An abbreviated review of the utility of PRP in SIJ pain.

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Background: Sacroiliac joint (SIJ) dysfunction accounts for about 30% of axial low back pain cases. SIJ dysfunction is associated with inflammation or injury affecting joint capsule, ligaments, or subchondral bone, causing deep, localized pain that may radiate[1]. SIJ dysfunction management includes corticosteroid injections, radiofrequency ablation (RFA), and minimally invasive sacroiliac arthrodesis. Due to the economic burden of treating refractory chronic back pain, and with RFA no longer reimbursed by Medicare, evaluation of regenerative therapies such as platelet-rich plasma (PRP) is needed[1]. PRP is enriched with platelets and bioactive proteins. It has been used in orthopedics to accelerate healing, and multiple studies have explored its use in spinal diseases.[2]

Trial analysis: Two randomized control trials (RCT) demonstrated improvement in pain with use of PRP, though one shows a greater improvement with steroids than PRP. An unblinded RCT by Singla et al[3], a 40-patient study on chronic SIJ-related low back pain, showed superiority of PRP over steroids. One group was treated with methylprednisolone injections and the other with PRP injections under ultrasound (US) guidance. PRP provided significant pain reduction at 6 weeks (median VAS: 1 vs. 3.5, $p = 0.0004$) and 3 months (median VAS: 1 vs. 5, $p = 0.0002$) compared to steroids. Pain and disability scores improved over time in the PRP group, while steroid recipients improved at 4 weeks but worsened by 3 months. Flaws included lack of control group and open-label design. The second study is a double-blinded RCT by Chen[4] with 26 subjects. Patients received corticosteroid or PRP injection, and while both groups had improvement, steroid intervention yielded greater pain relief and functional improvement than PRP. There were more responders in the steroid group at 1 and 3 months (80% at 1 month vs. 21.4% in PRP, $p=0.011$). Flaws include small sample size (n=26), high loss to follow-up, and demographic biases.

In a prospective, nonrandomized interventional study by Wallace et al.[5] with 50 patients diagnosed with refractory SIJ dysfunction, each receiving a single PRP injection under US, there was significant improvement in pain at 2 weeks, 4 weeks, and 3 months after injection. By 6 months, there was a mean pain reduction of 9.79%. Flaws included lack of control group, short follow-up period, and attrition. Another study, conducted by Ko et al.[6], was a case series of four patients with SIJ dysfunction. Each patient received two US-guided PRP injections, and had significant reduction in pain at 1 year. Functional improvement was also significant, with a 75% reduction in disability ($P < 0.0001$). Strengths of this study are long-term follow-up and inclusion of patients who failed previous treatments. In a case report by Broadhead et al.[7], a 62-year-old patient with chronic refractory SIJ dysfunction on high-dose opioids experienced improvements in pain, function, and opioid use after a single US-guided PRP injection targeting the SI joint. At 6 months, pain improved by 50% and function improved by 41.66%. At 9 months, she was no longer using opioids.

Conclusion: The reviewed studies suggest that PRP injections offer a potential third-line therapy after failing standard treatment for SIJ dysfunction, particularly for long-term pain relief and functional improvement. While more rigorous studies are needed, early studies have shown that PRP may be comparable or superior to steroids in the management of SIJ, especially refractory and chronic SIJ pain. PRP may have sustained benefits, with one case series demonstrating effectiveness for up to 4 years. PRP may also help reduce opioid dependence, as seen in Broadhead et al. However, small sample sizes, lack of standardized PRP formulations, and limited long-term RCTs restrict definitive conclusions. Future research should focus on large-scale, standardized, and long-term trials to fully establish PRP's role in SIJ dysfunction management.

References

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