



Is Blood Photobiomodulation by Transdermic Radial Artery Irradiation (ILIB) Useful in Radiotherapy Oral Mucositis Management?

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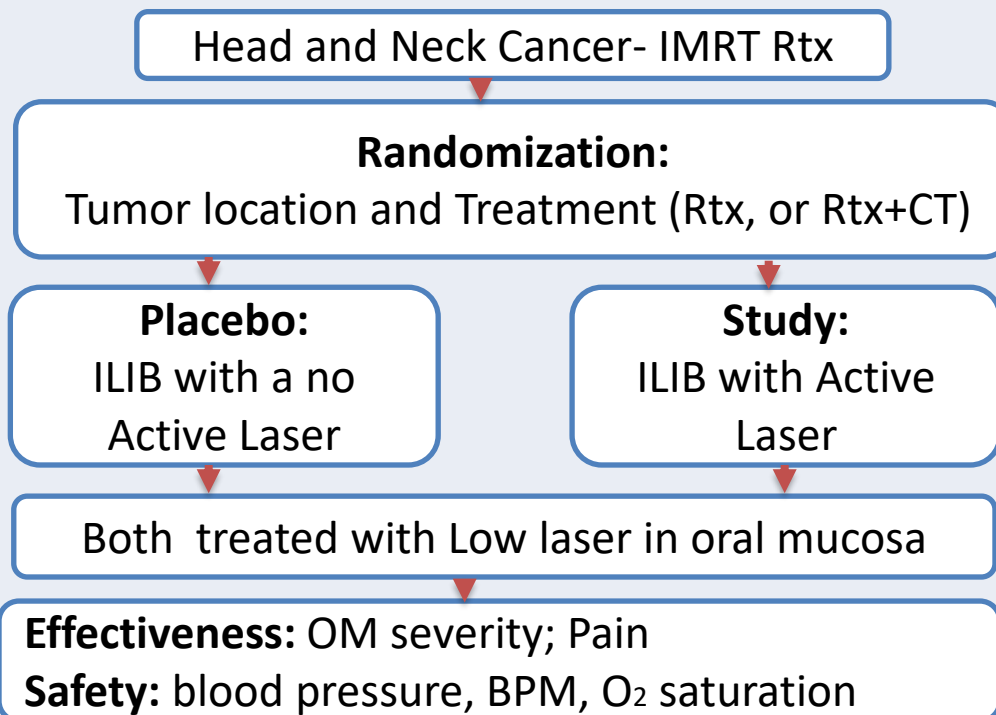
Hemocentro RP

Introduction

- Around 90% of patients who undergo head and neck cancer radiotherapy develop oral mucositis (OM); Intravascular Laser Irradiation of Blood (ILIB) = application of low-intensity laser through the radial artery;
- Our study investigated whether the systemic anti-oxidative and anti-inflammatory effects of ILIB could reduce pain and inflammation related to OM

Methods

DOUBLE BLIND



Conclusion

- These results indicate that ILIB is a safe and has potential to be an effective option for managing oropharyngeal pain in patients undergoing head and neck radiotherapy. Further studies are needed to confirm these findings and explore ILIB's impact on the severity of oral mucositis.

Table 1. Demographic and clinical data of the sample

Variable	N	Overall, N = 27 ¹	Placebo, N = 13 ¹	Study, N = 14 ¹	p-value ²
Sex	27				>0.9
Male		26 (96%)	13 (100%)	13 (93%)	
Female		1 (3.7%)	0 (0%)	1 (7.1%)	
Age	27	60.9 (7,6)	58.2 (5,6)	63.4 (8,5)	0.069
Tumor location	27				0.54
Nasopharynx/Oropharynx		10 (37%)	6 (46%)	4 (29%)	
Larynx/Hypopharynx		10 (37%)	4 (31%)	6 (43%)	
Mouth		6 (22%)	2 (15%)	4 (29%)	
Occult primary		1 (3.7%)	1 (7.7%)	0 (0%)	
Treatment	27				0.64
Exclusive Rtx		11 (41%)	6 (46%)	5 (36%)	
Rtx + Cisplatin		13 (48%)	5 (38%)	8 (57%)	
Rtx + Cetuximab		3 (11%)	2 (15%)	1 (7.1%)	
CPOD	27	23.4 (7,1)	22.4 (8,4)	24.3 (5,8)	0.51
Periodontal disease (PSR)	15				>0.9
No disease		12 (80%)	6 (86%)	6 (75%)	
With disease		3 (20%)	1 (14%)	2 (25%)	
Oral hygiene	15				0.61
Satisfactory		9 (60%)	5 (71%)	4 (50%)	
Unsatisfactory		6 (40%)	2 (29%)	4 (50%)	
Gingival inflammation	15				>0.9
Mild		13 (87%)	6 (86%)	7 (88%)	
Moderate		2 (13%)	1 (14%)	1 (13%)	

