

Supplemental Materials

Table S1. Detailed search strategy.

Database	Query
PubMed	("Tinnitus"[Mesh] OR "Tinnitus/complications"[Mesh] OR "Tinnitus/diagnosis"[Mesh] OR "Tinnitus/prevention and control"[Mesh] OR "Tinnitus/therapy"[Mesh] OR "Tinnitus"[TIAB] OR "Pulsatile Tinnitus"[TIAB] OR "Clicking Tinnitus"[TIAB] OR "Noise Induced Tinnitus"[TIAB] OR "Objective Tinnitus"[TIAB] OR "Subjective Tinnitus"[TIAB] OR "Tinnitus of Vascular Origin"[TIAB] OR "Tinnitus" OR "Pulsatile Tinnitus" OR "Clicking Tinnitus" OR "Noise Induced Tinnitus" OR "Objective Tinnitus" OR "Subjective Tinnitus" OR "Tinnitus of Vascular Origin") AND ("Lasers"[Mesh] OR "Lasers/instrumentation"[Mesh] OR "Lasers/methods"[Mesh] OR "Lasers/pharmacology"[Mesh] OR "Lasers/therapeutic use"[Mesh] OR "Laser"[TIAB] OR "Lasers"[TIAB] OR "Q-Switched Lasers"[TIAB] OR "Q Switched Lasers"[TIAB] OR "Q-Switched Laser"[TIAB] OR "Pulsed Lasers"[TIAB] OR "Pulsed Laser"[TIAB] OR "Continuous Wave Lasers"[TIAB] OR "Continuous Wave Laser"[TIAB] OR "Masers"[TIAB] OR "Maser"[TIAB] OR "Laser" OR "Lasers" OR "Q-Switched Lasers" OR "Q Switched Lasers" OR "Q-Switched Laser" OR "Pulsed Lasers" OR "Pulsed Laser" OR "Continuous Wave Lasers" OR "Continuous Wave Laser" OR "Masers" OR "Maser")
Embase	('tinnitus'/exp OR tinnitus OR 'pulsatile tinnitus'/exp OR 'pulsatile tinnitus' OR 'clicking tinnitus' OR 'noise induced tinnitus' OR 'objective tinnitus' OR 'subjective tinnitus' OR 'tinnitus of vascular origin') AND ('laser'/exp OR laser OR lasers OR 'q-switched lasers' OR 'q switched lasers' OR 'q-switched laser' OR 'pulsed lasers' OR 'pulsed laser'/exp OR 'pulsed laser' OR 'continuous wave lasers' OR 'continuous wave laser'/exp OR 'continuous wave laser' OR masers OR maser) AND ('placebo'/exp OR placebo)
Web of Science	TS=(("Tinnitus" OR "Pulsatile Tinnitus" OR "Clicking Tinnitus" OR "Noise Induced Tinnitus" OR "Objective Tinnitus" OR "Subjective Tinnitus" OR "Tinnitus of Vascular Origin")AND("Laser" OR "Lasers" OR "Q-Switched Lasers" OR "Q Switched Lasers" OR "Q-Switched Laser" OR "Pulsed Lasers" OR "Pulsed Laser" OR "Continuous Wave Lasers" OR "Continuous Wave Laser" OR "Masers" OR "Maser"))
Scopus	(TITLE-ABS-KEY("Tinnitus" OR "Pulsatile Tinnitus" OR "Clicking Tinnitus" OR "Noise Induced Tinnitus" OR "Objective Tinnitus" OR "Subjective Tinnitus" OR "Tinnitus of Vascular Origin") AND TITLE-ABS-KEY("Laser" OR "Lasers" OR "Q-Switched Lasers" OR "Q Switched Lasers" OR "Q-Switched Laser" OR "Pulsed Lasers" OR "Pulsed Laser" OR "Continuous Wave Lasers" OR "Continuous Wave Laser" OR "Masers" OR "Maser"))
	ID SearchHits
	ID Search
	#1 MeSH descriptor: [Tinnitus] explode all trees
	#2 MeSH descriptor: [Tinnitus] explode all trees and with qualifier(s): [complications - CO]
	#3 MeSH descriptor: [Tinnitus] explode all trees and with qualifier(s): [diagnosis - DI]
	#4 MeSH descriptor: [Tinnitus] explode all trees and with qualifier(s): [prevention & control - PC]
	#5 MeSH descriptor: [Tinnitus] explode all trees and with qualifier(s): [therapy - TH]
	#6 Tinnitus
	#7 Pulsatile Tinnitus
	#8 Clicking Tinnitus
	#9 Noise Induced Tinnitus
	#10 Objective Tinnitus
	#11 Subjective Tinnitus
	#12 Tinnitus of Vascular Origin
	#13 {OR #1-#12}
Cochrane Library	#14 MeSH descriptor: [Lasers] explode all trees
	#15 Laser
	#16 Lasers
	#17 Q-Switched Laser
	#18 Q-Switched Lasers
	#19 Q Switched Lasers
	#20 Pulsed Lasers
	#21 Pulsed Laser
	#22 Continuous Wave Lasers
	#23 Continuous Wave Laser
	#24 Masers
	#25 Maser
	#26 {OR #14-#25}
	#27 #13 AND #26

