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THE USE OF EYE-PLATELET RICH PLASMA (E-PRP) IN THE TREATMENT OF OCULAR SURFACE DISORDERS

SESSION DETAILS

Session Title: Cornea Medical

Session Date/Time: Monday 07/10/2013 | 08:00-10:00

Paper Time: 08:38

Venue: Elicium 1 (First Floor)

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ABSTRACT DETAILS

Purpose:

The use of biologically active agents to promote wound healing has been known in ophthalmology for several decades, and it has been widely used in the treatment of ocular surface disease such as persistent epithelial defects or neurotrophic keratopathy. Blood derived products have demonstrated their capacity to enhance healing and stimulate the regeneration in ocular surface disorders and this enhancing effect is attributed to the growth factors and bioactive proteins that are synthesized and present in blood. Platelet Rich Plasma (PRP) is a portion of the plasma fraction of autologous blood having a platelet concentration above baseline. The application of eye platelet rich plasma (E-PRP) to the ocular surface in patients with moderate to severe dry eye is a promising new treatment. The objective of this work is to show the use of blood derived product known as eye platelet-rich plasma (E-PRP) in ophthalmology, and outline its current clinical applications.

Setting:

1237 samples of E-PRP were prepared to treat patients with different ocular surface problems at VISSUM Corporation Alicante from 2005 until 2012 in different formulations (eyedrops, clot or fibrin membrane).

Methods:

Preparation of E-PRP in the three available formulations; eyedrops, clot or fibrin membrane, is inexpensive and easy although it requires following strict sterility conditions using sterile and

disposable materials and operating inside a laminar flow hood. E-PRP was given topically as eyedrops (46 times

per day) for 6 weeks up to 3 months to patients with dry eye, corneal ulcers and ocular surface syndrome (OSS). All the patients were evaluated before the treatment, after 6 weeks and 3 months. Patients with corneal perforation were treated with autologous fibrin membrane, Tutopatch or amniotic membrane transplantation plus E-PRP clot. They were prepared with the patient's own blood just before surgery. The evaluation consisted of an ophthalmological examination, including corrected visual acuity, slit lamp examination, photography of the anterior segment, staining of the anterior segment with fluorescein and confocal corneal microscopy for ulcer diagnosis. The evaluation for the patients with dry eye included evaluation of subjective symptoms, tear break up time (BUT), impression cytology, tear meniscus height, visual acuity, conjunctival hyperemia.

Results:

Patients were suffering from Dry eye 65%, Ulcers 15%, Ocular surface syndrome (OSS) 9%, ocular perforations 4%, and another diagnosis 6%. There were no contamination and side effects, because E-PRP was generated from the patient's own blood and it was preservatives free. The results were different from each patient, but about 88.3% of the patients improved in different degrees after using E-PRP. E-PRP, applied topically on patients suffering from dry eye, proved to be very effective on 89% of the cases improving both patient's symptoms and ocular surface disorders. In the treatment of patients with OSS, autologous E-PRP showed to be very effective to improve symptoms, punctate keratitis, BUT and BCVA. E-PRP promoted healing of dormant corneal ulcers in a variety of conditions, improving anatomy in most of the cases and visual function in many of them. Both pain and inflammation, also positively improved. Solid E-PRP as clot was used with autologous fibrin membrane, Tutopatch or amniotic membrane transplantation in perforated eyes, or with high risk of perforation. 57% of this patients gained visual acuity lines after the surgical procedure.

Conclusions:

The use of E-PRP in these three available formulations was found to be a safe and effective therapeutic tool to enhance epithelial wound healing in Ocular Surface Disorders such as dry eye, ulcers, ocular surface syndrome, corneal perforations, and many different ocular surface disorders. E-PRP provides a high concentration of essential growth factors and cell adhesion molecules by concentrating platelets in a small volume of plasma. These growth factors and cell adhesion molecules have a major role in wound healing and enhance the physiological process at the site of the injury/ surgery via eye drops. So the application of platelet rich plasma (E-PRP) for the patients with ocular surface diseases is a promising 100% autologous treatment.

Financial Interest:

NONE