Platelet lysate (CPlys) eye drops as a new treatment opportunity in persistent corneal epithelial defects (PCEDs)

Session Title: Cornea - medical
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PCEDs is a syndrome causing pain and decreased visual acuity due to reduced tears production and /or reduced corneal sensitivity present in many pathological conditions. Unfortunately conventional medical treatment offers unsatisfactory results. Platelet lysate eye drops contain biological proteins of plasma and platelets that are very important for anti-inflammatory action, humoral re-establishment of equilibrium and tissue regeneration. Autologous platelet and plasma proteins such as: Fibrin, Fibronectin, Vitronectin, Fibroblast Growth Factor (FGF), Epidermal Growth Factor (EGF), Platelet Derived Growth Factor (PDGF), Insulin Like Growth Factor (IGF),Vascular Endothelial Growth Factor (VEGF), are provided by the eye drops formulation and immediately available to activate repair mechanisms. This treatment thanks to its biological specific characteristics is recommended for Sjogren's syndrome - related tear deficiency, non Sjogren's tear deficiency associated with graft versus host disease (GvHD), persistent epithelial defects as well as a support measure in ocular surface reconstruction (recurrent or persistent corneal erosions).

Setting:

We investigated the safety and the efficacy of autologous CPlys standardized in 123 patients affected by PCEDs of which 77 with medium or severe dry eye, 28 with developed ocular GvHD refractory and 18 with relapsing corneal erosions.

Methods:

Platelet Lysate eye drops (4-6 time/day for one year). Every 4 week, 60 mL of autologous anticoagulated (ACD) peripherical blood was collected from each patient and processed under laminar flow hood to obtain 30 daily sterile doses of CPlys eye drops (Kit Col - BiomedDevice - Modena, Italy) at 0.7 x 106/mL platelet concentration and diluted in sterile balanced saline solution at final concentration of 30% (V/V). CPlys eye drops can be stored at patient's home at -5°C. The patients were evaluated by the same ophthalmologist who treated them with subjective (symptoms pointed out in a self-assessment questionnaire) and objective tests (Schirmer test, FBUT, BVA, anterior segment, fluorescein, lissamine scores).

Results:

Patients were classified as 'responders' if they demostrated improvement of at least one ocular symptom. At 30 days after 86% of the patients had a symptoms improvement, 57% a signs improvement and 0% a corneal damage. Such response persisted throughout the treatment period: one year after of treatment amelioration of the initial symptoms and of the ocular signs lasted in 86% and 43% of the patients, while 7% had corneal damage.

Conclusions:

Therapy with autologous CPlys eye drops is easy to use, safe (autologous products) and at low cost; this procedure shows a symptoms improvement and corneal damage already 30 days after of treatment, with a consequent progressive improvement in quality of life and return to normal activities. In addition it is worthwhile to point out that the effectiness is maintained throughout the year of treatment. Therefore this product could represent a valid alternative to conventional therapy in the treatment of ocular cGVHD. In order to evaluate the therapeutic efficacy of CPlys, eye drops, being an autologous blood component, it is mandatory to use a standardized CPlys to minimize variables process-dependent. The treatment efficacy is maintained throughout one year-treatment: for longer periods it is still under control. FINANCIAL INTEREST: NONE