¹n (%); Mean (SD); ²Fisher's exact test / Chi-square; Student's t-test

* For the PSR, edentulous patients were excluded

** At least one sextant with a score of 3 or 4 in the PSR

Image 1. Application of ILIB



Results

Table 2. Severity of OM by WHO

Severity of OM by WHO classification					
Week	Group	Mucositis WHO			P- value (*)
		No Mucositis (0)	Mild Mucositis (1-2)	Severe Mucositis (3-4)	
1	Placebo	10 (76.9)	3 (23.1)	0 (0.0)	0.92
	Study	11 (78.6)	3 (21.4)	0 (0.0)	
2	Placebo	4 (30.8)	6 (46.2)	3 (23.1)	0.51
	Study	5 (35.7)	8 (57.1)	1 (7.1)	
3	Placebo	3 (23.1)	4 (30.8)	6 (46.2)	0.64
	Study	4 (28.6)	6 (42.9)	4 (28.6)	
4	Placebo	3 (23.1)	4 (30.8)	6 (46.2)	0.19
	Study	5 (35.7)	7 (50.0)	2 (14.3)	
5	Placebo	3 (23.8)	5 (38.5)	5 (38.5)	0.39
	Study	5 (38.5)	6 (46.2)	2 (15.4)	
6	Placebo	2 (20.0)	4 (40.0)	4 (40.0)	0.15
	Study	6 (50.0)	5 (41.7)	1 (8.3)	

(*) Chi-square test -.

Table 3. Oropharyngeal pain (VAS)

Oropharyngeal pain according to Visual Analogue Scale (VAS)					
Week	Group	Pain			P- value (*)
		Mild	Moderate	Intense	
1	Placebo	12 (92.3)	1 (7.7)	0 (0.0)	0.59
	Study	12 (85.7)	2 (14.3)	0 (0.0)	
2	Placebo	9 (69.2)	2 (15.4)	2 (15.4)	0.92
	Study	9 (64.3)	3 (21.4)	2 (14.3)	
3	Placebo	3 (23.1)	5 (28.5)	5 (38.5)	0.0317
	Study	7 (50.0)	7 (50.0)	0 (0.0)	
4	Placebo	3 (23.1)	6 (46.2)	4 (30.8)	0.07
	Study	6 (42.9)	8 (57.1)	0 (0.0)	
5	Placebo	6 (46.2)	5 (38.5)	2 (15.4)	0.26
	Study	9 (69.2)	4 (30.8)	0 (0.0)	
6	Placebo	4 (40.0)	5 (50.0)	1 (10.0)	0.44
	Study	7 (58.3)	5 (41.7)	0 (0.0)	

(*) Chi-square test

Figure 1. Severity of OM by WHO

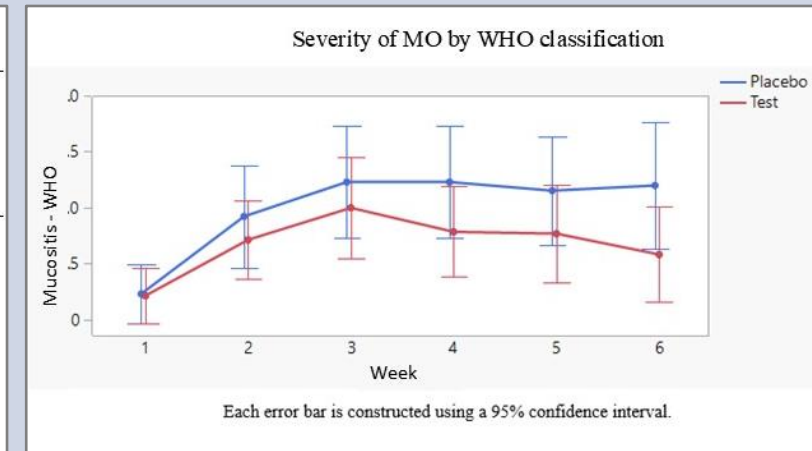


Figure 2. Oropharyngeal pain (VAS)

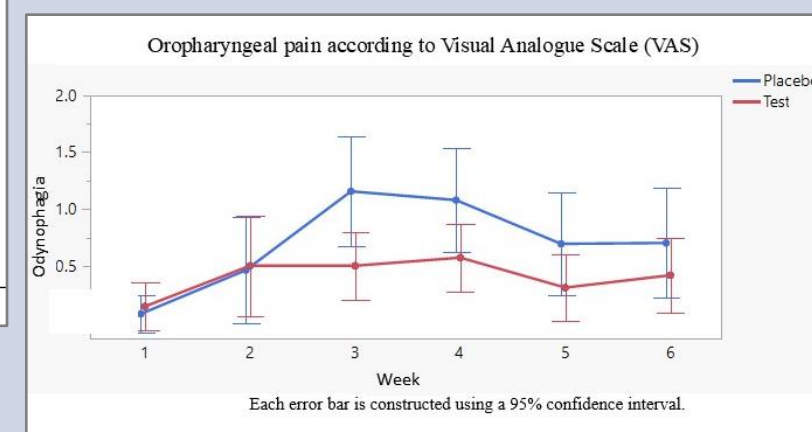


Table 4 Safety evaluation

	N	Average	Lowest 95% CI	Largest 95% CI	P - Value (*)	P - Value (**)
Delta systolic						
Placebo	13	-6,69	-19,69	6,31	0,2839	0,5951
Study	14	-2,79	-11,65	6,08	0,5091	
Diastolic Delta						
Placebo	13	-0,69	-6,18	4,80	0,6059	0,4551
Study	14	-4,79	-15,03	5,46	0,8342	
BMP Delta (T0 - TF)						
Placebo	13	-0,92	-4,42	2,57	0,5754	0,7927
Study	14	-0,21	-4,82	4,39	0,9214	
SpO2 Delta (T0 - TF)						
Placebo	13	0,85	0,46	2,15	0,1822	0,1884
Study	14	-1,57	-5,15	2,01	0,3601	

References

