MEDICAL GAS SINERGY IN THE TREATMENT OF EDEMATOUS FIBROSCLEROTIC PANNICULOPATHY AND LOCALIZED ADIPOSIETYPOSITY

Gas Contouring®, the combination of Carboxytherapy and Oxygen Infusion is a modular methodology to be used in the treatment of Edematous Fibrosclerotic Panniculopathy and of localized adiposities.

It has been empirically used with success since the first decades of last century in thermal treatments of peripheral arterial insufficiencies and later was widely validated thanks to the contribution of diverse diagnostic procedures. Also in this study, Carboxytherapy is confirmed as an extremely effective technique for its therapeutic effects both at a circulatory and at a metabolic level.

Combined with Oxygen Infusion its results appear to be longer and more stable, thanks to the fact that Oxygen Infusion stimulates true angiogenesis and, due to the metabolic activation it induces, it produces a qualitative and quantitative increase in the dermal molecules (GAG, hyaluronic Acid, collagen, elastin, etc.).

Oxygen also appears to be able to enhance Carboxytherapy’s lipolytic action, as observed with the occurrence of “osmotic diuresis”.

MATERIAL
Oxy Xtra Med was used for Oxygen Infusion. This is a medical device which supplies intermittent 94-98% pure oxygen (6 L/min.) at a pressure higher than 2.5 ATM with the aid of a three nozzle handpiece to be placed on the skin on which 3 sterile bell shaped caps are applied. VENUSIAN CO₂ therapy was used for carboxy therapy, a medical device which makes it possible to inoculate heated medical Carbon Dioxide into the superficial layers of the skin, in the Dermis and in the adipose tissue of the Hypodermis, using 30G needles, 13 mm long.

METHOD
Much has been said about Carboxytherapy and of its effectiveness in the treatment of edematous fibrosclerotic panniculopathy and venous-lymphatic insufficiency, so there is not a lot to add:
- At a CIRCULATION level it increases oxygen extraction from the skin HB, it induces pseudoangiogenesis and reactivates microcirculation tied to vascular bed increase (flowmotion=simultaneous increase of flow speed and quantity) due to the increase of perfused capillaries (release of precapillary sphincters and opening of the av anastomosis), increase of venous – lymphatic drainage);
- At a METABOLIC level it induces the activation of oxidative lipolysis, greater production of ATP, lipolytic and lipoclastic action (elevated flows), receptorial activation (histamine, bradykinin, catecholamine, serotonin which then favor an increase in the production of ampc), as well as a mechanic dermal-epidermal separating and re-compacting action (“soft lifting”). Consequently it was decided to enhance the action of Carboxytherapy by combining it simultaneously with Oxygen Infusion (6 L/min. at 93/96 % - ATA² between 2 and 3 – intermittent). As well as performing a mechanical massage (intermittent), Oxygen Infusion induces intense oxygenation reaching the middle dermis, it reactivates microcirculation, true neo-angiogenesis (v.e.g.f.), it regulates matrix action (vascular glomus, reticular and papillary dermis), increases GAGs, collagen, elastin (improvement in skin elasticity -35.3% and hydration -19.9%) metabolic activation and allows ACTIVE pharmacological substances transportation.

To improve patients’ arteriovenous circulation, after having carefully cleansed the skin with a 98% pure alcohol and ether solution (2 to1 relation) and depending on their initial conditions (type of cellulite, entity of the adipose tissues and of the venous insufficiency, etc.) it was decided to proceed by performing a total of 6 inoculations (volume between 50-100 cc., flow speed 30-40 ml/min.): 4 in the front (at the level of the femoral triangle, half way down the medial thigh, in the suprapatellar area and in the goose’s foot area) and 2 in the posterior part (medial thigh region and shin region). If deposits are
particularly significant (hips, coulotte de cheval, internal thigh region, or in other possible areas) a more lipolytic / lipoclastic kind of action is required and other inoculations are performed (volume between 50-100 cc., flow speed 100-150 ml/min.). The effectiveness of the treatment has been measured using traditional standard iconographic comparisons (beginning and end of treatment), by considering the post treatment improvement in tissue quality, and by performing impedance analysis exams (BIA AKERN impedance analyzer). But an extra step was taken and the lipolytic effectiveness of this procedure was verified by measuring urine osmotic concentration on four patients undergoing a single treatment. Urine osmotic concentration is considered a reliable and precise indicator of the lipolytic action of a specific treatment (see author’s previous presentation in S.I.E.S. 2008).

Each time intra-adipocyte lipase is activated, triglycerides are separated into fatty acids and glycerol. The latter, in absence of glycerol kinase, cannot be used again and leaves the adipose cell, entering the circulation. At this point, due to its high osmotic action, it extracts liquids very rapidly from extracellular compartments, inducing a consequent intense diuresis (osmotic) proportional to the quantity of circulating glycerol. For this purpose three urine collections were performed: in basal conditions, immediately after the end of the treatment, and one hour later. For this purpose three urine collections were performed: in basal conditions, immediately after the end of the treatment, and one hour later. Also two impedance analysis exams were held the first in basal conditions and the second one hour after treatment.

RESULTS
Treated patients found stimulation acceptable (better distributed during the intermittent Oxygen Infusion massage). Good patient satisfaction and compliance, in particular for the significant and immediate improvement in the venous-lymphatic symptomatology (swelling, heaviness, cramps, etc.), which appears to be, thanks to the combination with Oxygen infusion, longer and more stable. The effects on edematous fibrosclerotic panniculopathy and localized adiposities, are not always as immediate, but this is comprehensible as these conditions depend also on the not always perfect patient life style: not willing to diet, irregular periods, constipation and intestinal problems, smoking, lack of physical exercise, use of NSAIDs, etc. Effective reduction of adipose volumes in specific areas (loss of weight of 300-700 gr, after 1 treatment). Drastic, clear and constant shift in extracellular and total water levels (up to 2 lt per treatment) after each treatment and consequent marked reduction in the retentive state, monitored, at the end of every treatment, by performing an impedance analysis exam. Improvement in skin texture in terms of skin quality: moisture, consistence, elasticity and wrinkles (orange peel). When necessary, for the more critical conditions, patients were submitted to diets based on BMR calculations or openly hyperproteic diets with the use of food substitutes; or diets using amino acid supplements and self care products indicated for topical home use. Also the monitoring of urine osmotic concentration, showing the unchanged or reduced specific weight of the urines -measured following the protocol mentioned above on four patients- confirmed that “osmotic diuresis” was taking place due to the increase of circulating glycerol, caused by a significant lipolytic action and consequently the effectiveness of the procedure presented.

CONCLUSIONS
In conclusion it is possible to confirm the effectiveness of Gas Contouring® in the treatment of Edematous Fibrosclerotic Panniculopathy and/or of localized adiposities as we can observe: the activation and improvement of microcirculation (neo-angiogenesis) and of the venous-lymphatic circulation (water retention reduction), the improvement of tissue oxygenation (adipose/cellulite tissue asphyxia), the reduction of adipose deposits due to metabolic and lipolysis / lipoclasia reactivation and the improvement of the quality, hydration and elasticity of the tissues (“soft lifting”).

Bibliography available upon request : marketing@mayabeauty.it