Studies with intention-to-treat						Weight	Randomization process	Deviations from intended interven	Missing outcome data	Measurement of the outcome	Selection of the reported result	Overall	
Unique ID	Study ID	Experimental	Comparator	Outcome									
Choi et al., 2019	1	Low-level laser	placebo	Improvement of tinnitus	1	+	+	+	?	+	+	+	Low risk
Dehkordi et al., 2015	6	Low-level laser	placebo	Improvement of tinnitus	1	+	+	+	?	+	!	Some concerns	
Mirvakili et al., 2014	62	Low-level laser	placebo	Improvement of tinnitus	1	?	+	+	?	+	!	Some concerns	
Nago et al., 2013	8	Low-level laser	placebo	Improvement of tinnitus	1	+	+	+	?	+	!	Some concerns	
Mollasadeghiet al., 2013	13	Low-level laser	placebo	Improvement of tinnitus	1	+	+	+	?	+	!	Some concerns	
Teggi et al., 2009	45	Low-level laser	placebo	Improvement of tinnitus	1	+	+	+	+	+	+	Low risk	
Cuda et al., 2008	16	Low-level laser	placebo	Improvement of tinnitus	1	+	+	+	?	+	!	Some concerns	
Gungor et al., 2008	17	Low-level laser	placebo	Improvement of tinnitus	1	+	+	+	?	+	!	Some concerns	
Rhee et al., 2006	259	Low-level laser	placebo	Improvement of tinnitus	1	+	+	+	?	+	!	Some concerns	
Nakashima et al., 2002	46	Low-level laser	placebo	Improvement of tinnitus	1	+	+	+	?	+	!	Some concerns	
Mirz et al., 1999	28	Low-level laser	placebo	Improvement of tinnitus	1	+	+	+	?	+	!	Some concerns	

Figure S1. Risk of Bias. The revised Cochrane Risk of Bias Tool 2 was used to evaluate to quality of included studies [1–11].

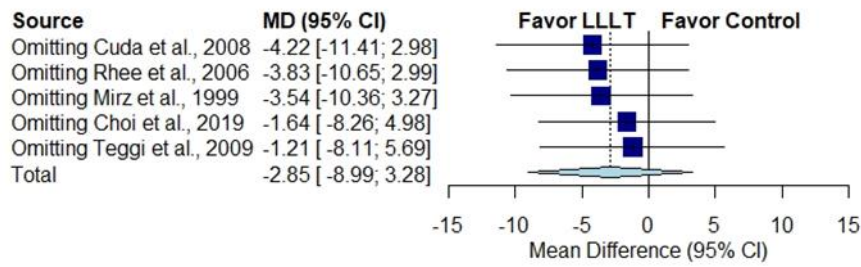


Figure S2. Influence analysis of studies with THI measurement. The pooled point estimates after excluding every study one by one were contained within the 95% CI of the overall pooled results for these outcomes. No extreme effect sizes(outlier) was identified [1,3,4,6,11].

