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**Treatment of DMLS with transdermal therapy through
Dermoelectroporation®**

Prof. A. Massirone, President A.M.E (Agorà Medicina estetica), A.M.I.Est. (Associazioni Medici ad Indirizzo Estetico) - Milano

D.ssa C. De Iulio, Degree S.M.I.E.M. "Esperto e consulente in Medicina ad Indirizzo Estetico",
Omeopata - Milano

Background:

Dermatomyoliposclerosis or DMLS is a degenerative process of the subcutaneous fat tissue which becomes a connective structure alteration. A lymphatic venous insufficiency of thighs causes a stasis of subcutaneous connective micro bloodstream and a consequent intercellular edema. This brings to hypertrophy and hyperplasia of the collagen that usually encircles adipose cells, to blood vessels narrowing, alteration of metabolic exchanges, tissue suffering and toxic catabolitics stagnation. The consequence of this process is a fibrosis first, and then a fibrosclerosis with micro and macronodules. Although the element of heredity in DMLS, there are particular conditions that favour its formation, such as: postural alterations, endocrine dysfunctions, smoking, weight, progesterone therapy, incorrect alimentation. The therapy for DMLS is diversified, and one of the proven efficiency steps is mesotherapy with lipolytic, vasodilator substances.

Goal:

Administer to the patient the drug therapy usually used with mesotherapy for DMLS with a non invasive method of transdermal drug delivery, *Dermoelectroporation®* (patented by Mattioli Engineering).

Method:

Dermoelectroporation[®] is a method, carried out through Transderm[®] Ionto System cleared by FDA, that allows the transdermal delivery of drugs through a previous microdermabrasion, that lowers the skin impedance, and a pulsed iontophoresis, with waveforms similar to electroporation, but with a lower and controlled intensity, for the local administration of ionic drug solutions

The medical unit that utilizes this method is Ultrapeel[®] Transderm[®] Ionto System (Mattioli Engineering), composed by:

- A disposable handpiece for microdermoabrasion with sterilized corundum crystals
- A Precision liquid dispenser (PLD) that supplies the drug solutions with a variable speed (we used 0,5 ml/min).
- A Vibrating headprobe able to deliver electrical pulses from 1 to 5mA (we used pulses set to 4/5mA)

Project of this study:

Eleven (11) patients (female), age between 25 and 53 years, suffering of DMLS of II, III and IV level have been treated.

Method and duration of the study:

1. Definition of the clinical background:

After performing the pathologic and physiologic anamnesis (legs heaviness, cold feet, cramps during night or day, varicose veins,...), we made an objective examination: skin imperfections, alteration of skin colour (dyschromies and hyperpigmentation), cutis paleness (hypotermic areas), small varicose veins, teleangectasies, stretch marks, etc. Superficial and deep palpation in order to evaluate temperature changes, cutaneous elasticity reduction, increase of flabby skin, presence of micronodules. With termography we evaluated the extension and the gravity of the damage to the cutaneous and hypodermic micro bloodstream, according to the variation of cutaneous temperature. In this way we could understand the level of DMLS.

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2. Therapeutic protocol:

During 8 consecutive weeks we treated 8 patients, once per week, with sessions of mesotherapy on one side, and of Dermoelectroporation® on the other side, using the same drug solutions.

The used drug solutions are composed by: 1 ml Aminophylline + 2 ml Lyndiaral + 2 ml Veno-N.

3 further patients were treated once per week with Dermoelectroporation® on both sides, but delivering the drug solutions only on one side, while on the other just a simple saline solution.

3. Indications for the patient :

We recommended to the patients not to do any massage, to pay attention to hyperlipidic food and not to perform sport for 24 hours after the session.

Results

In those 8 patients treated with the same drug solutions we can state that the delivery of active principles takes place in the same way with either Dermoelectroporation® and mesotherapy, while there was no effect where the saline solution was used.

The therapy with Ultrapeel®Transderm®lonto System revealed as a therapy of easy application and there wasn't particular problems during and after the treatment. Patients did not refer of particular bothers. The method revealed non invasive, painless and without consequences.

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Dermoelectroporation®:
Before and After pictures



Esthetician, 53 years old



Hairdresser, 44 years old



Shopkeeper, 34 years old



Architect, 28 years old

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