

Table XI.

<p>Operative procedure</p>	<p>Reference <i>Abstracts corresponding to references can be found using the listing "RCTs by alphabetical order" or "RCTs by topic."</i></p>	<p>Summary</p>
<p>EVLA with different wavelengths</p>	<p>Kabnick LS, Outcome of different endovenous laser wavelengths for great saphenous vein ablation. <i>J Vasc Surg.</i> 2006;43:88-93.</p>	<p>Primary incompetence of GSV in 51 patients Group I (N=30 lower limbs): 810-nm diode laser <i>versus</i> Group II (N=30 lower limbs): 980 nm diode laser, both bare fiber, continuous withdrawal, tumescent anesthesia Results at 4 weeks of follow-up: Both laser wavelengths were effective in treating GSV insufficiency, with no major complications and a paucity of adverse outcomes</p>
<p>HL+ EVLA <i>versus</i> EVLA without HL</p>	<p>Disselhoff BC, der Kinderen DJ, Kelder JC, Moll FL. Randomized clinical trial comparing endovenous laser ablation of the great saphenous vein with and without ligation of the saphenofemoral junction: 2-year results. <i>Eur J Vasc Endovasc Surg.</i> 2008;36:713-18.</p>	<p>Bilateral GSV primary incompetence in 43 patients (86 lower limbs) Group I (N=43) HL+ EVLA on one lower limb <i>versus</i> Group II (N=43) EVLA without HL on the other lower limb 810-nm diode laser, bare fiber, continuous laser withdrawal Anesthesia: general (day case procedure) or local (outpatient procedure) Results at 2 years of follow-up: No difference between groups in terms of groin recurrence and VCSS improvement</p>
	<p>Disselhoff BC, der Kinderen DJ, Kelder JC, Moll FL. Five-year results of a randomised clinical trial of endovenous laser ablation of the great saphenous vein with and without ligation of the saphenofemoral junction. <i>Eur J Vasc Endovasc Surg.</i> 2011;41;685-90.</p>	<p>Bilateral GSV primary incompetence in 43 patients Group I (N=43) HL+EVLA on one lower limb <i>versus</i> Group II (N=43) EVLA without HL on the other lower limb 810-nm diode laser, bare fiber, continuous laser withdrawal Anesthesia: general (day case procedure) or local (outpatient procedure) Results at 5 years of follow-up: Groin recurrence: 65% in group I, 79% in group II (P=0.36) Global recurrence and VCSS :no difference between the 2 groups</p>
<p>EVLA GSV ablation AK <i>versus</i> GSV ablation AK+BK</p>	<p>Theivacumar NS, Dellagrammaticas D, Mavor AID, Gough MJ. Endovenous laser ablation: does standard above-knee great saphenous vein ablation provide optimum results in patients with above-and below-knee reflux.</p>	<p>68 lower limbs C₂-C₆ with GSV primary incompetence 810-nm diode laser, bare fiber, stepwise laser withdrawal AK and BK GSV reflux and BK VV randomized in 3 groups Group I (N=23): AK-EVLA Group II (N=23): AK+BK EVLA</p>

