

The use of photobiomodulation therapy for the prevention of chemotherapy-induced peripheral neuropathy

Preliminary results of a randomized, placebo-controlled trial

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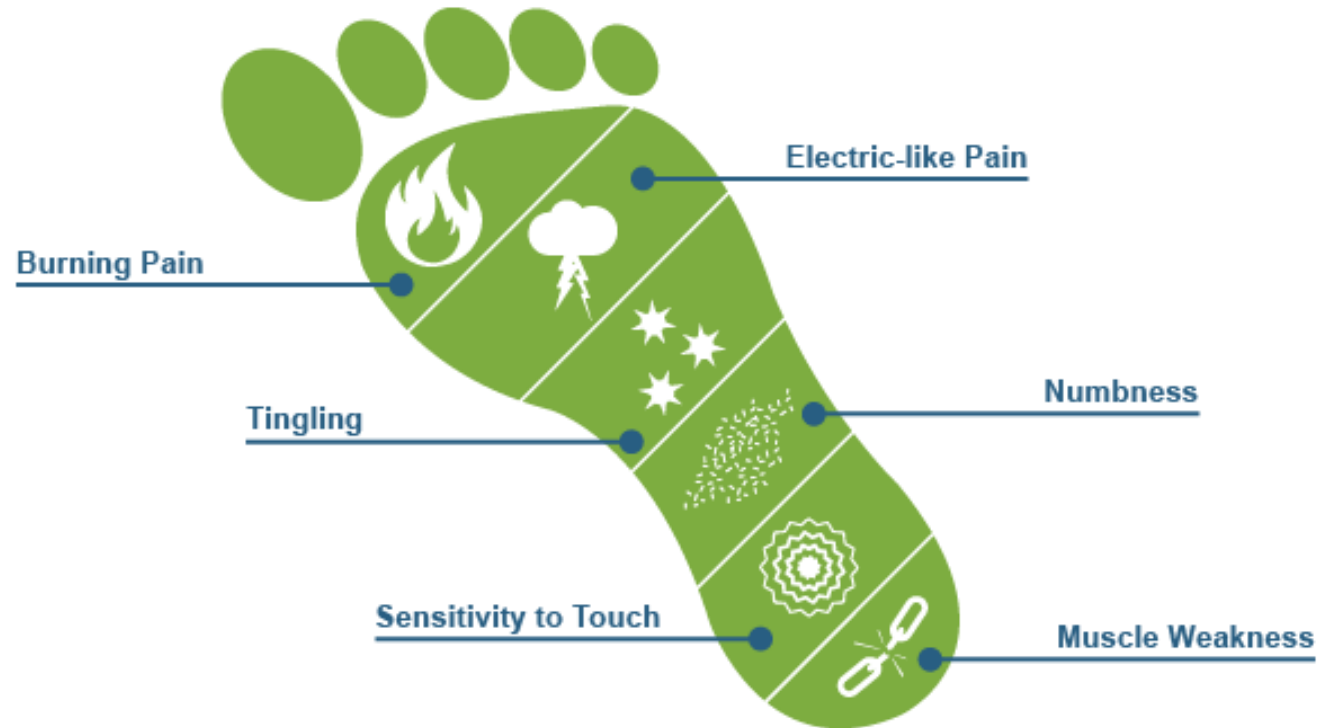
Hasselt University – Hasselt, Belgium

Jessa Hospital – Hasselt, Belgium



Chemotherapy-induced peripheral neuropathy (CIPN)

