Review of RCTs - Comparing Endovenous ablation Therapies, Chemical ablation and Surgery

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Endovenous ablation (radiofrequency and laser) and foam sclerotherapy versus open surgery for great saphenous vein varices.
Nesbitt C¹, Bedenis R, Bhattacharya V, Stansby G.

AUTHORS' CONCLUSIONS:
Currently available clinical trial evidence suggests that UGFS, EVLT and RFA are at least as effective as surgery in the treatment of great saphenous varicose veins. Due to large incompatibilities between trials and different time point measurements for outcomes, the evidence is lacking in robustness. Further randomised trials are needed, which should aim to report and analyse results in a congruent manner to facilitate future meta-analysis.
Clinical effectiveness and cost-effectiveness of foam sclerotherapy, endovenous laser ablation and surgery for varicose veins: results from the Comparison of LAser, Surgery and foam Sclerotherapy (CLASS) randomised controlled trial.

Brittenden J¹, Cotton SC², Elders A³, Tassie E³, Scotland G², Ramsay CR², Norrie J², Burr J⁴, Francis J⁵, Wileman S², Campbell B⁶, Bachoo P¹, Chetter I⁷, Gough M⁸, Earnshaw J⁹, Lees T¹⁰, Scott J⁸, Baker SA¹¹, MacLennan G², Prior M², Bolsover D², Campbell MK².

CONCLUSIONS:
Considerations of both the 6-month clinical outcomes and the estimated 5-year cost-effectiveness suggest that EVLA should be considered as the treatment of choice for suitable patients.

DESIGN:
A parallel-group randomised controlled trial (RCT) without blinding, and economic modelling evaluation.

SETTING: Eleven UK specialist vascular centres.

PARTICIPANTS: Seven hundred and ninety-eight patients with primary varicose veins (foam, n = 292; surgery, n = 294; EVLA, n = 212).

INTERVENTIONS: Patients were randomised between all three treatment options (eight centres) or between foam and surgery (three centres).

PRIMARY OUTCOME MEASURES:
Disease-specific [Aberdeen Varicose Vein Questionnaire (AVVQ)] and generic [European Quality of Life-5 Dimensions (EQ-5D), Short Form questionnaire-36 items (SF-36) physical and mental component scores] quality of life (QoL) at 6 months. Cost-effectiveness as cost per quality-adjusted life-year (QALY) gained.

SECONDARY OUTCOME MEASURES:
Quality of life at 6 weeks; residual varicose veins; Venous Clinical Severity Score (VCSS); complication rates; return to normal activity; truncal vein ablation rates; and costs.
Evaluating the Expected Costs and Budget Impact of Interventional Therapies for the Treatment of Chronic Venous Disease.
Carlton R1, Mallick R2, Campbell C3, Raju A4, O'Donnell T5, Eaddy M6.

RESULTS:
The total expected 8-week treatment costs were $2165 for polidocanol injectable foam, $1827 for endovenous laser ablation, $2106 for radiofrequency ablation, $2374 for surgery, and $2844 for multimodality treatment. The initial treatment costs were higher for surgery and multimodality treatment compared with polidocanol injectable foam and were lower for endovenous laser ablation and radiofrequency ablation treatments. Polidocanol injectable foam is projected to have a relatively small budget impact ($0.01 per member per month) at an initial 5% market share.

CONCLUSION:
Polidocanol injectable foam offers an alternative to other interventional options for the treatment of varicose veins and is projected to have a relatively small budget impact. From a health plan perspective, this drug is likely to have a relatively low budget impact as it becomes more widely used.
Benefits of polidocanol endovenous microfoam (Varithena®) compared with physician-compounded foams.

Carugo D1, Ankrett DN2, Zhao X3, Zhang X4, Hill M5, O'Byrne V6, Hoad J6, Arif M6, Wright DD7, Lewis AL8.

CONCLUSION:
Bubble size, bubble size distribution and stability of various sclerosing foam formulations show that polidocanol endovenous microfoam results in better overall performance compared with physician-compounded foams. Polidocanol endovenous microfoam offers better stability and cohesive properties in a biomimetic vein model compared to physician-compounded foams. Polidocanol endovenous microfoam, which is indicated in the United States for treatment of great saphenous vein system incompetence, provides clinicians with a consistent product with enhanced handling properties.
A randomized trial comparing treatments for varicose veins.


CONCLUSIONS:
Quality-of-life measures were generally similar among the study groups, with the exception of a slightly worse disease-specific quality of life in the foam group than in the surgery group. All treatments had similar clinical efficacy, but complications were less frequent after laser treatment and ablation rates were lower after foam treatment.

