Brief Experience in the Use of Combined Technologies in the Treatment of Body Imperfections.
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Introduction

Over the last decade in the medical and aesthetics sector there has been a gradual increase in the demand by patients for non-invasive methods for treating skin imperfections in general, and in particular, for treating “cellulite” or “F.E.P.” areas of localised fat and skin flabbiness.

F.E.P. or Fibrosclerotic Edematous Panniculopathy is the term used to identify modifications in the subcutaneous adipose panniculum mainly of an aesthetic nature, found prevalently, although not exclusively in females and located electively in the trochanter and superolateral areas of the thighs, inner parts of the knees and buttocks.

It is evidence of a condition of suffering in the fat cells due to haematic stasis followed by oedema, degeneration of the fundamental interstitial substances and collagen fibres, fragmentation of the elastic fibres, an increase in the number (hyperplasia) and thickness (hypertrophy) of the reticular fibres, finally resulting in sclerosis. In broad terms we are faced with a chronic degenerative process of the derma-hyperdermic structures.

Districtual or localised fat deposits, with their typical “trochanter cushion” or “saddle bag” appearance, consist of an increased accumulation of fat in the regions where adipose depots are normally present. In females these deposits, prevalently found on the sides of the hips, buttocks, thighs and medial face of the knee, can be considered as a secondary sexual characteristic since influenced by the female sex hormones. The adipocytes in these areas are in fact very rich in oestrogen receptors, hormones which exert an action favouring the accumulation of fat inside these cells. This “hormone-dependency” may therefore explain the scarce effectiveness that nutritional diets have in these areas.

Skin flabbiness is caused by the relaxation of the dermal-epidermal tissues and subcutaneous layer that may derive from two main factors:

a) hypotrophy of the underlying muscular mass, meaning that the surface tissues lack their normal support;
b) a reduction in the elastic-collagen component of the derma or the supporting fatty tissue.

In the latter case, which may involve all body areas including the face, with multifactorial etiopathogenesis (aging, photoaging, and dietary imbalances), the correct therapeutic proposal requires surgical dermolipectomy /lifting in the more severe cases, while in milder or moderate cases, a mini-invasive or non-invasive treatment is recommended in order to stimulate the production of neocollagen and extracellular matrix.

Materials and methods

Over a 6 month period we experimented with the use of a new medical device, the TriActive+, for the treatment of the conditions described above.

The TriActive+ is a platform that exploits six different handpieces (with Laser, Ultrasound and Radiofrequency), designed to treat widespread lipodystrophy, localised fat deposits and skin flabbiness.

The synergic action of the six handpieces allows for treating body imperfections in order to achieve:

- toned, elastic skin;
- harmonious remodelling of the body contours;
- a reduction in the oedema and painful symptoms caused by venous-lymphatic insufficiency of the lower limbs.

The laser handpiece, which combines three different synergic actions (laser stimulation, localised cooling and dermal massage), is characterised by an instrumental and methodical approach to cellulite aimed at restoring the skin’s normal homeostatic conditions.

The deep laser stimulation reactivates the arterial, venous and lymphatic micro-circulations; the localised cooling reduces the effect and reabsorption of the oedema; the dermal massage mobilises the tissues,
helping to restore the skin’s normal collagen-elastic tension.

The two TriActive+ radiofrequency handpieces exploit a multipolar technology to treat imperfections caused by cellulite and skin flabbiness (body and face), that implements a special electrical current (extremely safe for the body) to induce a molecular oscillation on the dermal and fat cells with a localised rise in temperature.

The radiofrequency therefore gives rise to contraction of the collagen fibres (by breaking the weak bonds inside the molecules themselves) with subsequent stimulation of the fibroblasts and neocollagenogenesis and reactivation of the microcirculation.

Ultrasounds are mechanical sound waves produced by special handpieces which, on passing through the skin cause the adipocytes to vibrate and exert a mechanical massage.

The special sound waves generated by the platform act selectively on the cellulite via specific mobilisation of the tissues that partially ruptures the adipocyte membranes, releasing their triglyceridic content (eliminated via natural physiological pathways), and reducing compression on the blood vessels with subsequent drainage of the oedema.

The ultrasounds produce a more effective action on reducing the “mattress” appearance, especially in more advanced stages of cellulite.

Methods

A total of 22 patients were recruited for this trial with an average age of 45 years, suffering from:

• Cellulite
• Districtual adiposity (D.A.)
• Moderately overweight
• Venous-lymphatic stasis
• Fluid retention
• Flabby Skin
• Post-op oedema after laser lipolysis or liposuction surgery in a combination of 2 or more of the indications listed above.

An accurate anamnesis was obtained for identifying any previous or current pathologies, pharmacological therapies, risk factors, causes and concomitant causes (hormonal imbalances, metabolic alterations, pregnancies, diet, use and abuse of alcohol, smoking etc.) in the subject’s history that could be responsible for the onset of blood and lymphatic circulation deficiencies, cellulite, fluid retention, obesity, etc. During this phase, detailed information was also collected in relation to the symptomatology, motivations and goals that induced the subject to contact a medical or aesthetics centre.

A careful examination was also carried out of the subject’s general physical conditions: morphotype (gynoid or android), overweight or obesity conditions, signs of venous insufficiency in the lower limbs, identification of any asymmetries between the body segments, and alterations in posture, with photographic documentation of the body segments to be treated.