	A randomized controlled trial. <i>J Vasc Surg.</i> 2008;48:173-8.	Group III (N=22): AK-EVLA+BK-FS Local tumescent anesthesia Results at 6 weeks of follow-up: <ul style="list-style-type: none"> · AVVSS: improved similarly in the 3 groups · <i>Complementary sclerotherapy:</i> group I: 61%; group II: 17%; group III: 36% · BK-EVLA was not associated with saphenous nerve injury.
EVLA with and without nitroglycerin	Hogue RS, Schul MW, Dando CF, Erdman BE. The effect of nitroglycerin ointment on great saphenous vein targeted venous access size diameter with endovenous laser treatment. <i>Phlebology.</i> 2008;23:222-26.	GSV primary incompetence 75 patients treated by EVLA. Group I treadmill ambulation Group II nitroglycerin (NTG) ointment Group III NTG ointment + treadmill ambulation GSV diameter measurement at vein access before and after treatment: <ul style="list-style-type: none"> · Group I diameter increase: +2.7% (P=NS) · Group II diameter increase: +51.7%. (P<0.0001) · Group III diameter increase +69% (P<0.0001) <i>Conclusion:</i> pretreatment with topically applied NTG ointment (2%) produced a statistically significant venous dilatation
EVLA with postoperative compression eccentric or not in complement of stocking	Lugli.M, Cogo A, Guerzoni S, Petti A, Maleti O. Effects of eccentric compression by a crossed-tape technique after endovenous laser ablation of the great saphenous vein: a randomized study. <i>Phlebology.</i> 2009;4:151-156. PMID: 19620697	200 consecutive patients were treated by EVLA ablation for GSV insufficiency. Baseline characteristics similar for both groups They were randomized to receive (group A: 100) or not (group B: 100) an eccentric compression applied in the medial aspect of the thigh after EVLA procedure on the GSV without complementary phlebectomy. A 35-mmHg elastic stocking was applied to all treated limbs of both groups. Patients were assessed for a seven-day examination to identify the level of pain experienced. by using a visual analogue scale (0 to 10). Results The intensity of postoperative pain was significantly reduced (P < 0.001) in the eccentric compression group as compared with the non-compression one.
EVLA 980 nm bare-tip fibre versus EVLA 1470 nm radial fibre	Doganci S, Demirkilic U. Comparison of 980 nm Laser and Bare-tip fibre with 1470 nm Laser and radial Fibre in the treatment of great Saphenous vein varicosities: A prospective randomized controlled trial. <i>Eur J Vasc Endovasc Surg.</i> 2010;40:254-9.	GSV primary incompetence in 106 lower limbs Intravenous sedation Group I: EVLA 980 nm bare-tip fibre versus Group II: EVLA 1470 nm radial fibre Results at 1-6 months of follow-up: Less post-operative pain and better VCSS scores in group II compared with group I.
EVLA 1470nm Warm	Pannier F, Rabe E, Maurins U. 1470 nm diode laser for endovenous ablation (EVLA) of incompetent saphenous veins – a prospective	GSV primary incompetence in 85 lower limbs Group I (N=42): warm tumescence anesthesia = 37 C° Group II (N=43): cold tumescence anesthesia

<p><i>versus</i> cold tumescence anesthesia</p>	<p>randomized pilot study comparing warm and cold tumescence anesthesia. <i>Vasa</i>. 2010;39:249-55.</p>	<p>= 5 C° Results at 1 month of follow-up:</p> <ul style="list-style-type: none"> · No difference between groups in terms of occlusion · Postoperative pain reduction in group II · Significant reduction of analgesic intake in group II
	<p>Dumantepe M, Uyar I. Comparing cold and warm tumescent anesthesia for pain perception during and after the endovenous ablation procedure with 1470nm diode laser. <i>Phlebology</i>. 2015;30:45- 51.</p>	<p>GSV primary incompetence in 101 patients Group I (N=51): warm tumescence anesthesia = 24 C° Group II (N=50): cold tumescence anesthesia = 8 C° Results at 1 week of follow-up:</p> <ul style="list-style-type: none"> · No difference between groups in terms of occlusion (100%) · Pain intensity on VAS: 3 in group I and 1 in group II · Significant reduction of analgesic intake in group II (P<0.05) · Significant reduction of side effects in group II (P<0.001)
<p>EVLA 980 nm <i>versus</i> EVLA 1500nm</p>	<p>Vuylsteke M, De Bo H, Dompe G, Di Crisci D, Abbad, CM, Mordon S. Endovenous laser treatment: is there a clinical difference between using a 1500 nm and a 980 nm diode laser? A multicenter randomised clinical trial. <i>Intern Angiology</i>. 2011;30:327-34.</p>	<p>GSV primary incompetence in 180 lower limbs Local tumescent anesthesia Group I: EVLA 980 nm bare-tip fibre <i>versus</i> Group II: EVLA 1500 nm bare-tip fibre Post-operative results:</p> <ul style="list-style-type: none"> · Less induration in group II (1500 nm) compared with group I (P=0.0002) · Less analgesics intake in group II (1500 nm) compared with group I · Better HRQoL (CIVIQ) in group II (1500 nm) compared with group I (P=0.018) <p>Results at 6 months of follow-up: No difference between groups in terms of occlusion</p>
<p>EVLA Bare Fibre <i>versus</i> Tulip Fibre</p>	<p>Vuylsteke M, Thomis S, Mahieu P, Mordon S, Fourneau I. Endovenous laser ablation of the great saphenous vein using a bare fibre <i>versus</i> a tulip fibre : a randomised clinical trial. <i>Eur J Vasc Endovasc Surg</i>. 2012;44:587-92.</p>	<p>GSV primary incompetence in 174 patients Local tumescent anesthesia +/- general anesthesia Group I (N=87): EVLA 1470nm diode bare fiber <i>versus</i> Group II (N=87): bare fiber +Tulip fibre Complementary phlebectomy in both groups Post-operative results:</p> <ul style="list-style-type: none"> · Less postoperative ecchymosis in group II (Tulip fibre) compared with group I (P<0.001). · Less postoperative pain in group II (Tulip fibre) compared with group I (P<0.001). · Better HRQoL in group II (Tulip fibre) compared with group I (P=0.0023). · But no difference between groups in terms of analgesic intake or patient

