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Case Reports 2020: Platelet Rich Plasma Gel Bio-Filler used in soft tissue Augmentation- Sherif Nakhal- Ibrahim Fathi Ghoneim St.Gleem

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Introduction:

All PRP systems are different, so they consequently produce different results. The technique used for the isolation and concentration of platelets directly affects the availability and functionality of the growth factors. Effective cellular therapy requires a framework for cell migration, the progenitor cells, which can be transformed into bone- or soft-tissue. The plasma gel can also serve as signalling proteins for the modulation of the repair and regeneration. I-Stem PRP system in combination with plasma gel, called Plasmafill, provides a complex mix of cells, proteins and plasma gel frameworks, which helps to optimize the conditions for healing and regeneration. The concentration of the growth factors in any PRP preparation is directly proportional to the amount of platelets contained in PRP. The most important growth factors identified in the highly concentrated PRP are: Platelet Derived Growth Factor – growth factor (PDGF): is chemoattractive for the stem cells endothelial cells. Transforming Growth Factor Beta (TGF-β): promotion of cell mitosis and differentiation of connective tissue and bones

Vascular Endothelial Growth Factor (VEGF)- Vascular Endothelial Growth Factor is a group of proteins that act as signalling molecules in angiogenesis: stimulates the angiogenesis and is chemoattractive for osteoblasts

Materials and Methods:

Preparation of plasma gel

An 8.7 mL venous blood sample was drawn under aseptic conditions. The blood was aspirated with a 21 G needle into a 10 mL syringe preloaded with 1.3 mL of anticoagulant citrate dextrose (ACD) solution (in rats: 2 mL venous blood sample mixed with 0.3 mL of ACD). Each blood sample was centrifuged for 15 minutes at 3000 RPM, 72 g, at 4℃, resulting in the following three layers: an inferior layer composed of red cells, an intermediate layer composed of white cells, and a superior layer made up of plasma. The 6 mL plasma layer was centrifuged for another 5 minutes at 1000 g in order to obtain a two-part plasma sample: the upper part consisting of 5.5 mL of platelet-poor plasma (PPP) and the lower part consisting of 0.5 mL of platelet-rich plasma (PRP) The PPP was then gently aspirated with a pipette and placed in a sterile injection bottle, being careful not to mix the PPP with PRP. The injection bottle was attached to a dental syringe and heated at 100℃ for 12 minutes in a heating machine. The injectable plasma gel was then ready for use. An injection needle was attached to the dental syringe, and the plasma gel was injected into the target site. Taking a whole blood sample and centrifuging at 3000 RPM for 15 min. (B) The blood was separated into three layers. (C) The platelet-poor serum layer was collected and pipette into sterilized injection bottles. (D) The injection bottle was attached to a dental syringe and heated at 100℃ for 12 minutes. The collected serum finally turned to plasma gel. (E) The plasma gel was a semi-solid and easily injectable material that was stable at the injection site. (F) The plasma gel was maintained over 1 year in the sterilized injection bottle, but exposed to room air, the plasma gel disappeared within 1 month. (G) Electron microscope findings of plasma gel: the plasma gel showed the typical shape of protein structures on an electron microscope

Result:

The plasma gel was a semi-solid and easily injectable material which was stable at the injection site The plasma gel was maintained well at the same consistency for over 1 year in a sealed injection bottle; however, when exposed to room air (opened bottle), the plasma gel disappeared within one month). Under an electron microscope, plasma gel was seen to consist of many same-sized round particles, which represented a consistent and homogenous protein feature The Plasma Bio-Filler is injected to volumize, face, lips for a totally natural face-lift. Plasma Gel has the same color and consistency as autologous fat, but when injected, the softness is much better than autologous fat and it allows being more precise and refined. The advantage with other synthetic fillers is that this bio-active material works under the skin reactivating the natural dermal regeneration processes; with the bio-filters, there is no risk of allergic reactions, so it 100% safe. The management of oral mucositis is with oral hygiene, adequate hydration and controlling pain. Using proper mouth wash oral mucositis can be prevented. Adherence to soft diet till the lesions heal. Teeth should be checked after the mouth washes. Pharmacists modify the compound preparations for patient better compliance. Thus the investigator was intended to study the effectiveness of baking soda with normal saline. Sodium bicarbonate (baking soda) provides deodoring, buffering activities, clean and refreshing effect and neutralizes the production of acid in the mouth. It also has an antiseptic to prevent infections. This mouth wash can be prepared at home. Recommendationsis to dissolve ½ teaspoon of sodium bicarbonate or baking soda in 250 ml of water. No side effects were recorded in either of the groups. To our knowledge the comparison of use of baking soda and normal saline in pemphigus vulgaris patients with oral mucositis has not been reported much in the literature.

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