



Review Article

Effect of Platelet Rich Plasma in Reducing Skinwrinkles: A Systematic Review

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Abstract

Introduction: Platelet rich plasma (PRP) has been suggested to be effective in the management of knee osteoarthritis. But there are many pros and cons

Aims: To understand the function of PRP in reduce skin wrinkles.

Design: Systematic review

Data sources: The search strategy included 3 electronic databases: PubMed, Clinical Key, and PROQUEST 2009 to 2019 for any experimental studies written in English, which examine the effect of PRP on skin wrinkles.

Review methods: Data extraction, data analysis, and Mixed Methods Appraisal Tool (MMAT) quality assessment were completed on all included studies. Content analysis was used to identify the effect.

Results: Articles screened 17 research articles met inclusion criteria and were included for data extraction. There was statistically significant clinical PRP effect in skin rejuvenation or reducing skin wrinkles ($p < 0.001$). This has been seen from a significant value from the study. No serious side effect due to PRP treatment was found.

Conclusion: This current review has demonstrated a safe and effective treatment in using PRP reducing skin wrinkles. Further intervention studies need to its outcome when used in combination with other therapies, as well as to investigate the mechanisms of action, limitations and preparations of PRP.

Keywords: Platelet Rich Plasma, Skin Wrinkles

ARTICLE INFORMATION

Received: 26.04.2020

Revised: 19.05.2020

Accepted: 22.05.2020

DOI: 10.31580/pjmls.v3i1.1317

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INTRODUCTION

The aging reflects a period in the development that sustains along human life (1). In Western culture, the aging condition can be stigmatized socially, allow that old age is often reduce to physical and mental disability. During skin aging, a degeneration of connective tissue and decrease in hyaluronic acid polymers occur (2). It's constant exposure to UV radiation that diminishes the structural function and integrity of the extracellular matrix through collagen degeneration and abnormal elastin structure, leading to the loss of both skin tone and elasticity, causing the signs of aging (3).

Platelet-rich plasma (PRP) conceive growth factors and various cytokines which estimated that it is able play a role in fibroblast activation and type I collagen expression in human fibroblasts. PRP is has been studied and used in many clinical fields since it contains a smother of diverse growth factors (4).

Platelet rich plasma (PRP) is a centrifugation product of whole blood, which platelets are extracted. PRP contains a mixture of bioactive agents derived from both platelet and plasma, such as Platelet-derived Growth Factor (PDGF), Transforming Growth Factor (TGF), Vascular Endothelial Growth Factor (VEGF) and Insulin-like Growth Factor (IGF). Those growth factor facilitate collagen and fibroblast proliferation, as well as keratinocytes growth. Platelet rich

plasma is chosen over regular plasma since it contains 4,6 times higher platelet count compared to plasma and also contains much higher amount of mentioned growth factors. Lin et al divide face study in 2018 which show an improvement of facial skin turgor, hydration, smoothness and vitality at platelet preparation-injected side compared to growth factor-injected side of face. In fact, PRP is expected to enhance skin rejuvenation, by increasing collagen and elastin production significantly.

Aging is divided into two: intrinsic and extrinsic one. Based on McGraw-Hill Concise Dictionary of Modern Medicine, intrinsic aging is natural deteriorative effects on human's tissue that is due to increase of age. These effects include epidermal atrophy, reduced number of skin's Antigen Presenting Cells (APCs), functional and structural loss of dermal and epidermal components. While extrinsic aging is abnormal deteriorative effects on tissue, including skin, that is due to external factors e.g. ultraviolet (UV) ray, smoking and gravity. These effects include keratinocyte disorganization, degeneration of elastic tissue and/or carcinogenesis. UV ray is the one causing most extrinsic aging. Therefore, photo-aging is made a synonym of extrinsic aging.

METHODOLOGY