There were no significant differences between the surgery group and the foam or the laser group in measures of generic quality of life.
Five-year follow-up of a randomized, controlled trial comparing saphenofemoral ligation and stripping of the great saphenous vein with endovenous laser ablation (980 nm) using local tumescent anesthesia

Stefanie A. Gauw, CRCcorrespondenceemailemail, James A. Lawson, MD, PhD, Clarissa J. van Vlijmen-van Keulen, MD, PhD, Pascal Pronk, MD, Menno T.W. Gaastra, MD, Michael C. Mooij, MD, Centrum Oosterwal, Alkmaar, The Netherlands

Conclusions:
At the 5-year follow-up, a significantly higher varicose vein recurrence rate originated at the SFJ region after EVLA compared with SFL/S. There were no differences in the relief of venous symptoms, CEAP staging, or general QoL between the groups
Great saphenous vein stripping with preservation of sapheno-femoral confluence: Hemodynamic and clinical results

Paul Pittaluga, MD correspondenceemail, Sylvain Chastanet, MD, Jean-Jérôme Guex,

( J Vasc Surg 2008;47:1300-5.)

Conclusion: Preservation of the SFC during saphenous stripping gave good results with regard to hemodynamics and neovascularization on the SFC, varicose vein recurrence, improvement of symptoms, and aesthetic appearance for legs with a median follow-up of 27.3 months.
Comparable Effectiveness of Endovenous Laser Ablation and High Ligation With Stripping of the Great Saphenous Vein. Two-Year Results of a Randomized Clinical Trial (RELACS Study)  
Knuth Rass, MD; Norbert Frings, MD; Paul Glowacki; Corinna Hamsch, MD; Stefan Gräber, MD; Thomas Vogt, MD; Wolfgang Tilgen, MD  

**Conclusions** Both EVLT and HLS are comparably safe and effective procedures to treat GSV incompetence. The significantly higher rate and the course of duplex-detected saphenofemoral recurrences after EVLT remain a matter of further investigations.
421 Assessed for eligibility

Enrollment

- 21 Excluded
  - 1 Did not meet inclusion criteria
  - 20 Declined to participate

400 Randomized

Allocation

200 Allocated to EVLT
- 185 Received allocated intervention
- 15 Did not receive allocated intervention (declined to participate)

200 Allocated to HLS
- 161 Received allocated intervention
- 39 Did not receive allocated intervention (declined to participate)

Follow-up

12 Lost to follow-up
- 11 Refused or unavailable for follow-up
- 1 Died

18 Lost to follow-up
- 18 Refused or unavailable for follow-up

Analysis

173 Evaluated
- 0 Excluded from analysis

143 Evaluated
- 0 Excluded from analysis
Figure 2. Kaplan-Meier curves showing recurrence-free survival. A, Survival for overall clinical recurrent varices after surgery (REVAS) (any site); B, for clinical recurrence with a nature of source at the operated site (REVAS NSs); and C, for duplex recurrence at the saphenofemoral junction. Differences between groups were compared with log-rank test. EVLT indicates endovenous laser treatment; HLS, high ligation and stripping.

Figure Legend:
We ask for more RCTs, as the technology is constantly changing rapidly!!!

Seven RCTs comparing radiofrequency ablation to high ligation and stripping
• Twelve RCTs comparing EVLA to high ligation and stripping
• Five RCTs comparing radiofrequency directly to endovenous laser
• Six RCTs comparing foam sclerotherapy to high ligation and stripping
• Two RCTs comparing EVLA versus cryoablation
• Six RCTs comparing modifications of EVLA
• One RCT comparing high ligation and stripping versus RFA versus EVLA versus foam

Courtesy of Bo Eklöf, MD, and Michel Perrin, MD.
Do you think a randomized trial comparing the new therapies to existing platforms with proven track records will be required, or will the data produced for each technology on its own be sufficient? What kind of data or personal experience would it take to change your practice patterns?

This is an excellent question without an easy answer.
The RCT has become the Holy Grail because it removes the confounders from the equation. However, the endovascular field changes rapidly, and by the time a RCT is completed, which takes great expense and a good amount of time, the next new instrument may already be in widespread use.

The RCT data always lag behind technological development in the endovascular space. In such a rapidly moving field, a good observational study demonstrating safety foremost, and efficacy second most, is fairly reasonable to get a new modality introduced.

Scientific purists tend to focus on head-to-head comparisons, so there will be people asking for RCTs.

In my personal view, I’m happy with a couple of well-conducted observational studies showing safety and efficacy in a large number of patients.