Introduction

Platelet-rich plasma (PRP) therapy has become more popular in recent years for its potential to aid in the healing of musculoskeletal injuries, including those involving ankle ligaments. This review pulls from five studies that help to evaluate the efficacy of PRP in treating ankle ligament injuries, particularly focusing on the lateral ankle ligaments.

Clinical Efficacy of PRP in Ankle Ligament Injuries

There are some studies that have investigated the clinical outcomes of PRP injections in patients with ankle ligament injuries. One randomized clinical study that evaluated the effect of PRP therapy in patients with acute lateral ankle sprain treated with rigid immobilization. The study found that the experimental group, which received PRP, showed a significant reduction in pain and better functional scores at 8 weeks compared to the control group. However, by the end of the 24-week follow-up, both groups had similar outcomes, suggesting that PRP may accelerate early recovery in acute ligamentous injuries, but does not provide long-term benefits over standard treatment (Blanco-Rivera et al, 2020).

Another study focused on the treatment of ATFL injuries in lateral ankle sprains. This study compared three groups: no injection, a single PRP injection at 48 hours post injury, and two PRP injections (at 48hrs and at 1 month follow-up). The results indicated that the PRP groups had better clinical outcomes in terms of pain reduction and functional improvement at 8 weeks, with the two-injection group showing the best results. However, by 6 and 12 months, all groups had similar functional outcomes. There was, however, a difference in ATFL quality as seen on signal/noise ratio or SNR on MRI with the two-injection group showing the best recovery (Zhang et al, 2022).

A third randomized controlled trial examined the role of PRP in athletes with partial tears of the ATFL. Forty-eight athletes with ATFL sprain in the past month prior were split into two groups: injection with rehab and rehab alone. The study found that the PRP group showed significant improvements in pain and function scores at 2, 6, and 12 weeks compared to the control group, which only received rehabilitation. However, at the 24-week follow-up, the differences between the groups were no longer significant, suggesting that PRP may expedite early recovery but does not offer long-term advantages (Devi et al, 2023).

PRP and Surgical Outcomes

The efficacy of PRP in enhancing surgical outcomes was also explored in a study involving patients undergoing Modified Broström-Gould (MBG) surgery for chronic lateral ankle instability. This study compared “conventional postoperative management” with and without PRP injections. The results showed no significant differences in pain or functional scores between the PRP and control groups at 6 months post-surgery, indicating that PRP does not provide additional benefits in the context of recovery from chronic ankle instability surgery (Sabaghzadeh et al, 2023).

Conclusion

The use of PRP in treating acute ankle ligament injuries shows promise in accelerating early recovery and reducing pain in the short term. However, the long-term benefits of PRP over standard treatments remain inconclusive. Most of the studies being done are to assess PRP on acute ankle injuries but there is a lack of studies for chronic ankle instability. Further research with standardized PRP preparation protocols is necessary to fully understand its potential and optimize its clinical application in both acute and chronic ankle ligamentous injuries.

1) Blanco-Rivera, J., Elizondo-Rodríguez, J., Simental-Mendía, M., Vilchez-Cavazos, F., Peña-Martínez, V., & Acosta-Olivo, C. (2020). Treatment of lateral ankle sprain with platelet-rich plasma: A randomized clinical study.. *Foot and ankle surgery : official journal of the European Society of Foot and Ankle Surgeons*. https://doi.org/10.1016/j.fas.2019.09.004.
2) Zhang, J., Wang, C., Li, X., Fu, S., Gu, W., & Shi, Z. (2022). Platelet-rich plasma, a biomaterial, for the treatment of anterior talofibular ligament in lateral ankle sprain. *Frontiers in Bioengineering and Biotechnology*, 10. https://doi.org/10.3389/fbioe.2022.1073063.
3) Devi, L., Singh, A., & Singh, Y. (2023). Effectiveness of Ultrasound-Guided Platelet-Rich Plasma Injection in Comparison with Standard Conservative Treatment on Improving Pain and Function Among the Athletes with Partial Tear of Anterior Talofibular Ligament of Ankle: A Randomized Controlled Trial. *International Journal of Research and Review*. https://doi.org/10.52403/ijrr.20230241.
4) Sabaghzadeh, A., Kurdkandi, H., Ebrahimpour, A., Biglari, F., & Kafiabadi, M. (2023). Efficacy of Platelet-Rich Plasma for Chronic Lateral Ankle Instability After Modified Broström-Gould surgery: A Randomized, Single-Blinded, Prospective Controlled Trial. *Foot & Ankle Orthopaedics*, 8. https://doi.org/10.1177/24730114231168633.