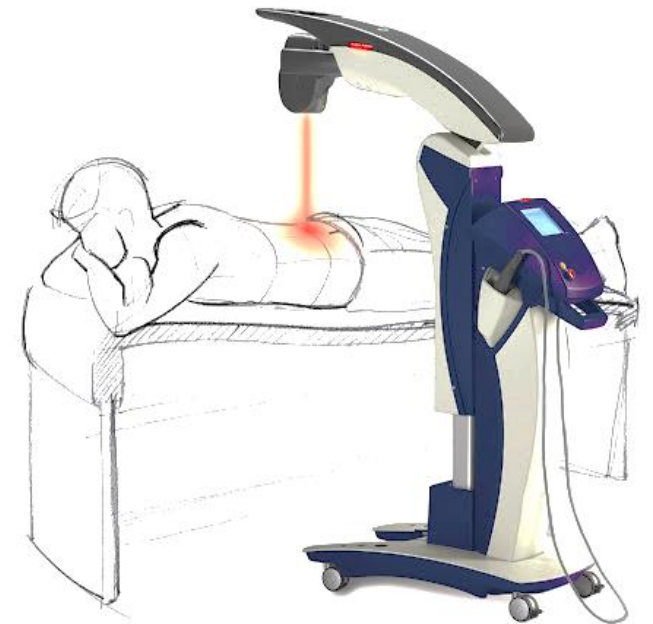
68%



Decreases patients' **quality of life** → treatment delay or reduction

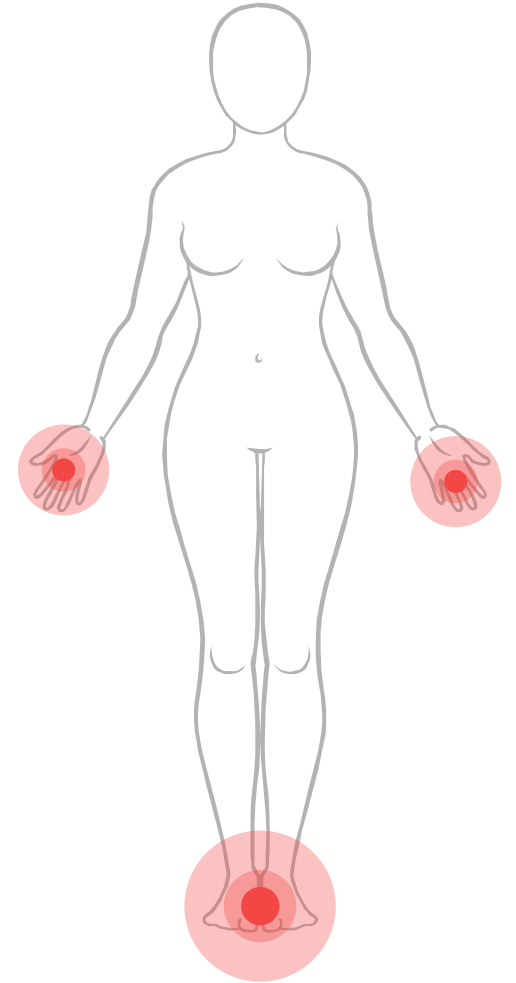
Photobiomodulation therapy (PBMT)

- **Light therapy** based on the application of visible and/or (near)-infrared light (600-1000 nm)
- Light sources: laser diodes or light-emitting diodes (LED)
- Stimulates tissue repair and reduces inflammation and (neuropathic) pain
 - Oral mucositis
 - Acute radiodermatitis



Photobiomodulation therapy

- Beneficial results for the treatment of **diabetic peripheral neuropathy** with PBMT
- Three clinical trials have been conducted investigating the effect of PBMT for the **treatment of CIPN** reduction



Photobiomodulation therapy

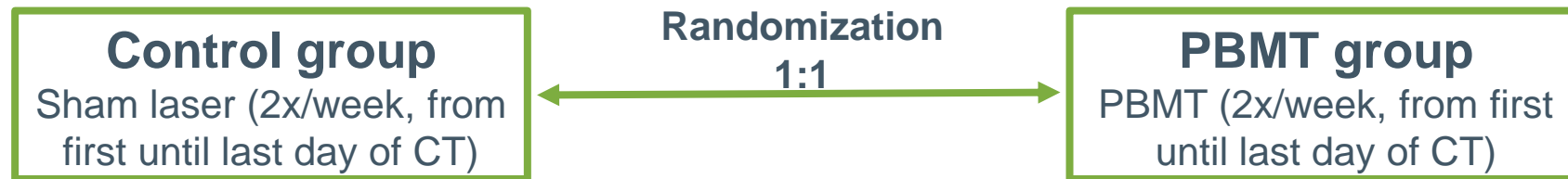
	Study design	Neurotoxic chemotherapy agent	Sample size	Outcome
Argenta et al. 2016	RCT with 2 groups: 1) PBMT group 2) Sham group	Taxanes and/or platinum-based chemotherapy	68 self-reported CIPN patients	Significant reduction in severity of neuropathy in the PBMT group
Hsieh et al. 2016	Prospective with only a PBMT group	Oxaliplatin-based chemotherapy	17 CIPN patients	Neurotoxicity symptoms (pain, cold, and mechanical allodynia) significantly improved
Yamada et al. 2010	Prospective with only a PBMT group	Taxanes-based chemotherapy	34 CIPN patients	Decrease in severity of neuropathy

