

Ferreira RC^{1,2*}, Moglia JJ², Silva DTF¹

¹Postgraduate Program in Biophotonics Applied to Health Sciences, Universidade Nove de Julho, UNINOVE, Brazil

²Conjunto Hospitalar do Mandaqui- Public Hospital, São Paulo, Brazil

#Corresponding author: rcassiadermato@gmail.com

INTRODUCTION

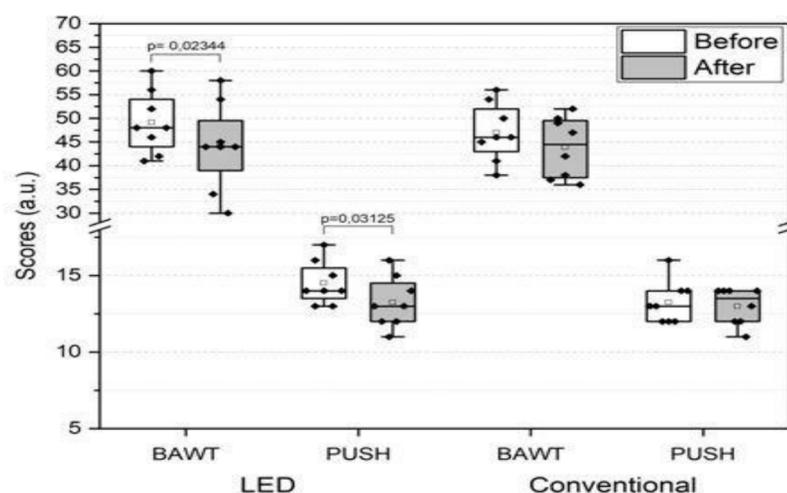
The high incidence of pressure ulcers (PU) is considered a serious health problem and negative indication of the quality of nursing care¹. Both studies evidence cost this adverse event, among the resources used for treatment of PU. Photobiomodulation (PBM) has been shown to be efficient in wound healing².

OBJECTIVE

This study aimed to evaluate ulcer healing after photobiomodulation with red LED on the stage 3 or 4 pressure ulcers of patients admitted to public in the state of São Paulo, Brazil.

MATERIALS AND METHODS

The study was clinical, randomized and controlled, and divided into two groups, GC (conventional group, n = 8) and GLED (LED group, n = 7). The GC were treated according to standard hospital procedures, 1x per day. In the GLED the dressings were applied 2x per day with only a saline solution and red LED ($\lambda = 664 \pm 20$ [nm], $P = 15.0$ mW, $I = 4.8$ mW / cm², $H = 2.9$ J / cm², $E = 9.0$ J, $t = 10$ min). Healing was evaluated using the PUSH and BWAT scales as well as measurement of the area. OriginPro 2017 software was used to perform the statistical analysis, with $\alpha = 0.05$ in all tests.



Healing assessment tool scores (image 1)

RESULTS AND DISCUSSION

PUSH scores decreased significantly after LED treatment, from 14.00 ± 2.50 down to 13.00 ± 2.75 ($p = 0.03125$). There was also a decrease in BAWT scores after photobiomodulation, from 48.00 ± 12.00 down to 44.00 ± 15.25 ($p = 0.02344$), 6 sessions was determined to be the minimum number of sessions necessary to observe a significant reduction in PUSH scores, which was the primary variable. (image 1)



Before and after the 6th LED group patients. (image 2)

CONCLUSION

Photobiomodulation was as effective as the proposed conventional treatment in treating pressure ulcers, with the advantage of practicality and quality of the healing process, although there was no significant reduction in area measurement. The statistical power of the significant differences observed was 81%.

REFERENCES

- National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. *Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline*. Emily Haesler (Ed.). Cambridge Media: Osborne Park, Austrália Ocidental; 2016.
- Artico M; Dante A; Dangelo D; Lamarcal L; Piredda M. Prevalence incidence and associated factors of pressure ulcers in home palliative care patients: A retrospective chart review. *Paliative Med, out(13)*; 2017