Platelet Rich Plasma Injections for the Management of Arthritis: A Clinically Focused Review of the Data

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Background

- Platelet-rich plasma (PRP) injections represent a non-surgical approach leveraging a patient's own platelets to facilitate the healing process in damaged ligaments, cartilage, and tendons (1). Particularly in the management of osteoarthritis (OA), PRP injections aim to alleviate joint pain and mitigate destruction (1). Despite FDA approval in 2009, the application of PRP for arthritis management is still under thorough investigation (2).

Objective

- This literature review seeks to assess the efficacy of PRP in OA management, encompassing its advantages, potential risks, and associated healthcare costs.

Methods

- A comprehensive review of existing literature on PRP was conducted utilizing PubMed, Up-to-Date, and Google Scholar databases.

ART Two Step, which features a dual-chamber design allowing the user to perform either leukocyte-rich or leukocyte-poor plasma.[5]

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Results

Benefits

- A meta-analysis by Xiong et al. in 2023, encompassing 24 randomized control trials with 1344 patients demonstrated that PRP injections resulted in improved WOMAC pain and functional scores among patients with knee, ankle, and TMJ OA compared to control groups (WOMAC-pain, MD = −1.08, CI = 95% [−1.62, −0.53], P < 0.05; WOMAC-function, MD = −1.12, CI = 95% [−1.65, −0.58], P < 0.05) (4). Notably, PRP exhibited limited efficacy in reducing pain associated with hip OA (4). Interestingly, the analgesic effect of leukocyte poor-PRP surpassed that of leukocyte rich-PRP (LR-PRP, MD = −0.81, CI = 95% [−1.65, −0.03], P = 0.06; LP-PRP, MD = −1.62, CI = 95% [−2.36, −0.88], P < 0.05) (4).

Risks

- Overall, the risk profile of PRP was found to be comparable to injections of hyaluronic acid (HA) or saline (3).

Healthcare Associated Costs

- Despite promising benefits, the adoption of PRP for OA management faces a significant hurdle in its cost, with a single injection reaching up to $1000 (7). Moreover, the temporary nature of results necessitates additional injections, contributing to the overall expense (2). Furthermore, advanced centrifuges with the capability of creating leukocyte poor PRP can cost up to $6000 (8).

Discussion

- This literature review underscores the substantial potential of PRP injections in managing knee, ankle, and TMJ OA, as evidenced by improved WOMAN pain and functional scores. This review has also highlighted the limited efficacy and need for further investigation in the use of PRP for hip OA. While the procedure exhibits low risk, its widespread adoption is limited by the substantial healthcare-associated costs and the complexity involved in preparation , including those associated with advanced centrifugation techniques.

Conclusion

- Although substantial potential of PRP injections exist for OA patients, its accessibility remains limited due to its costs and procedural complexities.

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