

Blue LED Light Medical Device therapy in the treatment of unresponsive leg ulcers: case series

Claudia Lasagni¹, Luca Gazzabin¹, Francesco Paolo Palumbo¹, Giacomo Failla², Simone Serantoni ¹

1. Villa Fiorita Clinic, General Surgery, Vascular Ulcers and Diabetic Foot Surgery Unit, Prato, Italy;
2. A.O. Vittorio Emanuele, Angiology Unit, Catania, Italy

AIM: To establish a treatment protocol using a Blue LED Light medical device as adjuvant therapy for patients suffering from chronic **ulcers of the lower limbs of various etiology, not responding to standard treatment.**

METHOD: Selected patients were treated with one-minute application of Blue LED light (wavelength: 400-430 nm; power density: 120 mW/cm²; energy density: 7,2J/cm²; treatment distance: 3-5cm) once a week, on circular areas with a diameter of 50 mm. Blue LED light treatment was performed in addition to standard treatment at each cleansing and dressing session. **We report the cases of five patients.**

Patient 1

- ✓ Male, 49 years old, smoker, obese, CVI and hypertensive heart disease.
- ✓ Venous ulcer, not healing for 1 year; dimensions: 4cmx2cm.



Complete re-epithelialisation has been achieved after 6 treatments (=6 weeks)

Patient 2

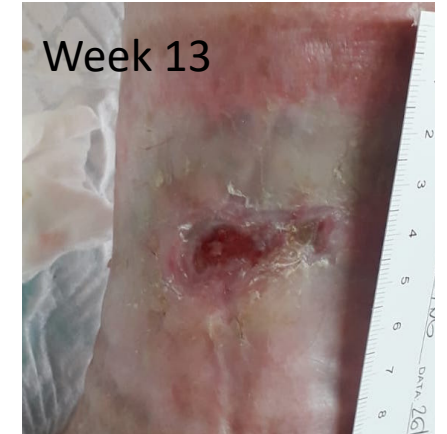
- ✓ Female, 74 years old, smoker.
- ✓ Traumatic supramalleolar ulcer on the right leg, not healing for 7 months; initial dimensions: 2cmx1,6cm.



Complete re-epithelialisation has been achieved after 4 treatments (=4 weeks)

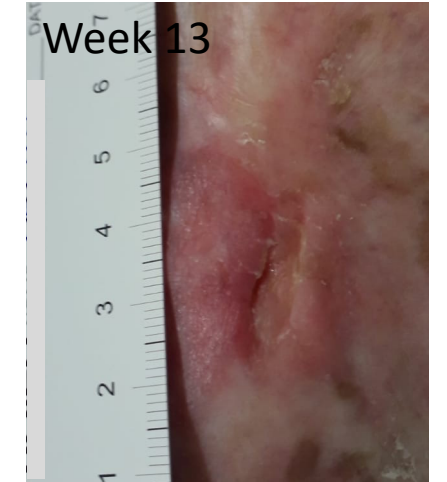
Patient 3

- ✓ Female; 61 years old; DM type II; obesity; amputated left leg.
- ✓ Not healing ulcer for two years; dimensions: : 2,5x3,5cm



Patient 4

- ✓ Female; 81 years old; DM type II.
- ✓ Not healing ulcer for one month; initial dimensions:: 2,5x1,0cm



After 10 standard dosage treatments we observed a slow-down in the healing process, so we doubled the application time from 1 to 2 minutes and we observed the restart of the healing process until:

- patient 1: re-epithelialisation > 80% (with 18 treatments);
- patient 2: complete re-epithelialization (with 13 treatments).

Patient 5

- ✓ Female, 71 years old; not-healing abdominal ulcers for 5 months (related to abdominal surgery with incisional hernia and mesh graft rejection)
- ✓ Ulcer dimensions: 3,5x2,0cm, depth: 0,5cm.



Complete re-epithelialisation with 7 treatments.

CONCLUSIONS: We have selected five patients from an ongoing study group. We have observed how treatment with Blue LED light results in an improvement of the skin lesion in terms of size, wound bed, and perilesional tissue. We will continue to enroll additional patients to further verify the efficacy of this kind of therapy and eventually introduce the device within the wound treatment.

The Blue LED Light Medical Device has been provided by Emoled Srl