

**Table XIII.**

Operative procedure	Reference <i>Abstracts corresponding to references can be found using the listing "RCTs by alphabetical order" or "RCTs by topic."</i>	Summary
<p>Classic open surgery <i>versus</i> EVLA <i>versus</i> UGFS</p>	<p>Biemans AAM, Kockaert M, Akkersdijk GP, van den Bos RR, de Maeseneer MGR, 240 Cuypers P et al. Comparing endovenous laser ablation, foam sclerotherapy, and conventional surgery for great saphenous varicose veins. <i>J Vasc Surg.</i> 2013;58:727-34.</p>	<p>240 consecutive patients in CEAP C<sub>2-6</sub>s with incompetent GSV and SFJ reflux All treatments just below or above the knee Group I (N=80): OS under general or spinal anesthesia <i>versus</i> Group II (N=80): EVLA 940 nm, bare fiber, continuous laser withdrawal under local anesthesia <i>versus</i> Group III (N=80): UGFS with complementary session after 3 months when needed <b>Results at 1 year of follow-up:</b> Lower occlusion rate in group III (72.7%) compared with this in group I (88.22%) and group II (88.5%); P&lt;0.02 Low complication rate, comparable between the groups. All groups showed significant improvement in HRQoL (EQ5D) with no difference between the groups.</p>
	<p>Brittenden C, Cotton SC, Elders A, Ramsay CR, Norrie J, Burr J et al. A Randomized Trial Comparing Treatments for Varicose Veins. <i>New Engl J Med.</i> 2014.371(13):1218-27.</p>	<p>Multicenter study of 798 varicose veins patients Group I (N=210): EVLA under local anesthesia. Saphenous truncal ablation completed after 6 weeks by USGFS if needed. <i>versus</i> Group II (N=286): UGFS using the Tessari method with STS 1-3%; ratio air/ sclerosing agent 3/1; 12 ml maximum/session <i>Versus</i> Group III (N=289): OS consisting of HL+GSV stripping+ tributary phlebectomy under general anesthesia <b>Results at 6 weeks to 6 months of follow-up:</b> Lower <i>complication rate</i> lower in group II compared to groups I and III (P&lt;0.001) <i>HRQoL scores:</i> (AVVQ, EQ-5D™, SF-36): similar scores after treatment in all groups (nonsignificantly worse in group II using the disease- specific AVVQ) <i>VCSS scores:</i> similar clinical results in the 3 groups <i>Anatomical outcome</i> on DS assessment: lower ablation rate in group II compared to groups I and III (P&lt;0.001)</p>
	<p>Tassie E, Scotland G, Brittenden J, Cotton SC, Cambell MK, Gough M et al. Cost- effectiveness of ultrasound-</p>	<p>Multicenter study of 798 varicose veins patients Group I (N=210): EVLA under local anesthesia.</p>