		<p>satisfaction</p> <p>Results at 1 year of follow-up: No difference between groups in terms of obliteration rate</p>
<p>EVLA 2 days post-operative compression <i>versus</i> 7 days</p>	<p>Bakker NA, Schieven LW, BruinsRMG, van den Berg M Hissink RJ. Compression Stockings after Endovenous Laser Ablation of the Great Saphenous Vein: A Prospective Randomized Controlled Trial. <i>Eur. J Vasc Endovasc Surg.</i> 2013;46:588-91.</p>	<p>109 patients with incompetent GSV Local tumescent anesthesia Group I: EVLA 810 nm bare-tip fibre + 2 days of postoperative compression therapy (stockings, 35 mm Hg at ankle) Group II: EVLA 810 nm bare-tip fibre + 7 days of postoperative compression therapy (stockings, 35 mm Hg at ankle) Results at 48 hours to 12 weeks of follow-up:</p> <ul style="list-style-type: none"> · <i>Intensity of symptoms on VAS at week 1:</i> better pain reduction in group II compared with group I · <i>HRQoL (SF36) at week 1:</i> better improvement · <i>Vein obliteration:</i> 100 % in both groups · <i>DVT:</i> no occurrence of DVT in neither group
<p>EVLA 12 W intermittent laser withdrawal <i>versus</i> 14W continuous laser withdrawal</p>	<p>Samuel N, Wallace T, Carradice D, Mazari F AK, Chetter C. Comparison of 12-W <i>versus</i> 14-W Endovenous laser ablation in the treatment of great saphenous varicose veins: 5- Year outcomes from a randomized controlled trial. <i>Vascular and Endovascular Surgery.</i> 2013;47:346-52.</p>	<p>Incompetent SFJ, reflux in GSV Local tumescent anesthesia Group I (N=38): laser 810-nm bare fiber; laser power 12 W with 1-second laser pulses at 1-second intervals between pulse Group II (N=38): laser 810-nm bare fiber; laser power 14 W continuous withdrawal 2mm/s. Concomitant phlebectomy and/or Perforator ligation in both groups. Results at 1 week-5 years of follow-up: Significant improvement in both groups in VCSS, pain scores, AVQQ scores, HRQoL scores (SF-36 EQ-5D) compared to preoperative status (P>0.05) Results at 5 years of follow-up: Better long term occlusion in group II compared with group I Recurrence more common in group I compared with group II (P=0.035)</p>
<p>EVLA 940 nm <i>versus</i> EVLA 1470 nm</p>	<p>Malskat WSJ, Giang G, De Maeseneer MGR, Nijsten TEC, van der Bos RR. Randomized clinical trial of 940- versus 1470-nm endovenous laser ablation for great saphenous vein incompetence. <i>Br J Surg.</i> 2015. DOI: 10.1002/bjs.10035</p>	<p>142 consecutive lower limbs with GSV incompetence treated by EVLA in an outpatient setting. Group I (N=70): laser 940-nm <i>versus</i> Group II (N72): laser 1470-nm In both groups:</p> <ul style="list-style-type: none"> · local tumescent anesthesia · Tulip-tip fibre and concomitant phlebectomy <p>Results at 1-52 weeks of follow-up:</p> <ul style="list-style-type: none"> · <i>Pain score at 1 week (VAS)</i> Less pain in group II (P=0.0004) · <i>Duration of analgesia</i> Shorter in group II (P=0.037) · <i>Post-operative complications</i> Same in both groups except for superficial thrombophlebitis that was higher in

