

Comparison of intense pulsed light and laser treatment of telangiectases in systemic sclerosis

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Background

- Cutaneous telangiectases are one of the more visible manifestations of the microvascular abnormalities of systemic sclerosis (SSc).
- These occur most commonly on the face, neck and upper limbs.
- Telangiectases are distressing for patients and are associated with body image dissatisfaction [1].
- Current treatments include pulsed dye laser (PDL) therapy which can be painful and does not prevent reoccurrence. Side effects can include transient bruising and hypopigmentation.
- An alternative is intense pulsed light (IPL) therapy, as suggested by pilot study [2].

Aim

- To carry out an intra-patient comparison of PDL and IPL treatment of SSc-related telangiectases to determine relative efficacy and tolerability.

Patients

- 20 patients (mean 59 (range 49-72) years; 1male) with SSc and approximately bilaterally-symmetric areas (face or upper limb) of telangiectases. One patient withdrew after baseline.

Methods

- Participants were randomised to receive IPL to one side of the face or body, PDL to the other.
- Participants attended according to the visit schedule shown in Figure 1.

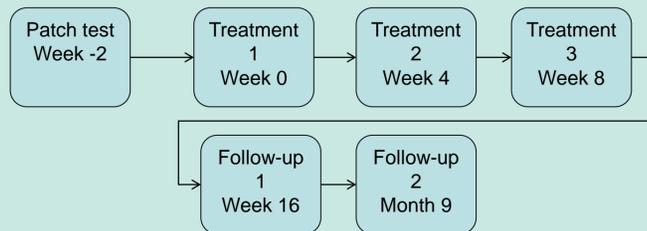


Figure 1: Participant visit schedule

Outcome measures

- At each visit, excluding the initial patch test, and prior to treatment the following were performed:
 - Clinical photographs including close-ups and wide area shots (see Figure 2).
 - Dermoscopy (x10 magnification photographs) of 3 lesions per side per patient (see Figure 3).
 - Dual-wavelength laser Doppler imaging to map blood perfusion in the treated areas.

Analysis

- Two scorers independently rated the relative appearance of telangiectases (photographs and dermoscopy) using the Likert scale shown in Figure 4.
- Photographs and dermoscopy images assessed by comparison with earlier time points.

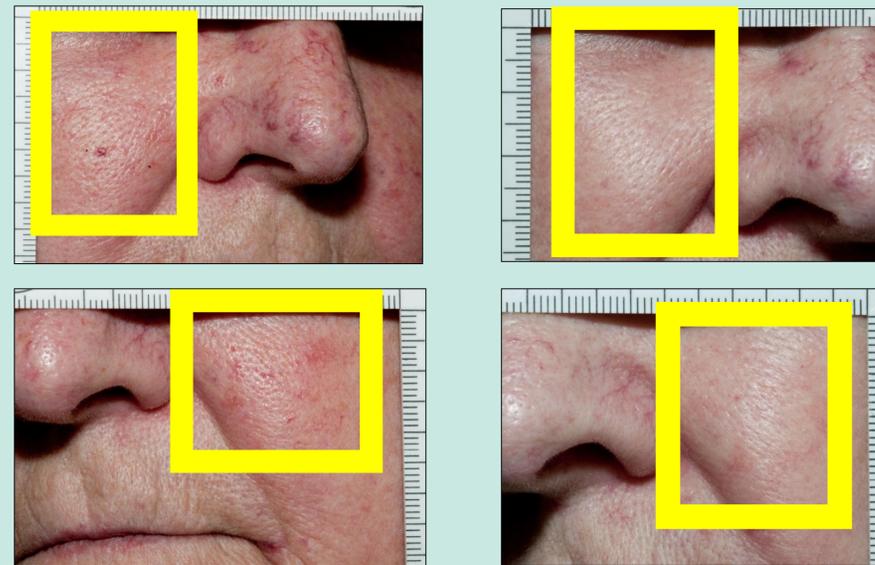


Figure 2: Photographs of treated areas of telangiectases. Top row: IPL treatment; (Left) week 0, (Right) week 16. Bottom row: PDL treatment; (Left) week 0, (Right) week 16.

