case". *J Orthop Surg Res*. 2020 February 24.
2. Fernando Kirchner, Isidro Milani, Álex Martínez, Nicolás Kirchner-Bossi, Roberto Prado, Sabino Padilla, Eduardo Anitua. "Plasma rich in growth factors (PRGF) in the treatment of low back and neck pain: a clinical study retrospective observational." 2021, Barcelona Spain.
3. Fernando Kirchner and Eduardo Anitua. "Growth factors reduce pain in patients with chronic low back pain". Barcelona Spain 2017
4. Fernando Kirchner. "Treatment of disc and degenerative pathologies of the spine with Plasma Rich in Platelet Growth Factors Ozonated". Instituto de Traumatología Barcelona (Mataro, Barcelona, Spain) 2012.
5. Vos T, Flaxman AD, Naghavi M, Lozano R, Michaud C, Ezzati M, et al. "Years lived with disabilities (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: A systematic analysis for the Global Burden of Disease Study 2010". *Lancet*. 2012; 380: 2163–96. (PubMed: 23245607)
6. Van Tulder M, Koes B. In: "Chronic Low Back Pain, an Evidence-Based Chronic Pain Management". Stannard CF, Kalso E, Ballantyne J, editors. West Sussex, UK: John Wiley & Sons, Ltd; 2010.
7. Anitua E, Sánchez M, Orive G. "Potential of endogenous regenerative technology for in situ regenerative medicine". *Adv Drug Deliv Rev* 2010; 62:741–52. (PubMed: 20102730)
8. Sánchez M, Guadilla J, Fiz N, Andia I. "Ultrasound-guided platelet-rich plasma injections for the treatment of osteoarthritis of the hip. *Rheumatology*". (Oxford) 2012; 51:144–50. (PubMed: 22075062)
9. Anitua E, Sánchez M, Aguirre JJ, Prado R, Padilla S, Orive G. "Efficacy and safety of plasma rich in growth factors intra-articular infiltrations in the treatment of knee osteoarthritis". *Arthroscopy* 2014; 30:1006–17. [PubMed: 24996872]
10. Anitua E, Sanchez M, De la Fuente M, Zalduendo MM, Orive G. "Plasma rich in growth factors (PRGF Endoret) stimulates tendon and synovial fibroblasts migration and improves the biological properties of hyaluronic acid". *Knee Surg Sports Traumatol Arthrosc*. 2012; 20:1657–65. [PubMed: 21987365]
11. Anitua E, Andía. "A new approach in bone regeneration". Ed. Eduardo Anitua, Puesta al Día Publicaciones 2000
12. Shvartzman L, Weingarten E, Sherry H, Levin S, Persaud A. "Cost-effectiveness analysis of extended conservative therapy versus surgical intervention in the management of herniated lumbar intervertebral disc". *Spine* 1992; 15:176-82
13. Masuda K, An HS. "Prevention of disc degeneration with growth factors". *Eur Spine J* 2006; 15 (Suppl 3):S422-S432
14. Iano Conrado H, Hernández Santos JR, Tenopala Villegas S, Canseco Aguilar CP, Torres Huerta JC. "Effect of plasma rich in platelets and/or growth factors on regeneration and chronic pain associated with intervertebral disc disease. Systematic review". *Rev Soc Esp Dolor* 2016; 23(3):145-53. DOI: 10.20986/resed.2016.3421/2016.
15. Jorge MG, Javier CA, Ariel WT, Matias V, Virgilio, Sacha V, Alfredo AM, et al. "Prevalence of musculoskeletal disorders of the shoulder in a Hospital of the City of Buenos Aires. Retrospective study". *Acta of Shoulder and Elbow Surgery*. 2017; 2(2):20-23

Citation: Cabrera Castedo EM, Estévez M, Kirchner F, Mirón S, Vilariño M, Gimenez V. Platelet Rich Plasma in the Lumbar and Cervical Spine: Intradiscal, Epidural and Intra-Articular Application—A New Strategy for Treating Pain from Degenerative Disc and Facet Disease. *SVOA Orthopaedics* 2024, 4:5, 133-136. doi: 10.58624/SVOAOR.2024.04.081

Copyright: © 2024 All rights reserved by Cabrera Castedo EM and other authors. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.