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Anti aging cosmetic dentistry: non-surgical bio-lifting, perioral aesthetics with B.P.F.C. ® BioPlasma®.case series

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Abstract

The aesthetics of perioral soft tissue has become increasingly popular in dental practices. We would like to document 8 cases of perioral soft tissue aesthetics through BPFC Bio-Plasma. The B.P.F.C. was a particular platelet derivative, without any type of activator such as calcium chloride. No post-operative pain and no side effects have been documented. Regenerative Medicine represents a new therapeutic approach aimed at biological regeneration tissue instead of replacing it.

Keywords: BPFC bio-plasma, platelet derivatives, perioral tissue, bio-lifting

Introduction

The aesthetics of perioral soft tissue has become increasingly popular in dental practices. The Aesthetic interventions on the third of the face aim at restoring compactness to the tissues, stretching out the wrinkles, reshape the face. Among the mini-invasive techniques proposed we have injections of hyaluronic acid and botulinum toxin [1]. The hyaluronic acid is conveyed in the form of a gel reabsorbable, whose half-life is about 6 months, although it varies from person to person. It can be obtained by animal origin, or produced by the bacterial fermentation of certain Streptococci [1]. The botulinum toxin, instead, determines an inhibition of acetylcholine at muscular level causing selective paralysis of certain muscles [2]. The use of both together is quite documented in scientific literature, e.g. to redraw the angle of the mouth, an intervention much sought especially by young women [3]. Another proposed association is the use in conjunction with injections of hyaluronic acid, laser stimulation or pulsed light devices [4]. At the labial level, other more invasive solutions to achieve a better aesthetics effect are the alloplastic implants, which are certainly also associated with the possibility of more side effects than previous techniques [5]. However, although more rarely side effects have also been documented using botulinum toxin [2] and acid hyaluronic [1]. An interesting association is the one that concerns precisely this last product with "platelet rich plasma", platelet derivatives [6].

Platelet concentrates (PCs) are autologous organic products obtained after various processing of a whole blood sample, mainly through centrifugation, and consist mainly in an over physiological concentration of platelets and growth factors (GF) [7, 8]. The objective of the treatment is to separate the blood components in order to discard the elements considered unfit for use (mainly red blood cells, heavy and easily separable) and to collect and concentrate the elements that can be used for therapeutic applications such as fibrinogen / fibrin, platelets, growth factors, leukocytes and other forms of circulating cells, in solution in liquid plasma [8]. In short, these products are extracts of tissue circulating in the blood. It's the tissue itself and not the pharmaceutical preparations. PCs are used in a surgical site or wound in order to stimulate, improve and accelerate healing [8].

In all wounds, blood clotting to form a fibrin matrix/ platelets is the initial stage of the natural healing process. The use of platelet concentrates has been designed to reinforce this natural process. Over time, this optimization concept of healing has evolved into a more sophisticated concept of tissue regeneration promoted by the growth and cellular factors contained in these preparations [8].

There are two main types of PC: platelet rich plasma (PRP) and platelet rich fibrin (PRF), they are not pure, the sample contains anticoagulant citrate and the activation takes place with

calcium chloride and there are leukocytes [8, 9]. Fibrin-based products rich in leukocytes and platelets (L-PRF) are prepared with leukocytes and with a high-density fibrin network. The PRF, presents itself as a dense gel and contains: Fibrin, Plasma and the Leukocytes, in one fraction. It is presented in Gelled form and once separated from the blood, is temporarily stored in a refrigerated room at a constant temperature between 12 and 15 °C [8].

B.P.F.C.® Bio-Plasma® with pure growth factors, which is what we are going to propose in this case series, instead, does not use anticoagulant and calcium chloride but thanks to the particular self-freezing centrifuge program in 15 minutes. Bio-Plasma® is a 100% product autologous, is biocompatible, therefore free of allergic adverse reactions, body reactions extraneous or skin hypersensitivity. Bio-Plasma® has a concentration of platelets of 6 at 10 times the serological rate. Platelet concentrates can be used in a variety of applications beyond the oral field including:

Orthopedic Surgery: accelerates bone mineralization, increases trabecular bone density and promotes osteoconduction. It is used in osteosynthesis procedures, bone resections where large cavities can be created and in arthroplasty [10].

Maxillo-Facial Surgery: it is used during the reconstructive phase in resection procedures, in the treatment of oronasal fistulas, in mandibular reconstruction also in association with transplantation allogeneic or alloplastic, in maxillary sinus elevation surgery [11].

Treatment Of Chronic Skin Ulcers: they represent one of the most expensive pathologies for health care and that has a big impact on the quality of life. The platelet gel is part of the wide range of the new therapeutic measures in the treatment of this pathology [12].

Sports Medicine: in the treatment of muscle tears, tendonopathies and cartilaginous defects [13].

Aesthetic Surgery: in lipofilling procedures allows to take

root in the area where it is injected at a higher percentage than if it were introduced in isolation [14].

The goal of our work is to document 8 cases of soft tissue aesthetics of the face through BPFC Bio-Plasma, without side effects and with very satisfactory results.

