

EFFICACY OF PLATELET RICH PLASMA IN
THE TREATMENT OF OSTEOARTHRITIS

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ABSTRACT

Osteoarthritis (OA) has a major impact on functioning and independence of the population, ranking among the top 10 causes of disability worldwide. With the population aging, the prevalence of OA is increasing. Recently, autologous Platelet Rich Protein (PRP) biotechnology has emerged as a new tool for OA treatment. It is known to increase growth factor concentration three to five times of normal plasma and helps to heal the injured tissue. The objective for this project paper was to study the clinical effectiveness of platelet rich plasma in the treatment of OA. Literature search of journals meeting all the inclusion criteria - all kind of study designs such as RCT, pilot study, case series study, cross sectional study, case report, human clinical trials and retrospective study which were written in English language and published year fall between from 1980 until 2013, were considered for this study. Literature search using PubMed with key words - platelet-rich plasma, knee, osteoarthritis and injection, showed 7 related articles and after crucial literature selection, only 5 papers regarding using PRP for the treatment of OA were selected for data extraction. Structured review process by identification of research topic, scoping of research topic, refining research topic, literature search, literature selection, literature appraisal, data extraction and finally dissemination and reporting of data were done. From the review, PRP shows to decrease pain and enhanced function compared to hyaluronic acid (HA) injections based on observational case studies that have used patient-reported outcomes as end points. Overall, the systemic review on PRP showed its significant in the treatment of osteoarthritis where PRP injection increased hyaluronic acid concentration, stabilizing angiogenesis, decreased pain and amplification of chondrocyte proliferation. PrP releasate has shown ability to decrease NF κ B activation, which is the major pathway involved in the pathogenesis of OA and; reduce inflammation. Platelet rich protein also found to improve the conditions of synovial cells, chondrocytes, subchondral osteoblasts with enhance functions compared to hyaluronic acid (HA) injections, improve function and stimulate possible cartilage regeneration at the site of injury.