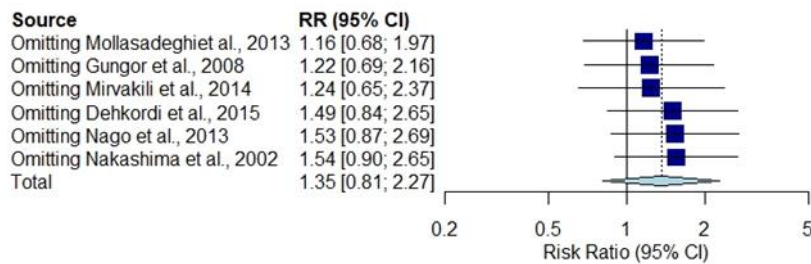


Figure S3. Influence analysis of studies with improvement rate by rating scale. The pooled point estimates after excluding every study one by one were contained within the 95% CI of the overall pooled results for these outcomes. No extreme effect sizes(outlier) was identified [2,5,7-10].



Figure S4. TSA for LLLT on overall THI. The cumulative Z-curves didn't surpass the traditional significance boundary or the sequential monitoring boundaries for the adjusted significance threshold in favor of LLLT.

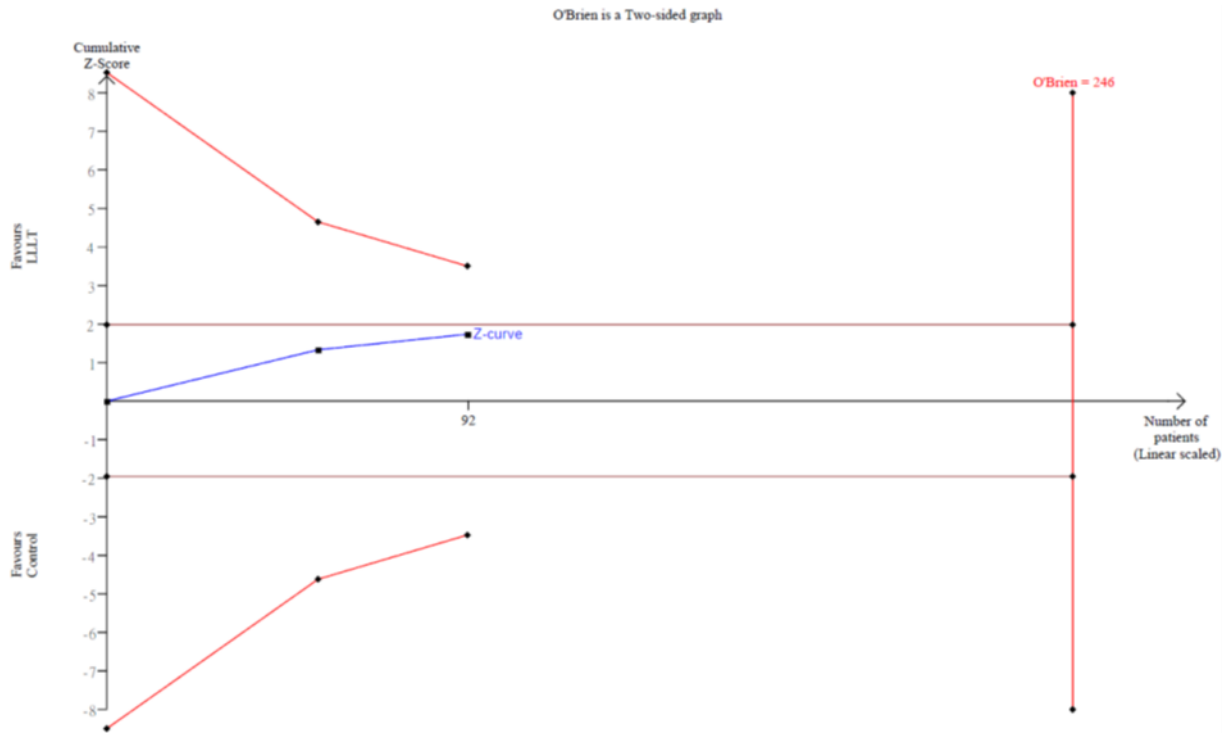


Figure S5. TSA for LLLT on THI with SNHL. The cumulative Z-curves didn't surpass the traditional significance boundary or the sequential monitoring boundaries for the adjusted significance threshold in favor of LLLT.