Case Series

The treatment was carried out on 8 patients in the lower third region of the face to give back tissue compactness and reduce the number of wrinkles. All patients have read and signed the consent informed. The B.P.F.C. ® BioPlasma® Protocol Rich in Pure Growth Factors ® (B.P.F.C.) R.Viganò ® has been validated by the Ethics Committee of the Macchi Foundation Circle Hospital. (Varese) by resolution n.53 of 08/02/2013.

The phases of the study have been

The B.P.F.C. was carried out after a blood sample with Vacuette, 15 ml in asepsis controlled, followed by venous blood centrifugation; BioPlasma Rich in Growth Factors Puri (B.P.F.C.) is located underneath the BuffyCoat and is retrieved by means of the Pipetting/Fraction, to obtain Two Fractions divided as follows:

Fraction 1: the fibrin enriched with poor Plasma

Fraction 2: BioPlasma Rich in Pure Growth Factors, the unipotent Stem Cells, are found in this fraction, just above the portion of the dense clot.

The two Fractions, following the exclusive software of the centrifuge, are self-activated, guaranteeing the maximum exploitation of the potential of the blood material taken.

We can therefore define that "The Protocol of BioPlasma Rich in Pure Growth Factors" in regenerative medicine GBR and GTR is conceived as a multifactorial stimulation system, as all its phases and components are used according to specific requirements, whose versatility and multifunctionality make it different and preferable to the other techniques proposed so far.

Here are the images before and after the treatment of the 7 patients. No post-operative pain and no side effects. Figure A before; Figure B after.



Fig 1 A, B



Fig 2 A, B



Fig 3 A, B

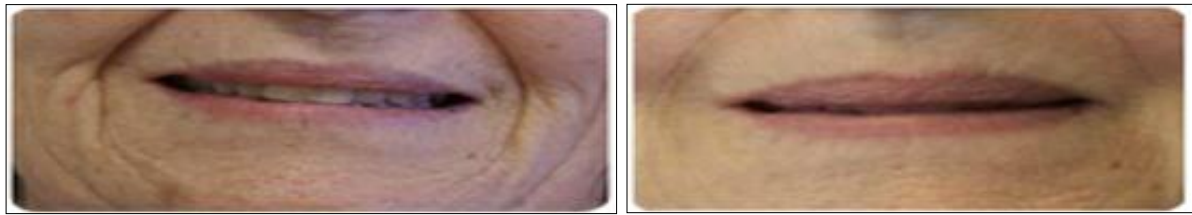


Fig 4 A, B



Fig 5 A, B



Fig 6 A, B



Fig 7 A, B



Fig 8 A, B

Discussion

The B.P.F.C. ® technique has been previously described to treat cases of osteonecrosis of the maxillary bones, or to avoid it in patients under treatment with bisphosphonates undergoing surgical extraction and implant therapy [15]. In our documented cases, the patients were completely satisfied, and nobody showed any side effects. Adverse effects of hyaluronic acid include: oedema, pain, ulceration, scarring,

filler migration, granuloma formation [1], ocular and palpebral alteration [16]. Among the worst complications that however occur in cases of injections not of the lower third of the face, we have the loss or reduction of vision, due to a thromboembolic effect of hyaluronic acid particles of the small blood vessels of the periocular tissue. Hyaluronidases can help in this case, although they are not always resolutive [17]. Side effects associated with the use of botulinum toxin are

certainly more serious: dysphagia, hoarseness, inflammation of the neck, tissue asymmetry due to dislocation or incorrect positioning, allergic reactions and infections [2]. The use of alloplastic implants instead exposes patients to a higher percentage of complications: malposition 7-10% of cases, extrusion 1%, need for revision and adjustment up to 10% of cases, infection 1%, dissatisfaction and reintervention in 4% of cases, just to name a few [5]. The use of laser lights, for the aesthetics of the face, where there would actually be less invasiveness, has been described since 1985. Currently the most used lasers are Neodymium lasers (1064 nm), while more and more used seems to be pulsed light (420-1400 nm), a non-consistent and non-collimated light. However, not all the scientific literature agrees on its real effectiveness [4]. Pirrelli *et al.* in a pilot study evaluated the efficacy of a mixture of 2 ml hyaluronic acid and PRP (2 ml) to treat perilabial alterations related to scleroderma in 10 patients. Applications were performed 3 times at a distance of 15-20 days from each other. The results obtained showed that 80% of the patients had improvements in terms of mouth opening, increasing the interincisal distance and reducing the degree of discomfort related to the lips. This result was maintained even at 24 months [6]. The limit demonstrated by the PRP is the premature release of all the growth factors that contains (already in the first 24 hours) which results in a lower quality of the healing and repair process of the affected structures [8, 9]. The protocol proposed in this study, using an autologous product, free of anticoagulants and calcium chloride, with elimination of haematocytes and leukocytes, could be proposed both for aesthetic reasons, cancelling the percentage of side effects, and for therapeutic reasons as in the case of the study previously described. The use of transdermal vehiculation has already been successfully documented also for hyaluronic acid [18], and in general it represents a very good protection also to vehiculate other types of drugs to other sites of our body, in a mini-invasiveness perspective [19].

Conclusions

The application of Bio-Plasma® with Transdermal Vehiculation, proposed in this work, could be very useful in aesthetic medicine as an autologous biostimulant in order to reduce the aging effects. Regenerative Medicine represents a new therapeutic approach aimed at biological regeneration tissue instead of replacing it.

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