		<p>group II. (P=0.05)</p> <ul style="list-style-type: none"> · <i>HRQoI</i> and VCSS at 12 weeks No difference between the 2 groups · <i>Vein occlusion at 52 weeks</i> No difference between the 2 groups
<p>EVLA 980 nm bare-Tip fiber <i>versus</i> EVLA 1470 nm Radial 2 ring</p>	<p>Hirokawa, M, Ogawa T, PhD, Sugawara H, Shokoku S, and Sato S. Comparison of 1470 nm Laser and Radial 2ring Fiber with 980 nm Laser and Bare-Tip Fiber in Endovenous Laser Ablation of Saphenous Varicose Veins: A Multicenter, Prospective, Randomized, Non-Blind Study. <i>Ann Vasc Dis.</i> 2015;8:282-289.</p>	<p>113 LL with GSV or SSV incompetence CEAP C2-C4a Group I (N=56): laser 980-nm bare type fiber <i>versus</i> Group II (N= 57): laser 1470-nm Radial 2ring In both groups: local tumescent anesthesia Postoperative compression Results at 1 day- 12 weeks of follow-up Occlusion rates at 12 weeks were 100% in both groups. Rates of pain (0% vs. 25.0%) and bruising (7.0% vs. 57.1%) were significantly lower in Group II (p <0.0001). VAS of pain was significantly lower on postoperative day 1, day 5 and 2nd week in Group II.</p>
<p>EVLA with tumescent anesthesia Bupivacaine <i>versus</i> Lidocaine <i>versus</i> Prilocaine</p>	<p>Gunes T, Altin F, Kutas B, Aydin S, Erkoc K, Eygi B et al. Less painful tumescent solution for patient undergoing endovenous laser ablation of the saphenous vein. <i>Ann of Vasc Surg</i> 2015;29:1123-27</p>	<p>90 patients with primary incompetence of GSV treated by EVLA+ tributary phlebectomy under local anesthesia Group I Lidocaine Group II Prilocaine Group III Bupivacaine Results: intra operatively and 1 day post operatively pain Less pain with Bupivacaine compared to others for both pain evaluation P<0.0001</p>
<p>EVLA 1470-nm <i>versus</i> EVLA 1920-nm</p>	<p>Mendes-Pinto D, Bastianetto P, Cavalcanti Braga Lyra L, Kikuchi R, Kabnick L. Endovenous laser ablation of the great saphenous vein Comparing 1920-nm and 1470-nm diode laser. <i>Int Angiology</i> 2016.;35:599-604</p>	<p>67 patients (90 extremities) with primary incompetence of GSV under spinal and local tumescent anesthesia Group I (42 extremities) EVLA 1470-nm. Power 10 watt. Continuous mode Group II (48 extremities) EVLA 1920-nm. Power 5 watt. Continuous mode Follow-up at 7-day, 30-day, 3-month, 6-month 1year: RESULTS Clinical evaluation VCSS US: measurement of occlusion length Group II: less ecchymosis P<0.01, induration P <0.01, day analgesic use P =NS VCSS no difference between group I and II Closure rate lower at 1-year in group II. P=0.05</p>
<p>EVLA completed with delayed or concomitant phlebectomy</p>	<p>Carradice D, Mekako AI, Hatfield J, Chetter IC. Randomized clinical trial of concomitant or sequential phlebectomy after endovenous laser therapy for varicose veins. <i>Br J Surg.</i> 2009;96:369-375.</p>	<p>50 patients with primary incompetence of GSV treated by EVLA+ tributary phlebectomy under local anesthesia Group I (N=25): delayed phlebectomy <i>versus</i> Group II (N=25): concomitant phlebectomy Follow-up at 1year: · <i>Procedure duration:</i> longer in group II</p>