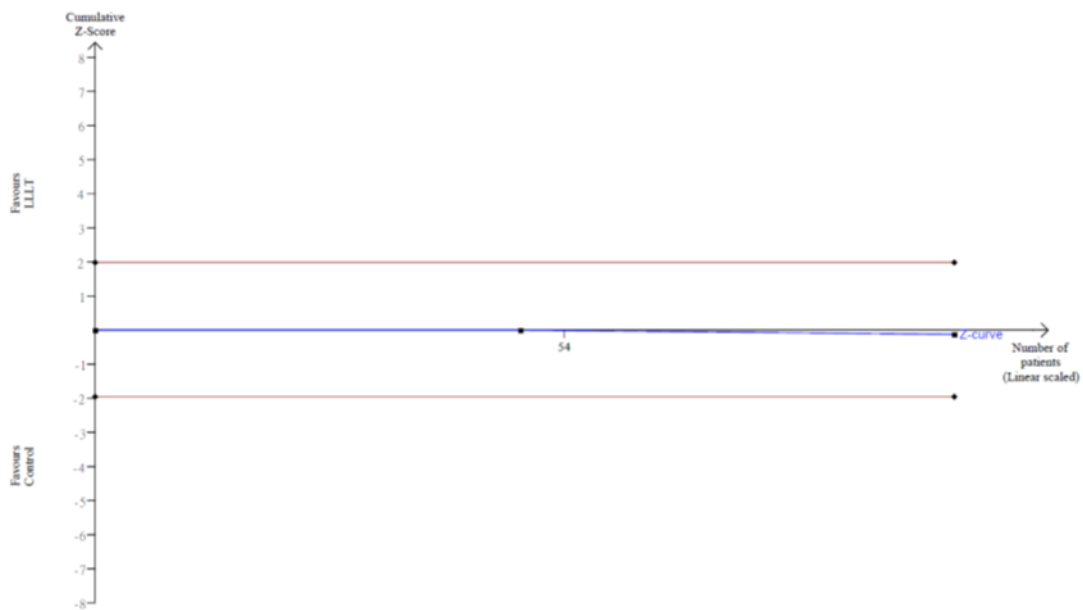


Figure S6. TSA for LLLT on THI with idiopathic tinnitus. Boundary was ignored due to little information use (0.23%). The cumulative Z-curves didn't surpass the traditional significance boundary in favor of LLLT.



Figure S7. TSA for LLLT on THI with more irradiation. The cumulative Z-curves didn't surpass the traditional significance boundary or the sequential monitoring boundaries for the adjusted significance threshold in favor of LLLT.

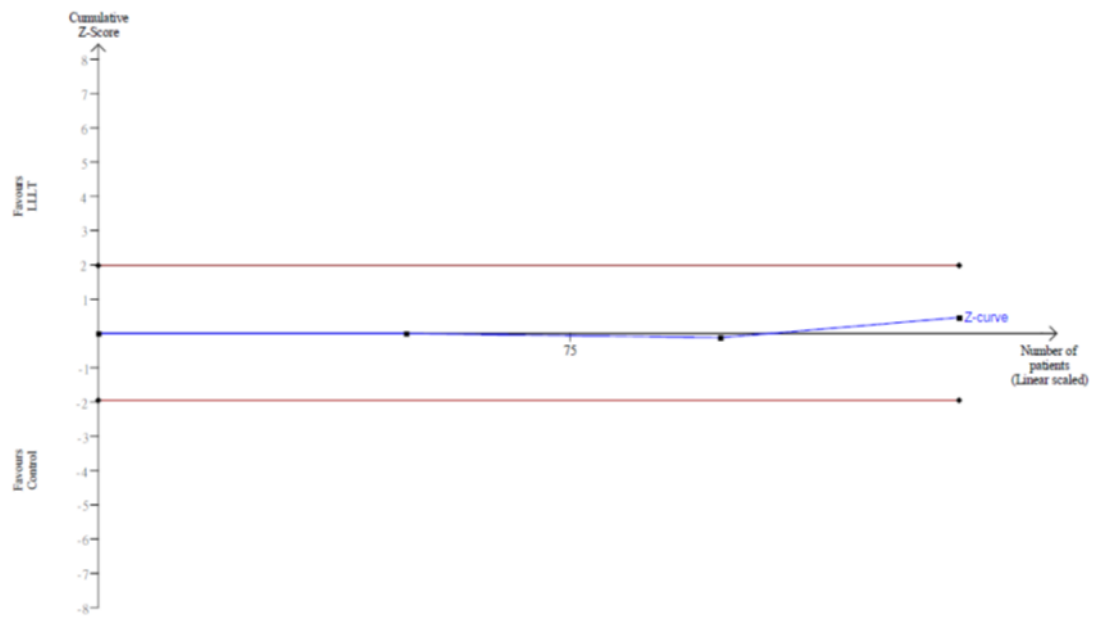


Figure S8. TSA for LLLT on THI with less irradiation. Boundary was ignored due to little information use (2.6%). The cumulative Z-curves didn't surpass the traditional significance boundary in favor of LLLT.



