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Editorial

Platelet Rich Plasma in Orthopaedics

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Recent advances in molecular and nanobiology have led to the identification of specific cytokines that mediate cellular activities which becomes a powerful tool in management of orthopaedic disorders. Platelet rich plasma is a potential "Orthobiologic" agent for treating inflammatory and degenerative musculoskeletal disorders. Platelet rich plasma therapy aimed in rejuvenating the degenerating tissues by neoangiogensis and neoinnervation thus by increasing the texture and biology of the diseased tissues.

Platelet Rich Plasma (PRP) is defined as the volume of plasma with an exponential increased platelet concentrations of 5 to 6 times above the baseline (approximately 105 – 106/mL). The rationale for use of platelet rich plasma is to stimulate the biological healing, homeostasis and tissue rejuvenation by a "Supra – Physiological" release of biological micro molecules at the site of treatment.

Platelet rich plasma has become a viable, biological and natural healing enhancer and pave a way towards a positive health for musculoskeletal disorders and improve the quality of life. The bioactive materials in platelets induce cellular proliferation, chondrogenesis, angiogenesis and rejuvenation of degenerated tendons and fascia. Platelet rich plasma has decreased the morbidity, accelerates healing and rejuvenation

Platelet rich plasma is a potent osteogenic and osteo integrative agent. The rationale behind platelet rich plasma in management of musculoskeletal disorders are due to the interplay between histopromotive factors such as pro-angiogenic, anti-angiogenic and chemotactic factors present in platelets. The binding of growth factor to target cell receptor induces a signal transduction mechanism which produces a biological response for chemotaxis, cell proliferation and osteoblastic differentiation. The molecular basis of platelet rich plasma is due to increased HGF and TNF-α activity by disrupting NF-κB-transactivating activity.

Autologous platelet rich plasma injection offer advantages of increased bioactive micro molecules at the injured or diseased site, provides a scaffold or framework for the healing process, elimination of disease transmission & immunological concern and the biological modality of treatment for musculoskeletal disorders. Platelet rich plasma provide a high margin of therapeutic efficacy and safety.

The platelet rich plasma became a potential tool in tissue engineering and regenerative medicine. A further research on bioactive micro molecules has to be conducted to evaluate the potency, credibility and temporal association of musculoskeletal disorders with improved quality of life and long term outcome.

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