Aim

Evaluate the **effectiveness of PBMT** in the prevention of CIPN in breast cancer patients undergoing taxane treatment

Study design

- **Randomized, placebo-controlled trial** with breast cancer patients undergoing taxane treatment - Jessa Hospital, Hasselt (Belgium)

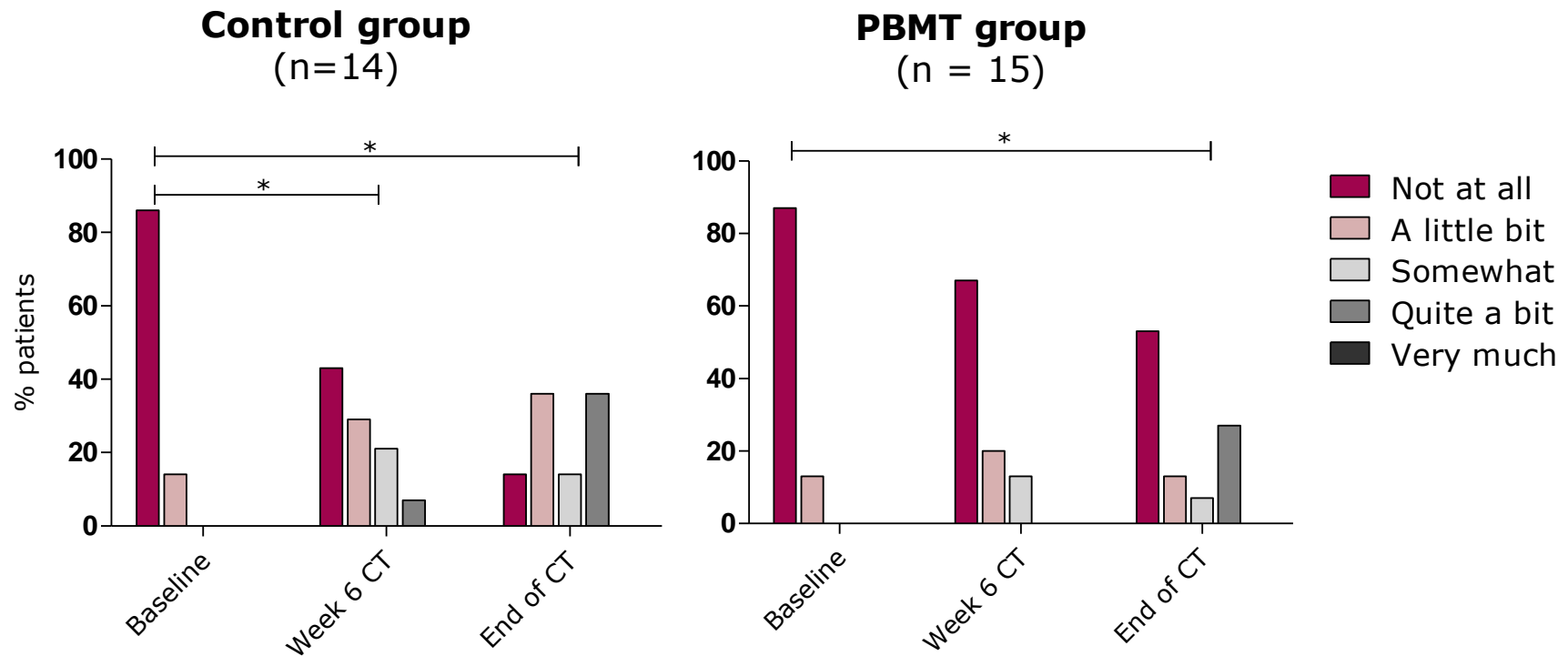


- Evaluation: **FACT/GOG-Taxane**



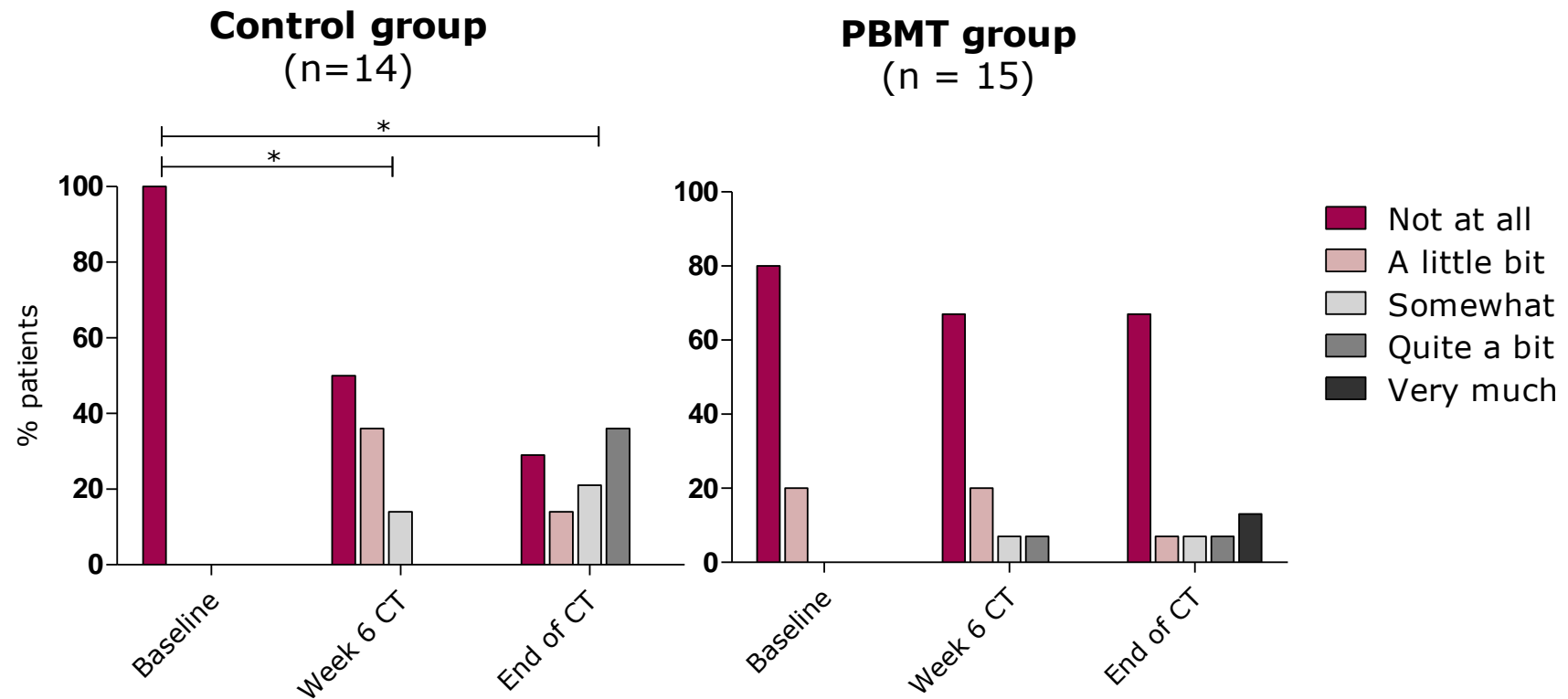
Patient-reported outcome measures

○ Numbness or tingling in hands



Patient-reported outcome measures

○ Numbness or tingling in feet



*p < 0.01 (Wilcoxon signed rank test, two-tailed)

Conclusion

- Preliminary results of this ongoing trial demonstrates that the application of PBMT during taxane treatment **could be able to delay or prevent sensory symptoms**
- Limited sample size
- Further research in a larger patient population is necessary

Acknowledgments

- This research is part of the Limburg Clinical Research Center and supported by:



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