Perspective

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Evaluation of the Use of Carboxytherapy in the Treatment of Dermatologic Conditions

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Description

A medical procedure known as carboxytherapy makes use of Carbon Dioxide (CO_2) to produce therapeutic effects. Due to its emergence as an aesthetic modality, there has been renewed clinical interest in recent years. In the 1930s, French spas were the first to employ carboxytherapy. In 1995, the term carboxytherapy was first used. The treatment, which is also known as carbocrenotherapy or carbon dioxide therapy, is currently being used to treat vascular conditions like vasculopathies, critical ischemia of the lower limbs with gangrene or ulceration, ischemic diseases like diabetic periphery syndrome, Buerger's disease, Raynaud syndrome, chronic venous insufficiency, and chronic venous-lymphatic insufficiency. Other names for the procedure include carbon dioxide therapy it has long been suggested that spring water and natural reservoirs of abundant CO_2 gas have healing properties. Mofettes, or pure gas springs, have been discovered in France, Romania, the Czech Republic, and Japan at temperatures below 100°C.

Interventional, Cross-Sectional Study of Co2 Injections in Wistar Rats

Since the middle of the 20th century, the French L'Institut de Recherches de Royat has sparked a resurgence of interest in carboxytherapy. Carboxytherapy is a minimally invasive treatment for a wide range of medical and aesthetic conditions, including rejuvenation of the face, neck, hands, and feet as well as chronic skin conditions like diabetic and venous ulcers. Suborbital pigmentation, atrophic acne scars, and striae distensaenot ital are all potential indications for this treatment. Chronic illnesses, such as severe respiratory insufficiency, renal and hepatic disease, untreated or uncontrolled hypertension, congestive heart failure, and severe anemia, are contraindicated for this treatment. Additionally, it should not be used in cases of gas gangrene, thrombophlebitis, active infection, severe adiposity following body contouring, pregnancy, or lactation. Neovascularization and fibroblasts are both components of the repair process. One study found an increase in vessel diameter of 3.24 times in the post treatment biopsy specimens.26 In a blind, interventional, cross-sectional study of CO_2 injections in Wistar rats, another report found an increased collagen turnover in the skin samples compared to saline. It is hypothesized that tissue stretch during infusion triggers the repair and regeneration process. It is necessary to have devices that are able to deliver sterile, pre-warmed gas at a variable pressure with a steady flow that can be adjusted. For use on the face and neck, 30 gauge needles with a length of 4 to 6 millimeters are preferred, while needles with a length of 13 millimeters are preferred for cellulite treatment. Transcutaneous electric nerve stimulation or topical anesthesia can be used to ease any discomfort. This adaptable method can be used to treat a wide range of skin conditions, often with immediate results.

Radiofrequency Treatment in Terms of Increasing Elastic Fiber Content

Carboxytherapy can help rejuvenate the skin because it causes collagen to remodel. It is probably one of the safest and fastest ways to treat dark circles under the eyes, and it is especially good for people who don't want fillers in the infraorbital area. Carboxytherapy was less effective than mesotherapy in another study. In a study that compared carboxytherapy with radiofrequency, the latter demonstrated more evident and longer-lasting results; however, carboxytherapy was better tolerated. In a comparative clinical trial, carboxytherapy and Platelet-Rich Plasma (PRP) were both effective for treating periorbital pigmentation. However, carboxytherapy outperformed radiofrequency treatment in terms of increasing elastic fiber content. Studies that used carboxytherapy for contrast angiography can be used to extrapolate the treatment's safety for aesthetic use. No serious side effects have been reported.6 Intravenous bolus injections of up to 100 milliliters and continuous flow rates of 20 to 30 milliliters per second can be used safely and without any side effects.9 Injection-site ecchymosis can occur in 45% of patients and goes away in about three days. Because CO_2 is a physiologic compound in the human body, carboxytherapy is an attractive, versatile, and cost-effective option for patients seeking a natural method. Carboxytherapy can also be used to treat vascular conditions and speed up wound healing in medical dermatology. For a noninvasive procedure, this method yields results in a reasonable amount of time. The specific indication, patient age, provider skills and techniques, and other factors influence the outcome.