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Joshua Zetocha
University of North Dakota

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Platelet-Rich Plasma vs Corticosteroids in OA

Joshua Zetocha, PA-S

Contributing Author: Kristen Carr, MPAS, PA-C, DipACLM

Department of Physician Assistant Studies, University of North Dakota School of Medicine & Health Sciences

Grand Forks, ND 58202-9037

Abstract

- Millions of people around the world suffer from degenerative joint changes due to osteoarthritis (OA).
- Traditional treatment includes corticosteroid intra-articular injections.
- Platelet-rich plasma (PRP) is an alternative option for OA.
- In all studies evaluated, PRP had no major side effects.
- Patients saw a reduction in pain and improvement of functionality with both PRP and Corticosteroids.
- PRP patients reported improvement that lasted longer than corticosteroid therapy.
- More studies are needed on specific concentrations of PRP.
- Results may vary depending on the joint being treated.
- Price is a barrier for many as insurance does not usually cover PRP injections.

Introduction

- Osteoarthritis is a disease caused by narrowing of the joint space due to loss of cartilage and sclerosis of the bones (Pereira et al., 2015).
- Approximately 10% of men and 13% of women in the United States suffer from OA.
- OA often leads to a decrease in quality of life, which is related to increased cardiovascular risks.
- Current treatments include corticosteroid injections
- Platelet-rich plasma is a newer treatment option that has been increasing in popularity.

Statement of the Problem

- Studies are needed to assess the newer treatment of PRP injections compared to the more typical corticosteroid injections that are currently offered in many clinics.

Research Question

- In adults with osteoarthritis, do platelet-rich plasma (PRP) injections manage pain and improve functionality better than corticosteroid injections?

Literature Review

Efficacy of PRP in the First Three Months

•Elik et al. (2020) conducted a double-blind, placebo-controlled trial to evaluate the use of PRP in knee OA. Results showed a greater reduction in pain using the VAS scale ($p < 0.001$) and improvement in movement using the WOMAC scale ($p < 0.001$) in the first month after PRP injection than the placebo.

Efficacy of PRP After Three Months

•A cohort study by Altamura et al. (2020) found that patients experienced improvement in both pain and functionality up to 24 months after injection. 76.6% of the patients in the study were able to return to some level of sport activity after injection and 48.9% of the patients were able to return to the level of activity they were doing prior to OA symptoms starting.

Efficacy of Corticosteroids in the First Three Months

•A systematic review and meta-analysis by Zhong et al. (2020) found that corticosteroids were effective at symptom relief up to 12 weeks. The study showed that after eight weeks, corticosteroid benefits begin to lessen and symptoms slowly start worsening again.

