Editorial

Platelet-rich plasma in skin rejuvenation

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Platelet-rich plasma (PRP) is a concentrate of platelets that has broadly been used to speed up the restoration of human skin tissues. Procedures of its preparation would differ from method to method, depending on the concentration of various participating ingredients, including proteins. Positive reports are mostly based on case studies rather than large randomized and placebo-controlled trials.

In the field of skin rejuvenation, the theory is that PRP, through various secreted growth factors and cytokines, may promote collagen production and fibroblast multiplying in aged skin. PRP has a high concentration of growth factors such as platelet-derived growth factor (PDGF), transforming form growth factor (TGF), those secreting from endothelial vessels i.e. vascular endothelial growth factor (VEGF), and lastly, those factors with serum insulin-like activity, i.e. insulin-like growth factor (IGF), as well as plasma proteins such as fibrin, fibronectin, and vitronectin. PRP increases the presence of proteins that regulate G1 cell cycle, collagen type I, matrix-derived metalloproteinase-1 (MMP-1) and MMP-2 within human skin fibroblasts (HSF), and messenger ribonucleic acid (mRNA) in human dermal fibroblasts.

A few years ago, in some initial clinical studies with platelet concentrates in the patients attending plastic and orthopedic surgery departments, some benefits have been shown. Conversely, interests have also declined due to some significant problems such as cost, the amount of blood required, the need for special tools and experienced personnel, and most importantly the lack of clinically significant advantage. Hence, a new simple formulation containing autologous platelet-derived material called Selphyl (Aesthetic Factors, Bethlehem, PA, USA) permits rapid and low-priced generation of a matrix of fibrin derived from platelet matrix, which could be used to improve healing after skin procedures, as well as to rectify he deep nasolabial folds.

The combination of PRP and hyaluronic acid injections improved facial skin with noticeable and statistically substantial enhancement. The improvements are more noteworthy with higher number of injections. A three-month study of 24 patients undergoing face and neck rejuvenation via monthly PRP injections revealed reasonable results through subjective and objective measures.

In a study with 20 volunteers who received one single intradermal PRP injection, results showed that it was well tolerated and proficient in revitalizing facial skin, thus making a noteworthy improvement of wrinkles, mainly at the nasolabial folds. Another study showed that combining PRP therapy with fractional resurfacing resulted in a rise in dermal elasticity and collagen thickness as well as a decrease in erythema. Combining PRP with fractional lasers or subcision suction to treat atrophic acne scars has been shown to shorten the healing time, as well as to diminish erythema and edema, while encouraging keratinocyte, fibroblast, and collagen proliferation.

There might be some side effects when using PRP that the patient must be aware of before the procedure. The most common side effects include pain in the injured area, infection, no improvement in the injured area, allergic reaction, blood clot, skin discoloration, and even blindness, although rarely so.

PRP is considered a novel therapy with some studies indicating its effectiveness in esthetic dermatology. Combining of PRP with some other modality treatments is mostly exciting. Forthcoming studies should contain control groups, as well as association of split-body evaluations, to lessen inter-subject inconsistency and to establish the safety and efficacy of PRP for clinical applications.

References


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