Figure S9. TSA for LLLT on THI with 650 nm wavelength. The cumulative Z-curves didn't surpass the traditional significance boundary or the sequential monitoring boundaries for the adjusted significance threshold in favor of LLLT.

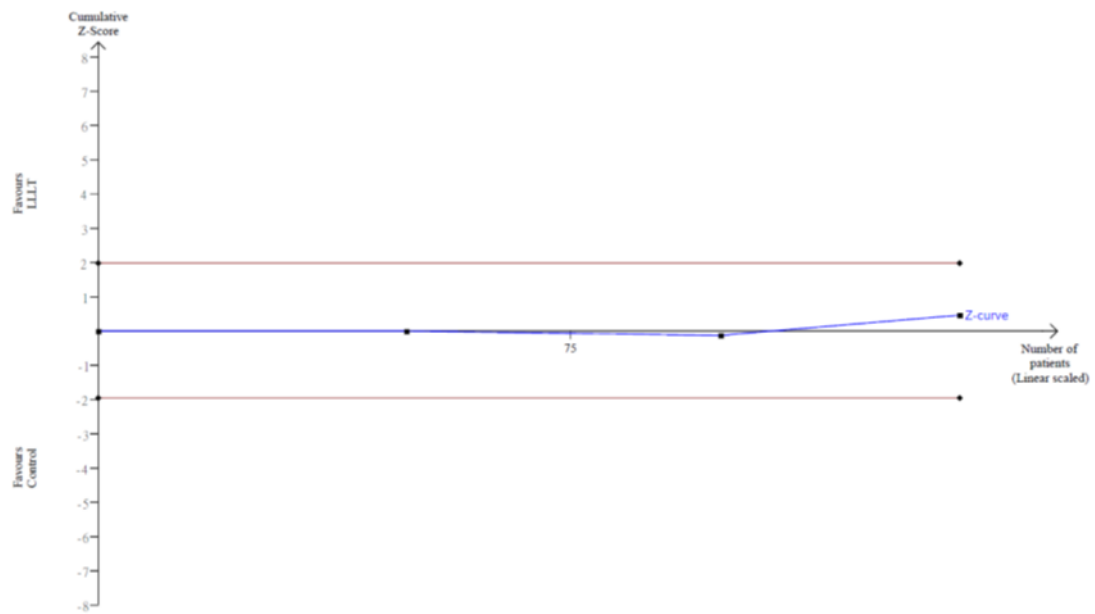


Figure S10. TSA for LLLT on THI with 830 nm wavelength. Boundary was ignored due to little information use (2.6%). The cumulative Z-curves didn't surpass the traditional significance boundary in favor of LLLT.

