

The effectiveness of an innovative biorevitalizing mixture carried by the transdermal electrodelivery

P. Forgione¹, F. De Natale¹, E. Sammarco¹, N. Chianese², P. Vitiello²

¹U.O. Dermatologia – PO. Cardinale Ascalesi –ASL NA1,Napoli - Italy

²Physician, Napoli - Italy

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Summary

Today dermatologists have at their own disposal many therapeutical devices able to satisfy the common desire of many of their patients to rejuvenate their skin reducing and slowing down signs of the time passing by.

We report our experience in using a biorevitalizing mixture of hyaluronic acid, vitamin C and beta-glucan (trade name HCG2000®) properly carried by electroporation, a non-invasive innovative technique useful in the treatment of face and body skin imperfections.

Riassunto

Sono ormai a disposizione del dermatologo numerosi presidi terapeutici in grado di soddisfare il comune desiderio di molti pazienti di ringiovanire la propria pelle riducendo e rallentando i segni del tempo. Riportiamo la nostra esperienza nell' utilizzo di una miscela di biorivitalizzanti (denominata HCG2000®) costituita da acido ialuronico, vitamina C e betaglucano opportunamente veicolata attraverso l'elettroporazione, tecnica innovativa non invasiva utile nel trattamento degli inestetismi del volto e del corpo.

INTRODUCTION

The solution* used is a calibrated mixture of biostimulant actives of proved effectiveness such as betaglukan, vitamin C arginate, and hyaluronic acid, which stimulates the cellular turnover and the synthesis of collagen, elastin and fibrin.

It is indicated in the treatment via injection of stretch marks, wrinkles and acne scars.

The transdermal electroporation is a methodology that by using peculiar electrical pulsating impulses, cause a temporary expansion of intercellular spaces allowing a fast and selective penetration of drugs and dermocosmetics into the skin basal layer (1,2,3,4).

We report our experience in the use of HCG2000® by electroporation on subjects showing chrono and photo-induced facial skin aging.

MATERIALS AND METHODS

For this study it has been used a cytostimulant solution* containing:

- 1) hyaluronic acid
- 2) betaglukan
- 3) ascorbic acid

dissolved in sterile solution in phials of 2 and 5 ml. For each treatment we used 1,5 ml of the solution dissolved in a wire gel.

The obtained mixture was ionized in a specific metallic activation room whom which the electronic device called Matripor® (Burattini Biomedical Engineering, Pozzuoli, NA) is equipped. This allows a fast passage of the used molecules through the pulsed electrical waves of low frequency and high intensity, generated by this special device.

The study was conducted on 30 women aged between 40 and 55, treated by a 16 minutes electroporation sitting once and twice a week.

RESULTS

After 10 treatments a clear reduction in wrinkles depth was observed, many of which just after 5 weeks of treatment. Moreover it was observed a remarkable increase in skin hydration and tone. After the transdermal application of the mixture none of the subjects showed undesirable effects. The personal opinion of the subjects treated was positive in all cases and extremely positive for the 50 % of the cases.

DISCUSSION

The calibrated combination of the three active principles, betaglukan, vitamin C and, hyaluronic acid, that notoriously stimulate and speed up the synthesis of the normal fibrous component of the skin, optimizes the normal production of collagen, elastin and fibrin (5,6,7) .

This association, thanks to a patented special procedure, permits the creation of particular ionic bonds activating the different molecules that allow and help their delivery and penetration though the different skin layers.

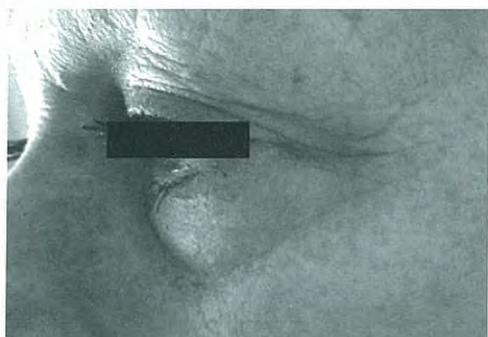
In this way hyaluronic acid can work with its elective re-hydrating activity maintaining and linking water in skin tissue (8).

The salification of vitamin C makes it stable against the oxidative processes, exalting at the same time its peculiar anti-free radicals activity as well as its stimulating activity in collagen synthesis (9,10).

Finally, betaglukan, strong and well known activator of the skin immune system, works both stimulating the cellular turnover and fighting oxidative stress.

The biorevitalizing mixture we used, is normally injected intradermally or intraepidermally in the desired quantity in the areas to be treated in a rigorous asepsis conditions.

