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Aesthetic medicine in diabetic foot management

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Introduction: The anti-infective properties of CO₂ were described by Boyle in the 17th century and by Lavoisier in the 18th century. Laloue+e, in 1777 proposed a serial application of CO₂ for the treatment of chronic skin ulcers. The hemodynamic effects includes: increased blood flow and dilatation of precapillary arterioles, capillaries that were functionally closed are open once again, angiogenesis is induced due to transient ischemia, and release of growth factors leads to tissue regeneration and rejuvenation.

Indication: Indications of carboxytherapy includes: cellulite, localized adiposities, stretch marks, acne scars, skin laxity and wrinkle reduction, under eye dark circles, hair loss, poor healing leg ulcers, in patients with peripheral diabetic complications. Since optimal ulcer-healing requires adequate tissue perfusion, it is considered that carboxytherapy could be useful in the treatment of diabetic foot ulcer. A recent prospective clinical study included 40 patients with different sizes and types of chronic DFU. In addition to cleaning of the wound, antibiotics, and debridement as necessary, the treatment protocol included blood sugar control, medication, healthy habits, no weight-bearing, and carboxytherapy. The results showed that this treatment that included carboxytherapy promoted wound-healing and prevented amputation.

Application: For the application itself the parameters (gas flow in ml/min, overall volume in ml) are selected and set individually depending on indication and site. Injections are made using a 30G mesotherapy needle, which may be 4, 12 or 13 mm long. The gas installation is controlled by using a foot pedal. The injection angle is of great importance. In the superficial subcutaneous application, the angle comprises 30°. In the deeper intradermal application of gas, the injection angle comprises 45°.

Biography

Mahdi Asadi has received Aesthetic Medicine fellowship from American Academy (A4M) and is boarded in Emergency Medicine from Shahid Beheshti University. He is completed his medical degree from Tehran University, Tehran, Iran. He is currently working in the Department of Emergency Medicine of referral center of Iran University, Tehran, Iran. His clinical and research interests involved in the wound management of both surgical and non-surgical methods.

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