Cutaneous Telangiectases in Systemic Sclerosis - Impact on Body Image, and Efficacy of Laser Versus Intense Pulsed Light (IPL) Treatment

This report is in 2 sections, addessing Objectives 1 and 2 of the project. Objectives 3 and 4 will be addressed in later reports.

Objective 1 of the study expanded on work begun as part of a medical student project (conducted between May and July 2009). The work described was undertaken by Holly Ennis between October and December 2009. The findings have been accepted for presentation as a poster at the American College of Rheumatology in November 2010, and the paper describing the work will be submitted for publication within the next 4 weeks.

Graham Dinsdale was appointed as part-time Research Associate in February 2010 and is co-ordinating the study comparing the safety and tolerability of laser versus intense pulsed light (IPL) therapy.

Objective 1. Identify demographic, psychological and disease-related correlates of body image dissatisfaction (BID) in patients with SSc.

Overview: This was a questionnaire-based study examining body image dissatisfaction (BID) in patients with and without self-reported telangiectases, the association between BID and depressive symptoms, and associations between telangiectases and other clinical features of systemic sclerosis (SSc).

Patients and methods: 227 patients aged over 18 years with SSc were invited to participate in a questionnaire survey. Clinical and demographic data were obtained for all participants from a clinical database. Each participant completed the Adjusted Satisfaction with Appearance Scale (ASWAP), the Hospital Anxiety and Depression Scale (HADS) and an open-ended telangiectases questionnaire. Thematic analysis was utilised to describe the qualitative data.

Summary of results: 141 patients (62%) responded to the survey (83% female, 70% limited cutaneous SSc, median age 62 years). No significant differences were detected between respondents and non-respondents in terms of age, gender, disease subtype or disease duration. Telangiectases were reported by 113 (80%). All ASWAP scores (Table 1) were higher in those reporting telangiectases, and this was significant for the 'dissatisfaction with appearance' subscore ($p=0.02$). Anxiety and depression scores were similar in those with and without telangiectases. Those reporting telangiectases were more likely to be anticentromere positive (40% versus 18%, $p=0.02$) and to have a history of severe digital ischaemia (38% versus 18%, $p=0.04$) than those not. Stepwise regression analysis revealed that only a relatively low proportion of variance in BID within this sample (20% in ASWAP total scores vs 10% and 30% respectively in the 'dissatisfaction with appearance' and 'social impact' subscales) was explained by depression (measured by the HADS) or the clinical and demographic variables assessed. Qualitative analysis revealed four themes: changes in behaviour as a result of telangiectases (e.g. social avoidance), public and private self-image (e.g. feeling self-conscious), negative emotional impact of telangiectases (e.g. feelings of sadness or anger) and gaining new perspectives on life (e.g. focusing on positives such as the ability to walk).

Conclusions: BID, as measured by the ASWAP, was higher in patients with telangiectases, especially within the 'dissatisfaction with appearance' subscale. Telangiectases were associated with anticentromere positivity and digital ischaemia, lending further support for telangiectases as a potential marker for vascular involvement. Qualitative analysis provided new insights into the thoughts and feelings of patients with telangiectases, highlighting concerns and also methods of coping with telangiectases. Clinical and demographic factors appear to account for only a small proportion of

variance in BID and in psychological distress and, given the qualitative data, suggest that individual coping strategies and the role of family and friends may play an instrumental role in SSc-related BID.

Table 1. ASWAP and HADS scores

	All participants n=141	Telangiectases n=113	No telangiectases n=28	P value
ASWAP Social impact, median (IQR)*	14 (14)	14 (14)	12 (13)	p=0.67
ASWAP Dissatisfaction with appearance, median (IQR)*	20 (12)	21 (12)	15 (12)	p=0.02
ASWAP Total score, median (IQR)*	36 (21)	37 (20)	26 (22)	p=0.09
HADS Anxiety, median (IQR)**	7 (6)	7 (6)	8 (8)	p=0.46
HADS Depression, median (IQR)**	6 (6)	6 (6)	6 (6)	p=0.52
* 138 subjects ** 140 subjects.				

Objective 2. A study examining the safety and tolerability of laser versus intense pulsed light (IPL) treatment of SSc-related telangiectases

Study overview: This study involves the comparison of two light-based treatment methods for SSc-related telangiectases; laser and IPL. Currently as standard, telangiectases are treated clinically using the laser treatment method, while IPL is a newer treatment technique used extensively in cosmetic applications.

An intra-patient comparison of the two treatment techniques is used in this study. Each patient undergoes a normal treatment protocol of both techniques with the methods being applied bilaterally to the patient. For example, a patient with facial telangiectases might receive IPL to the right cheek and laser to the left cheek. Over the course of the treatment regimes applied during the study, various imaging techniques are used to assess the efficacy of the two methods.

Methodology: Twenty patients are to be recruited, with all patients receiving both IPL and laser treatment. The treatment assignment (left or right) for each patient is randomised. Patients attend for 6 visits over the course of 9 months. Firstly, a patch test is done to check for adverse reactions to both

treatments, followed by 3 treatment sessions a minimum of 4 weeks apart. Two further follow-up visits at 3 months and 9 months are then used to further assess the treatment outcomes.

At the three treatment visits and two follow-up sessions standardised digital photographs of the areas to be treated are taken. A so-called “cardinal” treatment area is defined at the first visit: scoring of close-up photographs of this area by ‘blinded’ observers is the primary outcome measure. Other imaging methods used are dermoscopy (10x magnification of individual lesions), laser Doppler imaging (to look for changes in blood perfusion in treated areas) and full-field laser perfusion imaging (FLPI, to look for superficial changes in blood perfusion).

Current study progress: As of mid-October 2010 there have been 17 patients who have attended for at least a patch test. Of these 17, 3 patients did not continue beyond the patch test stage for various reasons. Recruitment for the study is still open, with the caveat that patients recruited from now on will have their 9 month follow-up visit brought forward due to study time restrictions. Of the remaining 14 patients, 6 have completed the treatment process and are now involved in the follow-up part of the study. The others are at various stages within the treatment process. The assessment and data analysis process for the photographs and images taken is now also underway.

Ariane Herrick, Holly Ennis and Graham Dinsdale 31th October 2010