		<p>(median 65 min) compared with group I (median 45 min); P=0.002</p> <ul style="list-style-type: none"> · <i>Pain scores and recovery times</i>: no difference between the 2 groups · <i>HRQoL, severity score (AVVQ, VCSS) at 6 weeks</i>: lower AVQQ score in group II compared to group I; P<0.001 · <i>HRQoL, severity score (AVVQ, VCSS) at 12 weeks</i>: lower AVQQ and VCSS in group II compared to group I; P=0.015 and P<0.001 respectively. · <i>Requirement for secondary</i>
	<p>El-Sheika J, Nandrah S, Carradice D, Wallace T, Samuel N, Smith GE et al. Clinical outcomes and quality of life 5 years after a randomized trial of concomitant or sequential phlebectomy following endovenous laser ablation for varicose veins. <i>Br J Surg.</i> 2014;101:1093-1097.</p>	<p>50 patients with primary incompetence of GSV treated by EVLA+ tributary phlebectomy under local anesthesia</p> <p>Group I (N=25): delayed phlebectomy <i>versus</i> Group II (N=25): concomitant phlebectomy</p> <p>Results at 1 to 5 years of follow-up:</p> <ul style="list-style-type: none"> · <i>HRQoL, severity score (AVVQ, VCSS)</i>: no difference between the 2 groups` · <i>Secondary procedure at 1 year</i>: rate of redo surgery · equivalent between group I=3 and group II=4. <p><i>Secondary procedure at 5 years</i>: group I= 19/23, and group II=5/25</p>
<p>EVLA with and without postoperative compression in C2 patients</p>	<p>Ye K, Wang R, Qin J, Yang X, Yin M, Liu X, Jiang M. Post-operative Benefit of Compression Therapy after Endovenous Laser Ablation for Uncomplicated Varicose Veins: A Randomized Clinical Trial. <i>EJVES</i> 201652, (6):847–853. DOI: http://dx.doi.org/10.1016/j.ejvs.2016.09.005</p>	<p>400 C2 patients with primary incompetence of GSV treated by HL +EVLA 810 nm continuous withdrawal for GSV+ Laser on tributary by multiple punctures. Elastic bandage on the operating table left for one night</p> <p>Group I (N=200): No compression Group II (N=200t) high elastic compression, 23-32 mmHg at ankle for 2 W</p> <p>Follow-up 2 weeks</p> <p><i>First week</i></p> <p>Group II</p> <ul style="list-style-type: none"> · less pain P<0.001 · less edema P=0.01 <p><i>After one week</i></p> <p>No difference in terms of HRQoL and mean time to return to work.</p>

Abbreviations:

AK= above knee AVVQ= Aberdeen varicose vein questionnaire; AVVSS= Aberdeen varicose vein severity score ;BK= below knee; BK-FS= below knee foam sclerotherapy; DVT=deep venous thrombosis ;EQ-50 Euroqol; EVLA = endovenous laser ablation; GSV =great saphenous vein; HL= High ligation ,HRQoL=health-related quality of life, NTG, nitroglycerin, SF -36= shortform 36 items, US=ultra sound;VAS= Visual analogue Scale; VCSS= venous clinical severity score; W=watt