Affiliation: ,[1]Dept. of Orthopaedics, JJM Medical College, Davangere, Karnataka, India.
Corresponding Author: Prajwal GS
Email: prajwalgs1894@gmail.com

Knee osteoarthritis is the leading cause of functional disability in adults. The goals of knee osteoarthritis management are directed toward symptomatic pain relief along with the attainment of the functional quality of life. The treatment strategy ranges from conservative to surgical management with reparative and restorative techniques. The emergence of cell-based therapies has paved the way for the usage of mesenchymal stem cells (MSCs) in cartilage disorders. Currently, global researchers are keen on their research on nanomedicine and targeted drug delivery. MSC-derived exosomes act as a directed therapy to halt the disease progression and to provide a pain-free range of movements with increased quality of cartilage on regeneration. International Society for Extracellular Vesicles and the European Network on Microvesicles and Exosomes in Health and Disease have formed guidelines to foster the use of the growing therapeutic potential of exosomal therapy in osteoarthritis. Although regenerative therapies with MSC are being seen to hold a future in the management of osteoarthritis, extracellular vesicle–based technology holds the key to unlock the potential toward knee preservation and regeneration. The intricate composition and uncertain functioning of exosomes are inquisitive facets warranting further exploration.

Keywords: Mesenchymal stem cells, Exosomes, Microvesicles, Cartilage

Functional outcome periarthritis shoulder treated with autologous PRP injections

Author: Rashmi Jain[1], Madhan Jeyaraman[2]
Affiliation: [1]School of Medical Sciences and Research, Sharda University, Greater Noida, Uttar Pradesh, India
[2]Dept. of Orthopaedics, School of Medical Sciences and Research, Sharda University, Greater Noida, Uttar Pradesh, India
Corresponding Author: Madhan Jeyaraman
Email: madhanjeyaraman@gmail.com

Background: Periarthritis shoulder is also called frozen shoulder which describes a chronic, indolent pathological process in which the body forms excessive adhesions across the glenohumeral joint which in turn leads to pain, stiffness, and loss of range of movements which compromises the quality of life. The histological biopsy of the contracted capsule revealed the deposition of fibroblasts admixed with type 1 and 3 collagen where there will be a transformation of fibroblasts into myofibroblasts with altered levels of matrix metalloproteinases. The management of periarthritis shoulder ranges from non-operative management to surgical release of fibrosis of shoulder joint. This study is to evaluate the functional outcome of autologous PRP injections in periarthritis shoulder.
Materials and Methods: After excluding the patients who failed to satisfy the study protocol, the remaining 60 patients of periarthritis shoulder with a single dose of autologous PRP injection and were followed up pre-procedurally and post-procedurally at the end of 1st, 6th and 12th month for pain relief and range of movements. The improvements in pain and range of movements are charted in terms of VAS and DASH scoring system.
Results: A total of 72% of patients reported better pain control at 6 months with 90% of patients reporting improvement at 12 months. A statistically significant improvement ($p < 0.045$) is observed with VAS ($p < 0.01$) & DASH score ($p < 0.03$) in periarthritis shoulder patients over 12 months. At the end of 6 months, 72% of patients had better pain control with good range of shoulder movements. 7 patients has lost follow up during the study period. No adverse reactions like swelling, acute pain or infection were noted.
Conclusion: Platelet rich plasma injections have proved in reducing pain, improve joint motion & function and enhance quality of life in patients. For periarthritis shoulder, autologous PRP therapy remain functionally superior as autologous PRP is a constructive procedure by rejuvenating the degenerative tissues.

Keywords: Platelet rich plasma, Frozen shoulder, Periarthritis.