Information was also obtained regarding the texture and moisture content of the skin (presence or absence of oedema and its characteristics), pain on palpation in the areas most typically affected by cellulite (inner thigh, front and external thigh areas), in order to provide a “staging” of it, and also in relation to skin and muscle tone and trophism.

The circumference of the area to be treated was measured and the skin-fold technique applied.

Based on the assessment made, the indications were established for proceeding with the Triactive+ treatment and the type of methods and protocols to be followed were decided.

Patients with skin pathologies, infectious diseases, phlebitis-thrombophlebitis-phleobthrombosis, neoplasias, heart and vascular failure, diabetes, renal and hepatic impairment or dysfunction were excluded, as well as patients with pacemakers and/or metal prostheses, transplants, osteoporosis, pregnant and nursing mothers, patients under the age of 18 and those with anticoagulant therapies in progress (possibility of persistent erythema).

In slightly-to-moderately overweight patients, the treatments were associated with a sensible diet and moderate physical activity.

Cycles consisting of a minimum of 3 to a maximum of 8 sessions were carried out, each lasting from 30 to 60 minutes (depending of the size of the area to be treated) with a frequency of 1 session a week.

At the end of the cycle, 6 of the patients treated continued the maintenance sessions with a frequency of 1 session every 15 days.

Two patients who began the cycle of sessions for treating facial skin flabbiness had to discontinue for personal reasons which were in no way related to the treatment itself.
Four patients underwent a cycle of sessions with Triactive+ (Laser + RF) within the context of post-op treatment after laser lipolysis, and as an aid to improving skin tightening.

It was possible to commence the session one week after treatment with the laser component for the first 3/4 sessions (thanks to the significant draining component of the laser and its gentleness in treating the tissues), followed by two or more Laser+ RF sessions.

After liposuction of the abdomen, one patient who still showed signs of oedema and persistent “induratio” of the abdominal tissues after 2 months, had a rapid resolution of the problem after only 3 sessions of Laser + RF.

Following are graphs illustrating the details of the treatment methods in the patients.

Graph 1. Pathologies treated

Graph 2. Combined use of the sources

Graph 3. Body areas treated

Results

The patients underwent reassessment of the treatment after 3-4 sessions, during which it was decided if and how many sessions were still necessary for completing the treatment.

Finally, the last assessment was carried out at the end of the scheduled sessions, during which control photographs and centimetric measurements were taken, the skin-fold technique applied, and the texture, aesthetic aspect and painfulness of the tissues reassessed.

Moreover, patients were invited to express their overall opinion of the treatment according to a scale from 0 to 4 (results: 0-none, 1-poor, 2-average, 3-good, 4-excellent).

In photographic terms, an improvement in the skin tissue quality, including a reduction in cellulite imperfections and skin revitalisation (rosier skin colour due to enhanced microcirculation) and remodelling of the body contours, as observed in 90% of cases.
The centimetric measurements of the circumference of the lower limbs taken at the level of the root of the thighs and knee show a 0.5-cm to 3-cm reduction.

In the treatment of the lower limbs it was possible to visually observe a significant improvement in fluid retention, restoration of tone and elasticity to the tissues treated, a remodelling of the body contours, a reduction in the orange-peel aspect where present, and an overall revitalisation of the tissues which enhanced the microcirculation.

In patients who underwent laser lipolysis or liposuction surgery, in whom treatments with Triactive+ were applied for the purpose of reducing post-op recovery times (regression of the oedema, “sponginess” and hardening of the tissues on palpation, improvement of the ecchymosis), a more rapid stabilising of the results of the surgery was observed in approximately 50% more cases than patients who not receiving these treatments after surgery.

From an analysis of the questionnaire filled out by the patients, it is evident that 77% of patients judged the results as good while the remaining 22% judged the results as excellent, as confirmed in the following graph.

100% of patients who complained of pain and heaviness of the lower limbs at the end of the day (heavy-leg syndrome) before receiving treatment, showed an 80 to 90% improvement in the symptoms.

In the treatment of abdomen and thighs, an improvement in tone and elasticity of the treated tissues (75%) was observed as well as good remodelling of the body contours (70%).

In the treatment of upper arms and face, there was an overall revitalisation of the tissues which enhanced the microcirculation (80%) and a slight improvement in skin flabbiness (20%). However there were no follow-up assessments of the patients treated capable of revealing the initial effects of shrinkage of the collagen fibres by the RF or of the fibroblast stimulation for neocollagen storage, a process that usually takes about 6 months to be carried out correctly.

Tolerance of the treatment was excellent and no patients were forced to interrupt or discontinue the sessions due to the onset of pain or side effects.

The only side effect observed was the appearance of mild ecchymosis after use of the ultrasounds that cleared up spontaneously within 5-6 days. There were no reports of persistent erythema or burning of the treated tissues.

**Discussion**

In our opinion it was interesting to observe that in some cases the expected results were obtained after only 3-4 sessions, while in more difficult cases an additional 3-4 sessions were sufficient for completing the treatment with both operator and patient satisfaction. Therefore, with cycles of only 1 session
a week for a maximum of 8 sessions, it is possible to observe considerable visual and symptomatological improvements in the problems treated, with hardly any side effects.

Moreover, the possibility of combining different methods and different protocols in the same session depending on the elective requirements and problems in the individual patient is the most significant factor of the Triactive+ that makes it possible to obtain good and rapid results in the treatment of skin imperfections that are usually hard to resolve.

Patient compliance is also excellent since Triactive+ is well tolerated and the initial benefits in terms of visible results can already be appreciated after the first 2 to 3 sessions.

References


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