Photobiomodulation therapy for the prevention of acute radiodermatitis in head and neck cancer patients: preliminary results of a patient blinded, multicentric trial (DERMISHEAD TRIAL)

J. Robijns¹, J. Lodewijckx¹, S. Puts¹, S. Censabella², S. Claes³, L. Pannekoeke³, L. Bussé¹, D. Colson¹, I. Kaminski¹, V. Broux¹, A. Maes³, P. Bulens³, L. Noé³, M. Brosens³, M. Govers⁴, A. Timmermans⁵, I. Lambrichts¹, V. Somers¹, J. Mebis²
¹Hasselt University, Faculty of Medicine & Life Sciences, Hasselt, Belgium; ²Jessa Hospital, Department of Medical Oncology, Hasselt, Belgium; ³Jessa Hospital, Limburg Oncology Center, Hasselt, Belgium; ⁴Jessa Hospital, Department of Dermatology, Hasselt, Belgium; ⁵ASALASER, Hasselt, Belgium

BACKGROUND

Photobiomodulation therapy (PBMT) [1]

- Light therapy: visible and/or (near)-infrared light (600-1000 nm)
- Light sources: laser diodes or light-emitting diodes (LED)
- Effect: stimulates wound healing and reduces inflammation and pain
- Scientific evidence: proven beneficial effect of PBMT in the prevention of radiation dermatitis (RD) in breast cancer (BC) patients [2,3]

Radiation dermatitis (RD) [4]

- Inflammatory skin reaction
- Affects 90-95% of the patients undergoing radiotherapy (RT)
- Diminishes patients' quality of life
- No general consensus guidelines on the treatment of RD

AIM

Investigate the effectiveness of PBMT in the prevention of RD in head and neck cancer (HNC) patients

METHODS

Study design

Randomized, placebo-controlled trial with HNC patients undergoing RT at the Limburg Oncology Center (Jessa Hospital, Hasselt, Belgium and Ziekenhuis Oost-Limburg, Genk, Belgium) (NCT02738268)

Placebo group	PBMT group
Standard skin care	Standard skin care
Placebo laser	PBMT
RT (≥60 Gy +bilateral neck lymph nodes)	RT (≥60 Gy +bilateral neck lymph nodes)

PBM parameters

Model	MLS® M6 (ASA srl)
Wavelength	808-905 nm
Fluence	4 J/cm ²
Treatment area	Bilateral neck
Frequency	2x/week
Timing	During complete RT course

Outcome measures

Radiation Therapy Oncology Group (RTOG) criteria [5]

Grade 0	Grade 1	Grade 2	Grade 3
No change over baseline	Dull erythema; dry desquamation	Bright erythema; patchy moist desquamation	Confluent moist desquamation

Evaluation schedule

RESULTS

CONCLUSION

Preliminary results demonstrate that PBMT could significantly reduce the incidence of severe RD (grade ≥ 2) in HNC patients

Limburg Clinical Research Center

REFERENCES

1. Hamblin M., et al., SPIE press, 2018
2. Robijns J., et al., Support Care Cancer, 2018
3. Robijns J., et al., Curr Opin Oncol, 2019
4. Wong R.K., et al., Support Care Cancer, 2013
5. Cox, et al. Int J Radiat Oncol Biol Phys, 1995

CONTACT

dr. Jolien Robijns
Postdoctoral researcher
Hasselt University (Hasselt, Belgium)
E-mail: jolien.robijns@uhasselt.be