

Platelet-Rich Plasma Intra-Articular Injection Versus Hyaluronic Acid Viscosupplementation as Treatments for Cartilage Pathology: From Early Degeneration to Osteoarthritis

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Purpose: The aim of our study is to compare the efficacy of platelet-rich plasma (PRP) and viscosupplementation (hyaluronic acid [HA]) intra-articular injections for the treatment of knee cartilage degenerative lesions and osteoarthritis (OA). **Methods:** The study involved 150 patients affected by cartilage degenerative lesions and early and severe OA. Fifty symptomatic patients were treated with 3 autologous PRP intra-articular injections and were evaluated prospectively at enrollment and at 2- and 6-month follow-up. The results obtained were compared with 2 homogeneous groups of patients treated with HA injections. One group was treated with injections of high-molecular weight HA; the other group was treated with low-molecular weight (LW) HA. International Knee Documentation Committee and EQ VAS scores were used for clinical evaluation; adverse events and patient satisfaction were also recorded. **Results:** At 2 months' follow-up, the PRP and LW HA groups showed a similar improvement, with higher results compared with the high-molecular weight HA group ($P < .005$). At 6 months' follow-up, better results were observed in the PRP group ($P < .005$). PRP and LW HA treatments offered similar results in patients aged over 50 years and in the treatment of advanced OA. PRP showed a better performance compared with HA in younger patients affected by cartilage lesions or early OA. **Conclusions:** Autologous PRP injections showed more and longer efficacy than HA injections in reducing pain and symptoms and recovering articular function. Better results were achieved in younger and more active patients with a low degree of cartilage degeneration, whereas a worse outcome was obtained in more degenerated joints and in older patients, in whom results similar to those of viscosupplementation have been observed. **Level of Evidence:** Level II, prospective comparative study.

The societal impact of degenerative diseases such as articular cartilage pathology and osteoarthritis (OA) is steadily increasing, because of the continued

rise in the mean age of the active population.^{1,2} Unfortunately, articular cartilage lesions, with their inherent limited healing potential, are hard to treat and remain a challenging problem for orthopaedic surgeons and all physicians.

The regeneration capacity of cartilage is limited because of its isolation from systemic regulation and its lack of vessels and nerve supply.³⁻⁵ Unlike most tissues, none of the inflammatory processes is available for its repair, and chondrocytes cannot migrate from an intact healthy site to the site of injury.^{3,4} Biomechanical, metabolic, and biologic changes, as well as trauma and isolated chondral lesions, may lead to the loss of tissue homeostasis, resulting in accelerated degeneration of the articular surface and leading

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