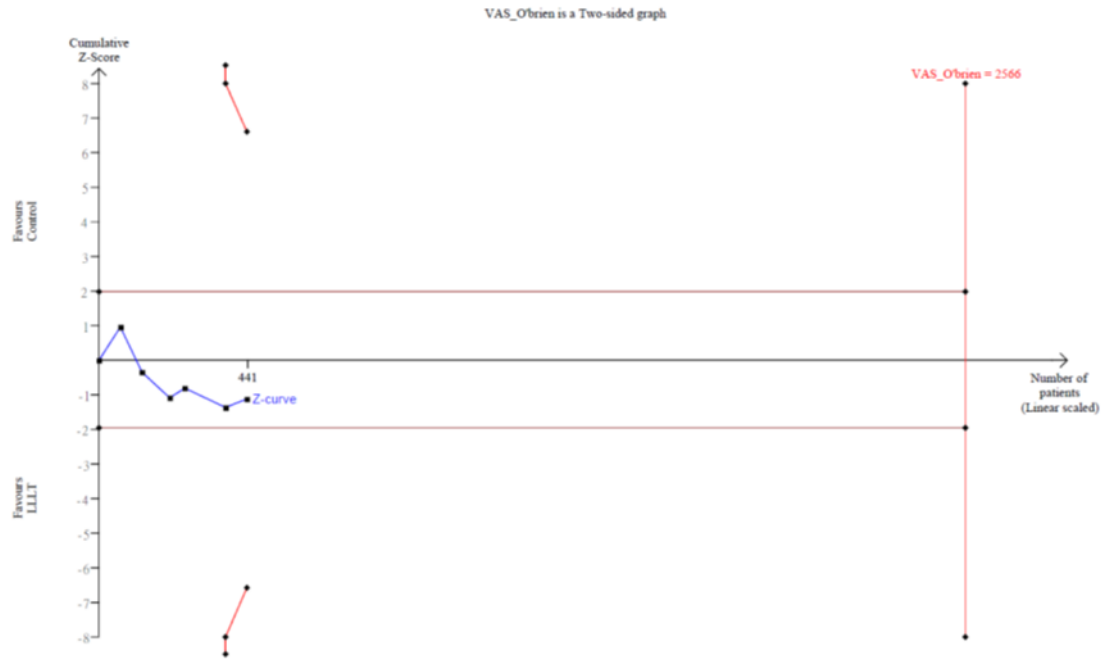


Figure S11. TSA for LLLT on overall improvement rate. The cumulative Z-curves didn't surpass the traditional significance boundary or the sequential monitoring boundaries for the adjusted significance threshold in favor of LLLT.

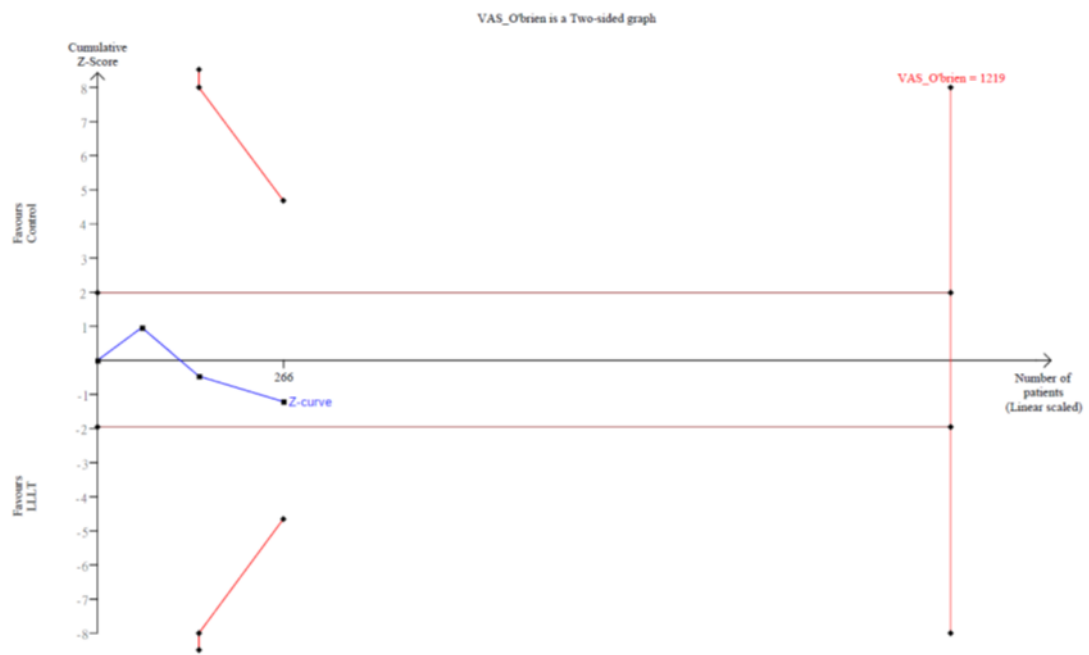


Figure S12. TSA for LLLT on improvement rate with SNHL. The cumulative Z-curves didn't surpass the traditional significance boundary or the sequential monitoring boundaries for the adjusted significance threshold in favor of LLLT.



Figure S13. TSA for LLLT on improvement rate with idiopathic tinnitus. The cumulative Z-curves didn't surpass the traditional significance boundary or the sequential monitoring boundaries for the adjusted significance threshold in favor of LLLT.

