PRP THERAPY IN THE TREATMENT OF OSTEOARTHRITIS IN THE ELDERLY: A REVIEW.

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Abstract. Osteoarthritis (OA) is a prevalent degenerative joint disease among the elderly, leading to pain, stiffness, and reduced quality of life. Platelet-rich plasma (PRP) therapy has emerged as a regenerative treatment option aimed at modulating inflammation and promoting tissue repair. This review discusses the mechanisms of PRP action, clinical evidence of its efficacy in elderly OA patients, and comparisons with conventional treatments such as corticosteroids and hyaluronic acid. The analysis highlights the benefits, limitations, and future perspectives of PRP in geriatric orthopedic practice.

Keywords: osteoarthritis, platelet-rich plasma, elderly, regenerative therapy, intra-articular injection, knee joint, aging.

Introduction. Osteoarthritis (OA) is one of the most common causes of chronic disability in the aging population, especially affecting the knee and hip joints [1]. Traditional therapies, including NSAIDs, intra-articular corticosteroids, and physical rehabilitation, often offer temporary relief without altering disease progression [2]. PRP, an autologous blood product enriched with growth factors, has been increasingly investigated as a promising option to slow or reverse joint degeneration in OA [3]. Osteoarthritis affects up to 80% of individuals over the age of 65 and is a major contributor to disability [1]. With aging populations worldwide, there is growing interest in biological therapies such as PRP, which

aims to restore joint function by stimulating repair processes rather than masking symptoms [2].

Mechanism of action of PRP. PRP is an autologous product derived from the patient's own blood and contains a concentrated number of platelets. These platelets release growth factors such as PDGF, TGF-β, and VEGF upon activation, which play key roles in tissue regeneration, anti-inflammatory response, and angiogenesis [3]. PRP influences the chondrocyte environment and modulates cytokine activity, reducing IL-1β and TNF-α levels—critical drivers of OA progression [4].

Clinical efficacy in elderly patients. Studies have shown that PRP therapy results in significant improvements in pain and function among elderly patients with mild to moderate OA. In a clinical study involving patients aged 60+, intra-articular PRP improved WOMAC scores over a 6-month period [5]. Another randomized trial demonstrated PRP's superiority to hyaluronic acid in elderly individuals, especially in early-stage OA [6].

Several randomized clinical trials and meta-analyses support the efficacy of PRP in knee OA, even in elderly populations:

Filardo et al. Conducted a study in patients over 60 years and observed significant improvements in pain and joint function after intra-articular PRP injections [7].

A meta-analysis by Laudy et al. Concluded that PRP is superior to hyaluronic acid in improving Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scores, with sustained benefits up to 12 months [8].

However, Khoshbin et al. Noted that therapeutic responses are less pronounced in patients with advanced cartilage degeneration, which is more frequent in elderly individuals [9].

Thus, while PRP remains effective in early to moderate stages of OA in the elderly, its role in late-stage disease is limited.

Comparison with conventional treatments. Intra-articular corticosteroids provide fast relief but are associated with cartilage degeneration over time. PRP, in contrast, has regenerative potential and a longer-lasting effect [7]. Compared to hyaluronic acid, PRP demonstrates better outcomes in terms of pain relief and functional improvement, although combined approaches are also under investigation [8].

Limitations and perspectives. Despite promising results, PRP efficacy can be influenced by factors such as age-related decline in platelet quality, comorbidities, and lack of standardization in PRP preparation [9]. Nevertheless, PRP remains a viable option for elderly OA patients, especially when used early and combined with physical therapy.

Conclusion. PRP therapy is a safe and effective treatment for osteoarthritis in elderly patients. It provides an alternative to pharmacological treatments, with potential to slow disease progression. Further research with standardized protocols is needed to optimize outcomes in geriatric patients.

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