Role of intradiscal injection of Platelet Rich Plasma in the management of Lumbar Disc Disease
Systematic Review & Meta-analysis

Author: Sathish Muthu[1,2,3] Girinivasan Chellamuthu[2]
Affiliation: [1]Assistant Professor, Dept. of Orthopaedics, Government Medical College & Hospital, Dindigul, Tamil Nadu, India.
[2]Research Associate, Orthopaedic Research Group, Coimbatore, Tamil Nadu, India.
[3]Research Scholar, School of Engineering & Technology, Sharda University, Greater Noida, Uttar Pradesh, India.
Corresponding Author: Sathish Muthu
Email: drsathishmuthu@gmail.com

Study Design: Systematic Review & Meta-analysis.
Objectives: We performed this meta-analysis to evaluate whether intradiscal Platelet Rich Plasma(PRP) injection has any beneficial role in the management of lumbar disc disease.
Materials and Methods: We conducted independent and duplicate electronic database searches including PubMed, Embase, and Cochrane Library till September 2020 for studies investigating the role of intradiscal PRP in the management of lumbar disc disease. The analysis was performed in the R platform using OpenMeta[Analyst] software.
Results: 13 studies including 2 RCTs, 5 prospective, and 6 retrospective studies involving 319 patients were included in

the meta-analysis. A single-arm meta-analysis of the included studies showed a beneficial effect of the intervention in terms of pain relief outcomes like VAS score (p<0.001), pain component of SF-36 (p=0.003) while such improvement was not seen in functional outcome measures like ODI score (p=0.071), the physical component of SF-36 (p=0.130) with significant heterogeneity noted among the included studies. No structural improvement in magnetic resonance imaging was observed (p=0.106). No additional procedure-related adverse events were noted in the included studies (p=0.662). **Conclusion:** There is a paucity of high-quality studies to give conclusive evidence on the benefits of intradiscal PRP for lumbar disc disease. Although intradiscal PRP injection has shown some beneficial effect in controlling pain for lumbar disc disease, we could not find structural or functional improvement from the included studies. Hence, we recommend large double-blind double-arm randomized controlled studies to analyze the benefits of the intervention being analyzed.

Keywords: Platelet Rich Plasma, Meta-analysis, Lumbar Disc Disease, Regenerative Medicine, Back Pain, PRP

Translational research in chronic tendinopathies-From bench to bedside applications

Author: Vijay J. Patel[1], Sathish Muthu[2,3,4]
Affiliation: [1]Fellow in Orthopaedic Rheumatology, Dr Ram Manohar Lohiya National Law University, Lucknow, Uttar Pradesh, India.
[2]Assistant Professor, Dept. of Orthopaedics, Government Medical College & Hospital, Dindigul, Tamil Nadu, India.
[3]Research Scholar, School of Engineering & Technology, Sharda University, Greater Noida, Uttar Pradesh, India.
[4]Research Associate, Orthopaedic Research Group, Coimbatore, Tamil Nadu, India.
Corresponding Author: Vijay J. Patel
Email: drvjy2012@gmail.com

Chronic tendinopathies involve majority of patients in clinical practice of orthopaedic surgeons and sports physicians. Translational medicine confers an emerging medical advance efficiently towards the clinician directly from scientists which may be used as a targeted therapy. The main objective of translational research from "bench to bedside" is to test novel inventions in humans. Our purpose in this article is to understand the translational medicine approach for chronic tendinopathies in clinical aspects. Translational research in chronic tendinopathies is required certainly due to plenty of reasons. Newer advances and targeted approach to these tendon disorders may curtail the further degenerative process. It aids in earlier diagnosis and prevention of morbidity, early recovery to occupational activity, lack of economical as well as recreational failure. Pre-disease level activity is ultimate goal of any therapy. Tendon pathophysiology is constantly evolving researched topic in both biochemical as well as molecular aspect. The basic fundamental understanding of the process of tendon healing and its regeneration is necessary for formulating a newer guideline. The cornerstone of treatment of tendinopathies is still non-operative management. Physical therapy, better pain control, NSAIDS are still primary choice for these conditions. Various biological therapy whenever used one should combine them with other appropriate options to obtain an optimal outcome.

Keywords: Tendinopathies, Translational Research, Biological therapy, Regenerative Medicine, Inflammation, Sports Medicine