	<p>guided foam sclerotherapy, endovenous laser ablation or surgery as treatment for primary varicose veins from the randomized CLASS trial. <i>Br J Surg.</i> 2014;101:1532-40.</p>	<p>Saphenous truncal ablation completed after 6 weeks by USGFS if needed.  Group II (N=286): USGFS using the Tessari method with STS 1-3%; ratio air/ sclerosing agent 3/1; 12 ml maximum/session  Group III (N=289): OS consisting of HL+GSV stripping+ tributary phlebectomy under general anesthesia  <b>Results at 6 months of follow-up:</b>  Costs: group III &gt; group I &gt; group II  QALY: QALYs was derived from responses to the EQ-5D™ and is often used in cost-utility analysis.  The results suggest, for patients considered eligible for all three treatment options, that <b>EVLA has the highest probability of being cost-effective</b> at accepted thresholds of willingness to pay per QALY</p>																								
<p style="text-align: center;">OS versus EVLA versus UGFS</p>	<p>Brittenden J, Cotton SC, Elders A, Tassie E, Scotland G, Ramsay CR, et al . 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. <i>Health Technol Assess</i> 2015;19 (27).</p>	<p>Analysis of a 3-arm RCT (foam, EVLA and surgery) in treatment of SSV  17 patients with isolated SSV insufficiency  29 patients with combined GSV and SSV insufficiency (only outcome of SSV is assessed)  <b>Procedural complication</b>  The event rate for any procedural complication was lower for EVLA (1%) than for either foam (7%) or surgery (8%) (p &lt; 0.001).  <b>Recovery</b>  Foam and EVLA better than surgery  <b>Outcome at 6 months</b></p> <p><i>Isolated SSV insufficiency</i></p> <table border="1" data-bbox="946 1209 1510 1556"> <thead> <tr> <th></th> <th>EVLA 9 patients n; %</th> <th>Foam 11 patients n; %</th> <th>Surgery 11 patients n; %</th> </tr> </thead> <tbody> <tr> <td>Complete success</td> <td>6/9; 66.7%</td> <td>4/11; 36.4%</td> <td>3/11; 27.3%</td> </tr> <tr> <td>Partial success</td> <td>3/9; 33.3%</td> <td>2/11; 18.2%</td> <td>3/11; 27.3%</td> </tr> <tr> <td>Failure</td> <td>0/9; 0%</td> <td>5/11; 45.5%</td> <td>5/11; 45.5%</td> </tr> </tbody> </table> <p><i>Combined SSV insufficiency</i></p> <table border="1" data-bbox="946 1619 1510 1824"> <thead> <tr> <th></th> <th>EVLA 7 patients n; %</th> <th>Foam 13 patients n; %</th> <th>Surgery 9 patients n; %</th> </tr> </thead> <tbody> <tr> <td>Complete success</td> <td>2/7; 28.6%</td> <td>2/13.15.4%</td> <td>1/9; 11.1%</td> </tr> </tbody> </table>		EVLA 9 patients n; %	Foam 11 patients n; %	Surgery 11 patients n; %	Complete success	6/9; 66.7%	4/11; 36.4%	3/11; 27.3%	Partial success	3/9; 33.3%	2/11; 18.2%	3/11; 27.3%	Failure	0/9; 0%	5/11; 45.5%	5/11; 45.5%		EVLA 7 patients n; %	Foam 13 patients n; %	Surgery 9 patients n; %	Complete success	2/7; 28.6%	2/13.15.4%	1/9; 11.1%
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	<p>van der Velden SK, Biemans AA, De Maeseneer MG, Kockaert MA, Cuypers PW, Hollestein LM et al. Five-year results of a randomized clinical trial of conventional surgery, endovenous laser ablation and ultrasound-guided foam sclerotherapy in patients with great saphenous varicose veins BJS 2015;102:1184-1194.</p>	<p>224 lower limbs patients in CEAP C<sub>2-5</sub>s with incompetent GSV and SFJ reflux All treatments just below or above the knee Group I (N=69): OS under general or spinal anesthesia <i>versus</i> Group II (N=7!): EVLA 940 nm, bare fiber, continuous laser withdrawal under local anesthesia <i>versus</i> Group III (N=77): UGFS with complementary session after 3 months when needed <b>Results at 5- year of follow-up:</b> <i>Obliteration or absence of the GSV</i> Group I =95%, Group II =77%, Group III= 23% <i>Absence of above knee reflux</i> Group I =85%, Group II =82%, Group III= 41% <i>All groups had equivalent CIVIQ sores and showed significant improvement in HRQoL (EQ5D) with no difference between the groups</i> <i>Reinterventions and additional treatments of the GSV above the knee</i> Groups I and II= 10%; Group III= 32%</p>								
	<p>Venermo M, Saarinen J, Eskelinen E, Vähäho S, Saarinen E, Railo M et al. Randomized clinical trial comparing surgery, endovenous laser ablation and ultrasound-guided foam sclerotherapy for the treatment of great saphenous varicose veins. BJS 2016;103:1438-1444</p>	<p>214 patients in CEAP C<sub>2-4</sub>s with incompetent GSV All treatments just below or above the knee Group I (N=65): OS including tributary phlebectomy under general anesthesia completed by local tumescent anesthesia <i>versus</i> Group II (N=73): EVLA 980 nm, bare fiber, then 1470-Nm radial fiber; pulsed mode, 12 W energy completed by tributary phlebectomy under local tumescent anesthesia <i>versus</i> Group III (N=76): UGFS Polidocanol 1% or STS &amp; and 3% with complementary session after 1 month, then 2 months when needed. <b>Post-operative outcome up to 1-month</b> - <i>Postoperative pain measured with VAS</i> Lesser in group III - <i>Sick leave</i> Shorter in group III. P&lt;0.001 - <i>Hematoma</i> Lesser in group III compared to groups I and II. P=0.001 - <i>Skin Pigmentation</i> More common in group III compared to group I and II. P&lt;0.001</p>								

		<p><b>Outcome at 1 year</b></p> <ul style="list-style-type: none"> <li>- <i>Saphenous occlusion</i> Better in group I and II compared to group III P &lt;0.001</li> <li>- <i>Persistent reflux below the knee</i> Better in group I and II compared to group III P &lt;0.008</li> <li>- <i>AVVSS</i> No significant difference between the 3 groups</li> </ul>
	<p>Vähäaho. S, Halmeski K, Albäck A, Saarinen F, Venermo M. Five-year follow-up of a randomized clinical trial comparing open surgery, foam sclerotherapy and endovenous laser ablation for great saphenous varicose veins. <i>BJJ</i>. 2018;105:686-691.</p>	<p>196 patients in CEAP C<sub>2-4s</sub> with incompetent GSV All treatments just below or above the knee Group I (N=65): OS including tributary phlebectomy under general anesthesia completed by local tumescent anesthesia <i>versus</i> Group II (N=73): EVLA 980 nm, bare fiber, then 1470-Nm radial fiber; pulsed mode, 12 W energy completed by tributary phlebectomy under local tumescent anesthesia <i>versus</i> Group III (N=76): UGFS Polidocanol 1% or STS &amp; and 3% with complementary session after 1 month, then 2 months when needed . <b>Outcome at 5 years</b> , 166 patients : group I=50, Group II =57, Group III= 59 <i>GSV absent or occluded</i> Group I = 48 patients Group II = 51 patients Group III (N=59) 30 patients The difference between the UGFS group and the EVLA or surgery group was statistically significant (P &lt;0.001) AVVSS.</p>

**Abbreviations:**

AVQQ = Aberdeen varicose vein questionnaire ; AVVSS= Aberdeen varicose vein severity score; CIVIQ = Chronic Venous Insufficiency Quality-of-Life Questionnaire; DS = duplex ultrasound; EQ5D= Euro Qol 5D; EVLA = endovenous laser ablation; GSV= great saphenous vein; HS= high ligation; HRQoL= Health related quality of life; OS= Open Surgery: saphenofemoral ligation+ stripping, +/- perforator ligation+/- tributary phlebectomy; LA = local anesthesia; QALY= Quality Adjusted Life Year ; QoL= quality of life; RFA= radiofrequency ablation; STS= sodium tetradecyl sulphate; USGFS= ultrasound guided foam sclerotherapy; VAS= venous analogical score; VCSS= venous clinical severity score