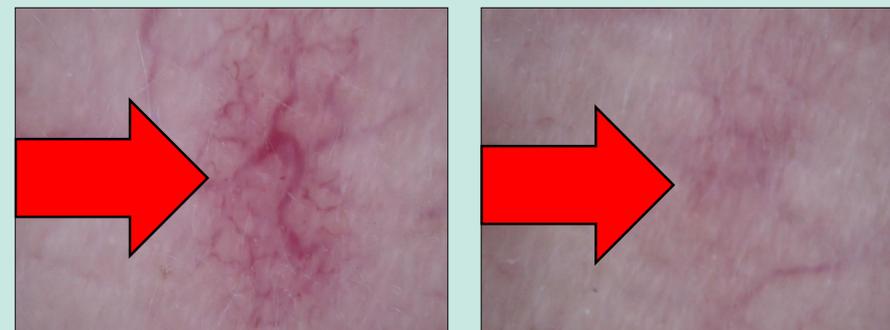


Figure 3: Dermoscopy images of a single telangiectasis. (Left) week 0, (Right) week 16.

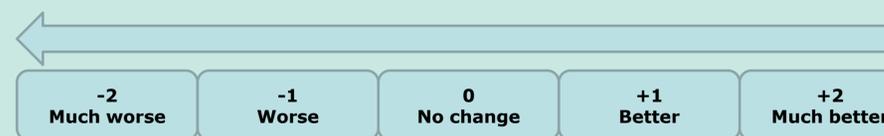


Figure 4: Likert scale for comparing photographs or dermoscopy images of telangiectases at two time points.

References

- [1] Ennis et al, Clin Exp Rheumatol (2012), (In Press)
 [2] Murray et al, Br J Dermatol (2012), 167(3)

Results

Photographs & dermoscopy

- Mean scores and 95 % confidence intervals for images relating to IPL and PDL treated regions are shown in Table 1.
- Positive scores suggest improvements in appearance at almost all time points, for both PDL and IPL.

Laser Doppler imaging

- When comparing baseline (week 0) perfusion with that at week 16 for the 2 treatments, significant differences were found for PDL (p=0.009) but not for IPL (p=0.053).
- ANOVA showed no significant difference between PDL and IPL treatment response at any time point (data not shown).

Side effects

- No reported side effects from IPL treatment; PDL treatment caused transient bruising in most cases.

	Comparison	IPL	PDL	p-value
Photographs [‡]	Week 4 vs baseline (n=17)	1.2 (1.0, 1.4)	1.3 (1.0, 1.5)	0.56
	Week 8 vs baseline (n=16)	1.4 (1.1, 1.8)	1.5 (1.2, 1.8)	0.62
	Week 16 vs baseline (n=15)	1.4 (0.9, 1.8)	1.7 (1.4, 2.0)	*0.01
	Month 9 vs Week 16 (n=8)	0.3 (-0.2, 0.7)	0.3 (-0.1, 0.7)	0.80
Dermoscopy [‡]	Week 4 vs baseline (n=17)	0.6 (0.3, 0.8)	0.8 (0.6, 1.0)	*0.02
	Week 8 vs baseline (n=16)	0.7 (0.4, 0.9)	1.0 (0.8, 1.3)	*0.04
	Week 16 vs baseline (n=13)	0.8 (0.6, 1.1)	1.3 (1.0, 1.5)	*0.02
	Month 9 vs Week 16 (n=6)	0.0 (-0.5, 0.5)	-0.3 (-0.6, 0.0)	0.22

[‡] - mean score (95% C.I.), *p<0.05 IPL-PDL difference

Table 1: Mean scores (95% confidence intervals) from comparison of photographs or dermoscopy images at key time points during the study. P-values relate to the difference in scores for IPL and PDL at each time point. See Figure 4 for scoring scale.

Conclusions

- IPL and PDL are both effective treatments for SSc-related telangiectases, as assessed in this intra-patient study by photographs, dermoscopy and laser Doppler imaging.
- PDL therapy has marginally better outcomes in terms of appearance than IPL treatment.
- Both treatments were well tolerated.
- Side effects and patient preference have a role in determining if IPL is a viable, routine alternative to PDL treatment.

Acknowledgements

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