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Photo biomodulation as additional treatment on pressure ulcer category 4, in frail elderly patients in municipality home healthcare

Introduction: Frail elderly are a high-risk population for developing pressure ulcer (PU). patients treated in municipality home healthcare living in nursing homes or in their home residence are the frailest. Home healthcare include palliative care. Laser photobiomodulation (PBM) has shown to have effect on wound and tissue healing. In the municipality there is an ongoing scientific study of PBM in addition to dressing of PU4. The Swedish registry RiksSar for ulcer treatment present national data from municipality primary home healthcare, primary healthcare and specialist hospital care, general PU data from the registry are presented as one PU group with the categories PU2, PU3 and PU4 together.

Methods: Home healthcare patients with 35 PU4 were in addition to dressing, treated two times per week, with PBM. Infrared GaAs, 904nm, with effect 60mW and 700Hz, targeting lymphatic area and ulcer area. PBM red visible, GaAlInp, 635nm, 75mW and 250Hz, targeting ulcer area.

Results:



Quantiles

100.00%	maximum	2597
99.50%		2597
97.50%		2597
90.00%		501,2
75.00%	quartile	119
50.00%	median	63
25.00%	quartile	42
10.00%		28
2.50%		21
0.50%		21
0.00%	minimum	21

Summary Statistics

Mean	206,6
Std Dev	461,78
Std Err Mean	78,06
Upper 95% Mean	365,2
Lower 95% Mean	48,0
Ν	35



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Quantiles



Quantiles

100.00%	maximum	233
99.50%		233
97.50%		233
90.00%		172,2
75.00%	quartile	117
50.00%	median	70
25.00%	quartile	42
10.00%		28
2.50%		15
0.50%		15
0.00%	minimum	15

Summary Statistics

Mean	85,6
Std Dev	53,44
Std Err Mean	9,03
Upper 95% Mean	104,0
Lower 95% Mean	67,3
Ν	35

Median ulcer duration before PBM and median PBM treatment time to heal the PU4 was 133 days.

Conclusions: Median total healing time data for 2020 from the registry Rikssar was 167 days for the total group of PU. Median healing time of the 35 PU4 in the PBM group was faster despite the homogeneous severity category 4. This indicates that PBM may be an effective treatment of PU4.

Recent Publications

- Degerman M, Öhman M, Bertilson BC (2022) Photobiomodulation, as additional treatment to traditional dressing of hard-toheal venous leg ulcers, in frail elderly with municipality home healthcare. PLoS ONE 17(9): e0274023.
- Taradaj J, Shay B, Dymarek R, Sopel M, Walewicz K, Beeckman D, et al. Effect of laser therapy on expression of angio- and fibrogenic factors, and cytokine concentrations during the healing process of human pressure ulcers. Int. J Med. Sci. 2018;15(11):1105-1112.
- Kuffler. Photobiomodulation in promoting wound healing: a review. Regen Med. 2016;11:107-122.

Biography

Marianne Degerman is a project leader and researcher in the Municipality of Skelleftea Sweden. her main interests are healthcare in aging. In her current project she is focusing on hard to heal ulcers in frail elderly, with Photo biomodulation in addition to traditional ulcer treatment. Her work has been published and presented at various international conferences.

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