

The Clinical Investigator Initiated Interventional Case Study using CO2 Lift pro for management of wound care.

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- This is a case study using topical Carboxytherapy for wound healing in Chronic Venous Ulcers
- We prepared topical treatment masks and applied to wound ulcers twice weekly for 4 weeks.

- Clinical photos were taken prior to each treatment

- Patient 1 has been suffering from a chronic venous leg ulcer for over 4 years over her left lateral and medial lower leg
- It measures over 13 cm in length x 8 cm in width on the medial aspect & 9 cm length x 2 cm width on the lateral side
- In January 2019, the patient underwent Left Common Iliac Vein stenting x 2 as an attempt to improve her chronic venous insufficiency and wounds—> this has been unsuccessful and resulted in more pain for the patient

- During the course of her treatments, the patient reported consistently mild tingling with application of treatment mask
- The tingling sensation did not limit completion of treatment for the patient and was not uncomfortable- only mild in sensation
- Of note, was the improvement of malodor after 2 applications at the start of the study and also after s/p debridement of wound in mid-study
- The following are photos of each treatment visit, a summary and side by side comparison will be shown at the end of the slides.



Patient #1, Baseline Visit, 1st Treatment 4/10/19





Patient #1, 2nd Treatment 4/14/19



Patient #1, 3rd Treatment 4/16/19



Patient #1, 5th Treatment 4/24/19



Patient #1, 6th Treatment 4/27/19



Patient #1, 7th Treatment 5/4/19



Patient #1, 8th Treatment 5/8/19

Conclusions

- What is evident in patient 1—> although no change in ulcer size over the course of 1 month twice weekly treatments—> what is evident is formation of healthy granulation tissue (as illustrated in circled areas)
- In 1st 3 treatments, patient developed healthy granulation tissue and noticeably improvement of malodorous wound
- Unfortunately for the patient, she underwent surgical debridement after 3rd treatment which undid some of her healthy granulation healing tissue
- The patient again had malodorous wound s/p debridement and was associated with significant pain post procedure. Again this improved, specifically the malodor improved after 2 application treatments s/p debridement
- Again however, with topical CO2 treatment we can see formation of granulation tissue even after surgical debridement, which removed some of this healthy tissue formation
- It is also vital to keep in mind such improvements were made over the course of 4 weeks and this patient has been suffering with worsening extensive chronic venous ulcer for over 4 years
- At this time we are trying to extend treatment for this patient and to avoid unnecessary surgical debridement



s/p Debridement by
vascular surgeon on
4/17/19



- Patient 2 has been suffering from a chronic venous leg ulcer on and off for 2 years
- It measures 3 cm in length x 2 cm in width on the posterior aspect of the left lower leg
- Patient 2 has been hospitalized twice over the course of the 2 years for sepsis related to his chronic wound and has had MRSA infection.

- During the course of her treatments, patient 2 did not experience any tingling sensation as in patient 1. He reported that the treatment mask felt “good”.
- When asked to elaborate on this report of feeling ‘good’—> patient 2 described it as soothing.
- Extrapolating from this report by the patient and noticed improvement of his surrounding skin texture overall, we can consider that the treatment masks provided hydration to the overall skin in the wound and surrounding it.
- The following are photos of each treatment visit, a summary and side by side comparison will be shown at the end of the slides



Patient #2, Baseline, 1st Treatment 4/17/19



Patient #2, 2nd Treatment 4/19/19



Patient #2, 3rd Treatment 4/25/19



Patient #2, 4th Treatment 4/28/19



Patient #2, 5th Treatment 5/2/19



Patient #2, 6th Treatment 5/5/19



Patient #2, 7th Treatment 5/11/19



Patient #2, 8th Treatment 5/16/19

Conclusions

- What is striking in the 2nd patient is the textural improvement of surrounding skin around the ulcer (white circles in following slide).
- This is important as venous insufficiency affects an entire area not necessarily only the visible wound ulcer and we see healthy tissue around the ulcer as well as in the ulcer itself
- In this patient, we also notice a change in appearance of the ulcer itself—> initially it has a dusky appearance right around the periphery of the ulcer which significantly improves by the end of his 8th treatment (green circles in following slide). This may preclude closure of the ulcer wound and we are trying to implement continuous CO₂ topical treatment for ulcer closure and complete healing

