The Effect of Superficial Venous Surgery on Generic Health-related Quality of Life

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Background. Superficial venous surgery (SVS) is associated with a significant improvement in disease-specific health related quality of life (HR-QoL) but the effect on generic HR-QoL remains uncertain. The aim of this study was to determine the effect of SVS on responses to the Short Form [SF]-36, the most widely used generic HR-QoL instrument.

Method. Two hundred and three patients undergoing SVS completed the SF-36 pre-operatively and 24 months post-operatively. Scores for the 8 SF-36 domains (physical (PF) and social functioning (SF), role limitation due to physical (RP) and emotional (RE) problems, mental health (MH), vitality (V), pain (P), and general health perception (HP)) were calculated and normalised using UK standard data.

Results. Pre-operatively, patients scored significantly lower (worse) than the general UK population in PF, RP and P. Surgery was associated with a significant improvement in PF and P (45.3 vs. 42.5 and 48.9 vs. 43.8 postop vs. preop, p < 0.001, WSR) at 2 years.

Conclusion. SVS leads to a statistically and clinically significant improvement in the physical components of the SF-36. These data will allow the clinical benefits of SVS to be compared with other interventions so helping informing decisions about how venous surgery should be prioritised appropriately within the NHS.

Key Words: Quality of life; SF-36; CVI.

Introduction

The relationship between lower limb symptoms, the presence and severity of varicose veins (VV) on clinical examination and objective duplex-ultrasound based evidence of venous disease is complex.1,2 Although this has led some authorities to conclude that superficial venous surgery (SVS) is primarily a cosmetic procedure and should not, in general, be offered by the National Health Service (NHS) (NICE guidelines), over 50,000 SVS procedures are performed each year (www.doh.gov.uk). However, a randomised controlled trial has recently demonstrated that SVS in addition to compression therapy speeds up healing and reduces recurrence of venous ulcers when compared to compression alone.3 Furthermore, previous work from this group has shown that SVS is associated with a statistically significant and clinically meaningful improvement in disease-specific health related quality of life (HR-QoL) using the Aberdeen questionnaire.4,5 The effect of SVS on generic HR-QoL remains unclear and represents an important gap in knowledge because it prevents SVS from being compared with other commonly performed surgical procedures and so the appropriate prioritisation of SVS. The Short Form [SF]-36 is the most widely used generic HR-QoL instrument and comprises 36 items within eight domains; namely physical functioning (PF), social functioning (SF), role limitations due to physical (RP) or emotional (RE) problems, mental health (MH), vitality (V), pain (P), and general health perception (HP).6 The aim of this study, therefore, was to determine the effect of SVS on responses to the SF-36.

Methods

Ethical approval and informed consent were obtained. Patients attending a hospital based venous clinic and who were deemed to require SVS by a consultant vascular surgeon were invited to participate. Suitability for surgery was based on presence of symptoms...
and/or signs compatible with CVI: i.e. itching, swelling, cramping, throbbing, bleeding, skin changes or ulceration. Unless varicosities were gross, no procedures were performed purely cosmetic reasons. Patients were invited to complete the self-administered UK version of the SF-36 prior to and 24 months after their surgery. Responses were normalised in relation to the UK general population data to produce a standard population mean of 50 and standard deviation (SD) of 10 for all domains, as per standard SF-36 methods. Physical (PCS) and mental health (MCS) component summary scores were generated in the standard manner. Data is described in terms of means and standard deviation to allow for comparisons to be made over time, as recommended by Bowling et al. Statistical analysis was performed with the SPSS 11 package (Statistical Package for Social Sciences Inc, Chicago, IL, USA) using the t-test to detect differences in pre-operative scores from the UK population and Wilcoxon Signed Rank (WSR) test was used for categorical data following intervention.

Results

There were 203 patients (136 women) of mean age (range) 56 (19–84) years of whom 109 (54%) had uncomplicated VV (CEAP C2/3), 44 (22%) had skin changes of chronic venous insufficiency (CEAP C4), 23 (11%) had a healed (C5) and 27 (13%) an open venous ulcer (C6). Seventy-nine (39%) operations were for recurrence.