Efficacy of Corticosteroids After Three Months

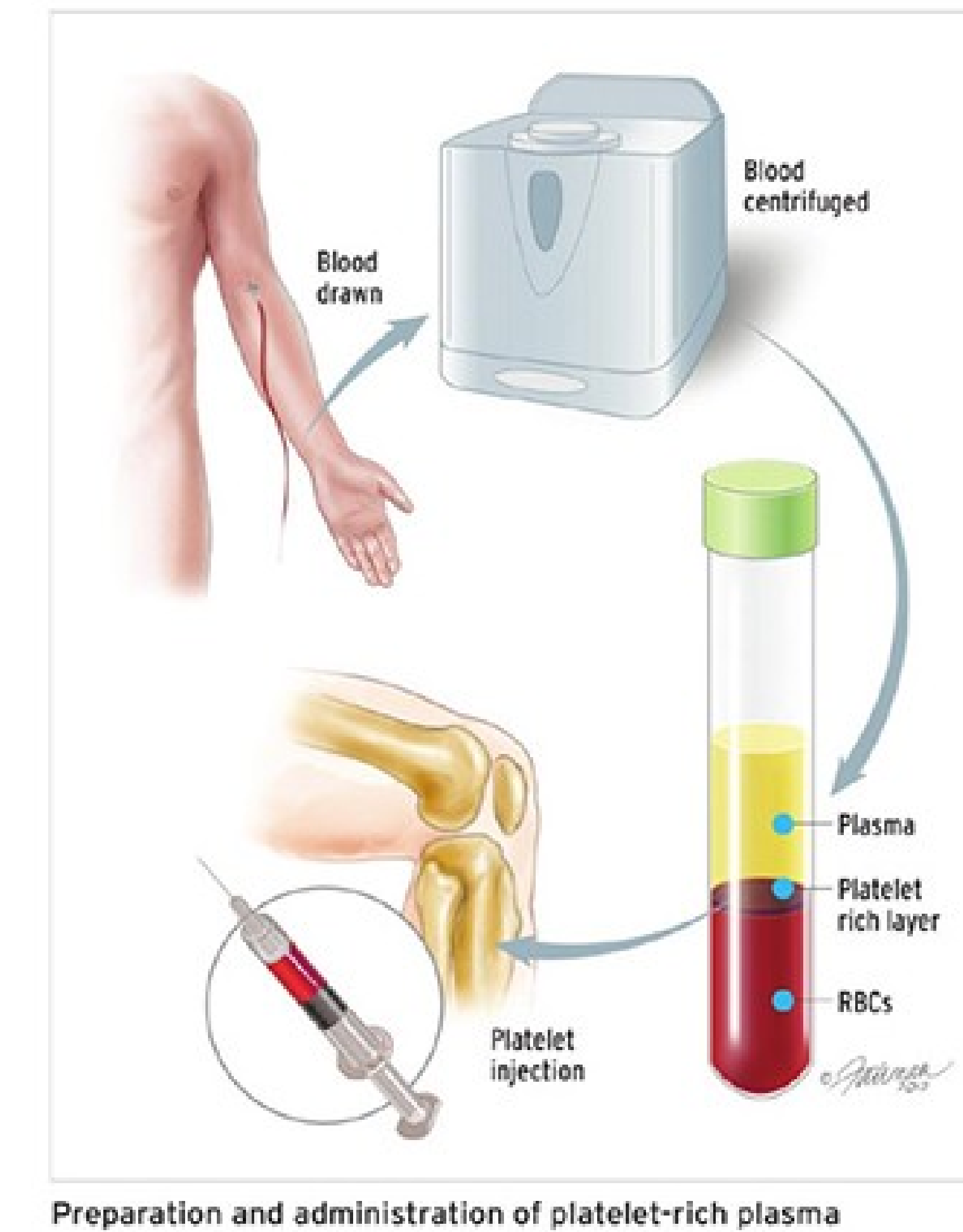
•Nunes-Tamashiro et al. (2022) did a double-blind, controlled, randomized study comparing triamcinolone to a placebo. The study found some improvement in VAS scores with results measuring out to 52 weeks. However, the results were considered statistically not significant. The WOMAC score did show a statistically significant improvement with $p = 0.003$, suggesting that corticosteroids can increase functionality with results tapering off over time.

Direct comparison of PRP and Corticosteroids

•In 2020, Elksnins-Finogejevs et al. published a randomized controlled study. The study showed a statistically significant improvement in pain and function for both PRP and corticosteroid use. VAS scores were the primary outcome evaluated by the study.

•Corticosteroid improvement began to decrease around 15 weeks post injection.

•At one year post injection, the PRP group had a change from baseline of -3.1 ± 2.3 . The corticosteroid group had a smaller reduction from baseline of -0.8 ± 1.8 , with $p = 0.002$.



Discussion

- Studies showed that PRP can reduce pain and stiffness while also improving functionality as early as one month after injection.
- There is a wide variety of methods used to create PRP with no discernable standardization. This can lead to varying results.
- There were also some studies that used multiple injections of PRP, which did appear to give better results (McLarnon and Heron, 2021).
- Corticosteroids, in general, had a faster onset with near similar pain reduction and functionality improvement.
- Corticosteroid benefit typically decreased quicker than PRP.
- Extended release corticosteroids did not show any significant benefit as compared to rapid release corticosteroids (Conaghan et al., 2017).
- More research is needed to find optimal concentrations of PRP as well as frequency of injections.

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Applicability to Clinical Practice

- Platelet-rich plasma is a viable option for patients with osteoarthritis.
- Effectiveness can vary based on which joint is being treated, concentration of the PRP, and frequency of dosing.
- PRP has a better safety profile than corticosteroid intra-articular injections
- Benefits from PRP are noted to last longer than corticosteroid treatment
- Orthopedic outpatient clinics or properly equipped family medicine clinics can provide the PRP injections

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