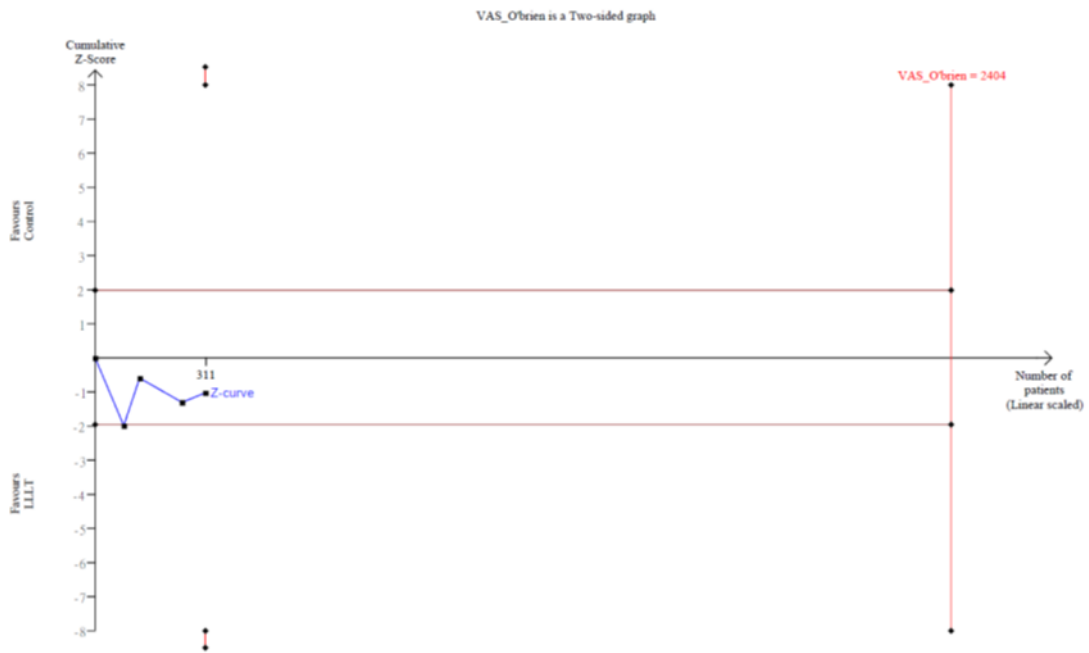


Figure S14. TSA for LLLT on improvement rate with more irradiation. The cumulative Z-curves didn't surpass the traditional significance boundary or the sequential monitoring boundaries for the adjusted significance threshold in favor of LLLT.

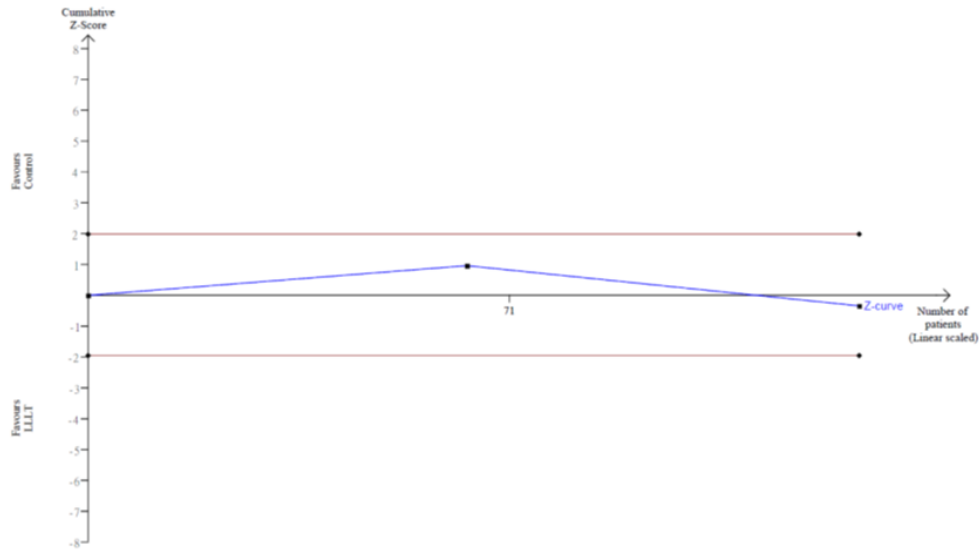


Figure S15. TSA for LLLT on improvement rate with less irradiation. The cumulative Z-curves didn't surpass the traditional significance boundary or the sequential monitoring boundaries for the adjusted significance threshold in favor of LLLT.

References

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