Prior to surgery, patients scored significantly lower (worse) than the UK general population in terms of PF, RP and P (Table 1 and Fig. 1) and the PCS (43 vs. 50, p < 0.001 t-test) but significantly better in terms of MCS (52.6 vs. 50, p < 0.001 t-test). SVS was associated with significant improvements in PF, and P and PCS (Postop vs. Preop: 45.3 vs. 42.5, 48.9 vs. 43.8, 46.1 vs. 43.0, p < 0.001 WSR) out to two years (Table 1 and Fig. 2).

Regression analysis was performed to investigate the relationship between clinical grade and QoL score postoperatively. This showed that the absolute improvement seen in QoL scores in domains of PF, RP and BP and the summary score PCS was unrelated to the clinical severity of disease as determined by the CEAP Clinical grade (Table 2).

Discussion

The main findings of the present study are that patients with CVI have a worse HR-QoL than the normal UK population. Irrespective of clinical status, SVS is associated with a statistically significant improvement in HR-QoL out to 2 years and this benefit is almost entirely accounted for by improvements in physical, as opposed to mental, health. In the absence of a randomised controlled comparison with non-operative treatment a placebo effect of surgery cannot be ruled out. However, these data strongly support the contention that CVI causes physical symptoms and that surgery is effective in ameliorating those symptoms. At the same time, present data do not support the notion that the benefits of SVS are due to an improvement in psychological well being consequent upon the relief of anxiety regarding the appearance of the patients’ legs. Successful surgery depends upon two criteria being met; firstly, the patient must be correctly selected and, second, the correct operation must be performed in a technically satisfactory manner. All the patients in the present study were selected for surgery, and operated on by, experienced vascular surgeons who believed that the patients had significant symptomatic superficial venous disease.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Preop mean (SD)</th>
<th>2 year mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical function (PF)</td>
<td>42.5 (14.2)</td>
<td>45.3 (13.2)</td>
</tr>
<tr>
<td>Role physical (RP)</td>
<td>45.8 (12.6)</td>
<td>46.5 (12.9)</td>
</tr>
<tr>
<td>Role emotional (RE)</td>
<td>49.3 (10.9)</td>
<td>50.2 (10.4)</td>
</tr>
<tr>
<td>Social function (SF)</td>
<td>47.9 (12.1)</td>
<td>48.5 (10.9)</td>
</tr>
<tr>
<td>Bodily pain (P)</td>
<td>43.8 (12.3)</td>
<td>48.9 (11.1)</td>
</tr>
<tr>
<td>Mental health (MH)</td>
<td>51.2 (10.0)</td>
<td>51.6 (10.5)</td>
</tr>
<tr>
<td>Vitality (V)</td>
<td>50.2 (11.0)</td>
<td>51.4 (10.9)</td>
</tr>
<tr>
<td>Health perception (HP)</td>
<td>50.3 (9.2)</td>
<td>50.4 (10.1)</td>
</tr>
<tr>
<td>Mental summary score (MCS)</td>
<td>52.6 (9.3)</td>
<td>52.3 (9.7)</td>
</tr>
<tr>
<td>Physical summary score (PCS)</td>
<td>43.0 (12.7)</td>
<td>46.1 (12.7)</td>
</tr>
</tbody>
</table>

Source: R. C. Sam et al.
Because present data reflect generic, as opposed to disease-specific HR-QoL, it is now possible for the first time to compare the clinical benefits of SVS with other commonly performed surgical, radiological and medical interventions. This, in turn, will allow evidence-based judgments to be made about the appropriateness of performing SVS in the NHS and how that surgery should be prioritised against other treatments.

**Fig. 1.** Preoperative mean SF-36 domain scores. *Scores compared with normal UK general population with a mean score of 50 (p < 0.001 t-test).**

**Fig. 2.** Changes in mean SF-36 domain scores following superficial venous surgery. *(p < 0.001 WSR).**
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References


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