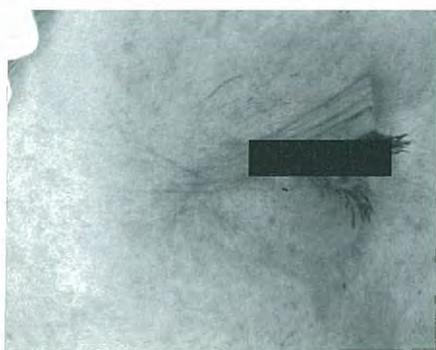
*trade name HCG2000®



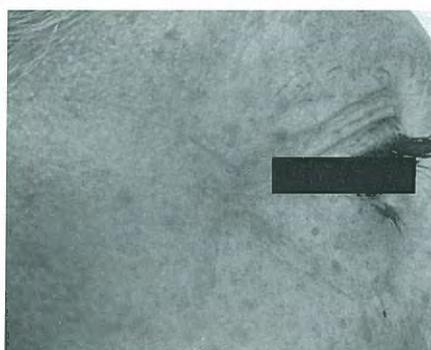
Periocular Wrinkles Before



After 10 sittings



Periocular Wrinkles Before



After 10 sittings



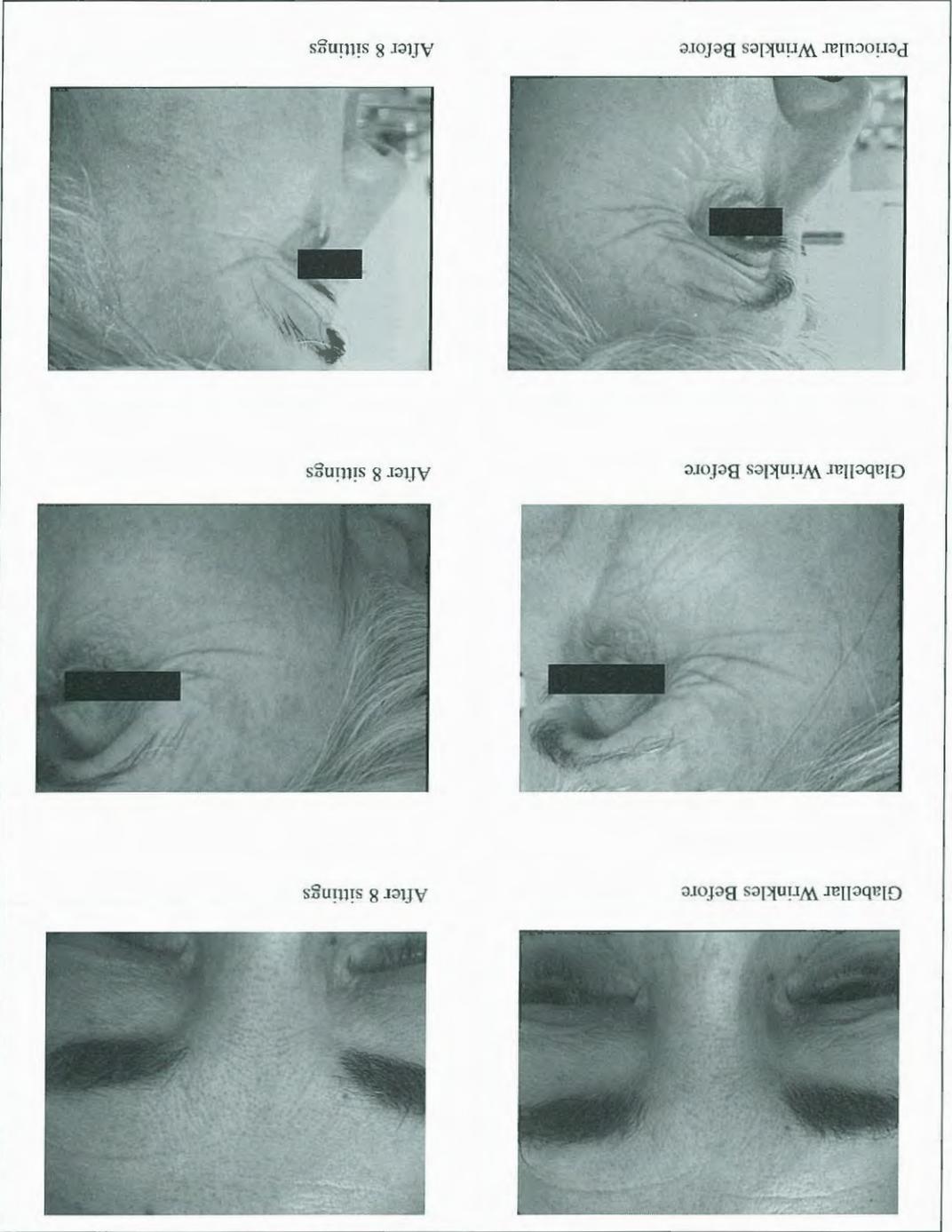
Glabellar Wrinkles Before



After 10 sittings

Fig. 1

Fig. 2



The effectiveness of an innovative bio-revitalizing mixture carried by the transdermal electrodelivery

The injection exposes the patient to a possible appearance, in the injection area, of erythema, swelling, pain, itching and microhaematomas.

The electroporation uses a reversible electric field, with short and high voltage pulses through which it electropores the double layer lipidic barriers with formation of subcellular pores that increase remarkably the substances delivery speed, even if of high molecular weight.

This methodology increases the skin penetration of the active compounds, allowing a higher absorption rate, eliminating possible side effects due to the intradermal or intraepidermal injection and speeding up their therapeutic effects.

The obtained results, reported in the figures 1-6, confirm that electroporation is an effective and well tolerated methodology to treat skin ageing and skin photo-ageing by using biorevitalizing molecules.

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Author Address:

Dr. Patrizia Forgione
Via Stendhal 14
80133 Napoli
Email: forgionepatrizia@virgilio.it