Abstract #473

Platelet-Rich Plasma in interstitial cystitis/bladder pain syndrome: A Systematic Review and Meta-analysis

Hypothesis

Interstitial cystitis/bladder pain syndrome (IC/BPS) is a chronic condition characterized by pelvic pain and urinary symptoms without a clear cause. Various treatments have been explored, but their efficacy varies due to the complex and poorly understood pathophysiology of the condition. Platelet-derived growth factors and angiogenic factors like VEGF are implicated in bladder abnormalities seen in IC/BPS. Bladder fibrosis, mediated by factors like TGF-β1 and MMPs, may also affect bladder capacity in IC/BPS patients. Platelet-rich plasma (PRP) has emerged as a potential regenerative therapy due to its ability to release growth factors and modulate tissue healing processes. Although PRP has been utilized extensively to treat soft-tissue and orthopedic in flammation, or vaginal rejuvenation, its use to bladder diseases is not well understood. The results of this systematic review and meta-analysis may provide objective evidence of the therapeutic effects of PRP in patients with IC/BPS.

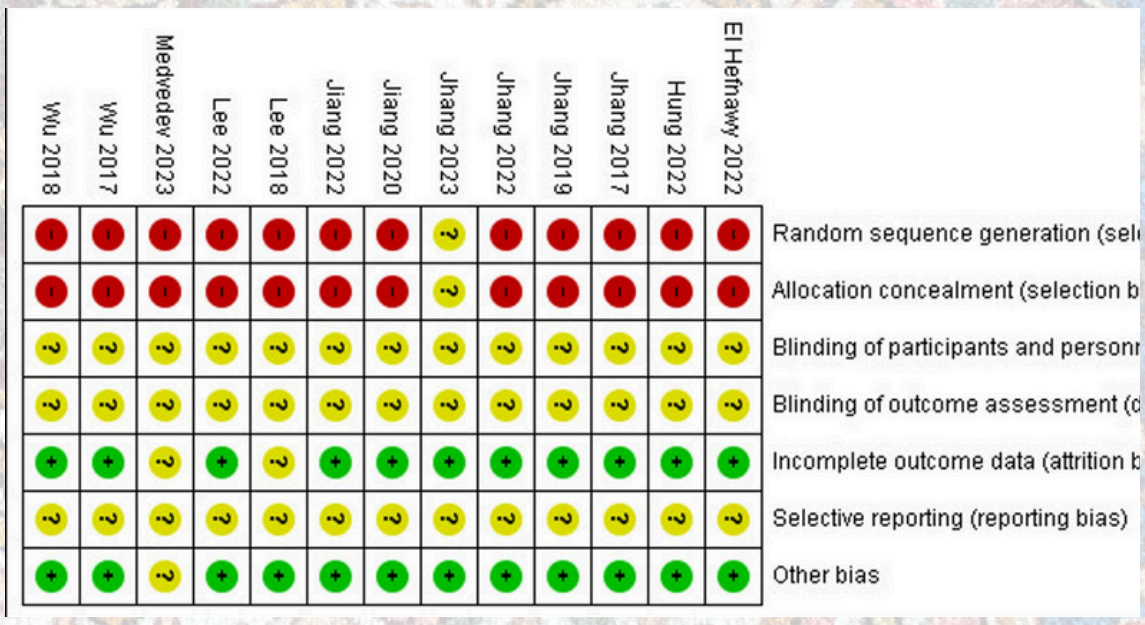
Study Design

Researchers conducted a comprehensive retrieval strategy by searching multiple databases for studies related to interstitial cystitis/bladder pain syndrome (IC/BPS) and platelet-rich plasma (PRP) treatment. Main search terms included IC/BPS, prostatitis, pelvic pain, and PRP. Additional manual searches were performed to identify relevant literature. Inclusion criteria for screening studies involved patients diagnosed with IC/BPS, receiving PRP treatment, and assessing outcomes like pain scores, functional activity, and urodynamic assessments. Two reviewers independently extracted data from the included literature.
Specific parameters of the treatment method, such as site, dosage, and number of injections, were recorded in detail.
In cases of unclear or incomplete data extraction, attempts were made to contact the original authors for additional information.
Quality assessment and risk of bias evaluation were conducted using the Cochrane Risk of Bias tool; Heterogeneity between studies was analyzed statistically using RevMan 5.40. Statistical analysis was performed using either a fixed-effects or random-effects model based on the level of heterogeneity observed.

Results

he search initially yielded 372 studies from databases. Following the removal of duplicates using software, 199 studies were left. Two reviewers assessed the titles and abstracts of these studies, eliminating 150 that were not pertinent to the topic. The remaining 49 studies were reviewed, with 36 being excluded due to reasons such as being case reports or series, study protocols, interventions that did not meet compliance, non-clinical studies, or lacking data.

Thirteen suitable studies were incorporated into the systematic reviews, and eight studies were included in the ultimate analysis Pain levels were assessed using the VAS system at four time points (immediately post-injection, 1 month, 3 months, and 6 months follow-up) based on patient self-assessment. Among the eight studies included in our analysis, involving a total of 716 patients, there was a significant decrease in pain following PRP treatment compared to baseline values (mean difference: -1.93, 95% confidence interval: -2.28, -1.58). Subgroup analyses consistently showed a reduction in VAS scores post-PRP injection. IC symptoms were evaluated using the O'LearySant score (OSS), which includes the IC symptom index (ICSI) and IC problem index (ICPI). Analysis of eligible studies with a total of 606 cases demonstrated a significant decrease in OSS compared to baseline values. Subgroup analyses also indicated a reduction in OSS at different time points. Similarly, ICSI and ICPI showed significant decreases after treatment in both overall and subgroup analyses at various time points. Due to the absence of control arms in most studies, the quality of evidence was generally rated as low or moderate, with unclear or high risk observed across all bias assessments. In summary, the clinical trials included in the analysis displayed a moderate to high risk of bias (Figure 1).



Results Interpretation

Based on the literature, using PRP as a treatment directly in the bladder could be a novel approach that is minimally invasive and shows promise in enhancing symptoms. Both preclinical and clinical data indicate that PRP might alter the course of the disease, resulting in better clinical outcomes and addressing underlying mechanisms. Nevertheless, additional RCT research with control arms is required to validate its actual effectiveness in clinical settings.

Conclusion

Using PRP as a treatment directly in the bladder could be a novel approach that is minimally invasive and shows promise in enhancing symptoms. Nevertheless, additional RCT research with control arms is required to validate its actual effectiveness in clinical settings.

References

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