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Endovenous 1470 nm laser treatment of the saphenous vein: early report of pain assessment.

[Can Caliskan K](#), [Cakmakci E](#), [Celebi I](#), [Basak M](#).

Source

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Abstract

AIM:

The aim of the paper was to evaluate the rate of postoperative pain by using endovenous laser ablation with wave-length of 1470 nm for incompetent saphenous veins in our single center experience.

METHODS:

A non-randomized prospective trial was performed. Patients with symptomatic varicose small saphenous vein and great saphenous vein were considered suitable for endovenous laser ablation. The VenaCure EVLT™ (Angiodynamics, Queensbury, NY) generator was used to provide laser energy (1470 nm emission wavelength). Pain was assessed on the 7th days, 1st months, 3rd months, and 6th months using a visual analog scale rating of 0 cm (no pain) to 10 cm (worst imaginable pain).

RESULTS:

Of the 30 patients who eventually underwent endovenous laser ablation, 14 underwent bilateral treatment. Totally, 44 treated legs were scored. When questioned by using a visual analog scale pain score of 0-10, patients, on average, graded their pain 3.86 ± 1.04 at admission, 2.83 ± 0.91 at 1 week, 1.46 ± 0.63 at 1 month, 0.63 ± 0.49 at 3 months, and 0.07 ± 0.25 at 6 months. **No major complication occurred, and there was no deep venous thrombosis or pulmonary embolism nor skin ulceration.**

CONCLUSION:

Endovenous laser ablation for chronic venous insufficiency with a 1470-nm diode laser appears to be effective and safe. The procedure is simple to perform, well accepted by patients and relatively atraumatic.

1470 nm diode laser for endovenous ablation (EVLA) of incompetent saphenous veins - a prospective randomized pilot study comparing warm and cold tumescence anaesthesia.

[Pannier F](#), [Rabe E](#), [Maurins U](#).

Source

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Abstract

BACKGROUND:

Major side effects after endovenous laser ablation (EVLA) are pain and bruising. Low temperature of the tumescence fluid might cause additional venous constriction and a cooling effect around the vein. The aim of this study was to show outcome and side effects after EVLA of incompetent great saphenous veins (GSV) with a 1470 nm Diode laser (Ceralas E, biolitec) using cold or warm tumescence fluid for anaesthesia.

PATIENTS AND METHODS:

Between August and November 2007, 85 consecutive patients (85 legs) with an incompetent GSV were treated by EVLA. The patients were randomized in two groups. In 42 patients (Group A) a warm (37 degrees C) and in 43 patients (Group B) a cold (5 degrees C) tumescence fluid (TF) was used for local anaesthesia in the track of GSV. All patients were re-examined after 1, 10 and 30 days clinically and by duplex for complications and occlusion in the treated vein segment. Patient's satisfaction was assessed on a 0 to 4 points scale.

RESULTS:

In each group one patient was lost to follow-up. There was no significant difference concerning gender, age, C of CEAP, BMI or diameter of the treated vein. In Group A a mean of 462 ml TF and in Group B a mean of 428 ml TF were used. In Group A the mean LEED (average linear endovenous energy density) was 114 J / cm and in Group B 115 J / cm. In both groups occlusion of the treated veins was achieved for all patients. The diameter of the GSV at 3 cm below the sapheno-femoral junction shrunk from 1.0 to 0.7 cm in both groups. The modified CEAP clinical score improved in Group A from 2.9 to 0.7 (mean value) and in Group B from 3.0 to 1.1. The mean pain score on a scale from 0 to 4 during day 2 to day 10 was 1.2 in Group A and 1.0 in Group B. At this time patients in Group A took a mean of 3.4 and in Group B 1.7 analgetic tablets. Ecchymoses were rare in both groups (4 in Group A, 7 in Group B).

CONCLUSIONS:

In this prospective randomized comparative study the temperature of the tumescence fluid did not influence the occlusion rate when a high LEED was used. In both groups pain and ecchymoses are less frequent in this study with a 1470 nm diode laser than reported in studies with 810-980 nm systems. Cold tumescence fluid reduced pain slightly and reduced the intake of analgetics significantly.

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Does laser power influence the results of endovenous laser ablation (EVLA) of incompetent saphenous veins with the 1 470-nm diode laser? A prospective randomized study comparing 15 and 25 W.

[Maurins U](#), [Rabe E](#), [Pannier F](#).

Source

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Abstract

AIM:

Major side effects after endovenous laser ablation (EVLA) are pain and bruising. The aim of this study was to compare outcome and side effects after EVLA of incompetent great saphenous veins (GSV) with a 1 470 nm diode laser (Ceralas E, biolitec) using a power of 15 or 25 W.

METHODS:

Between 28 November 2007 and 15 January 2008, 40 consecutive patients (40 legs) with an incompetent GSV were treated by EVLA. The patients were randomized in two groups. In Group A (20 patients) was used a 15-W-power laser and in Group B (20 patients) a 25-W-power laser was used. All patients were re-examined after 1, 10 and 30 days clinically and by Duplex for complications and occlusion in the treated vein segment in a standardized way.

RESULTS:

There was no significant difference concerning gender, age, C of CEAP, body mass index or diameter of the treated vein. In Group A a mean of 465 mL tumescence fluid (TF) was used and in Group B TF was of 433 mL. In Group A the mean linear endovenous energy density (LEED) was 109.7 J/cm and in Group B 132.6 J/cm. The subgroup Bsub included 16 patients of Group B with a comparable mean LEED of 115.8 J/cm. In all groups occlusion of the treated veins was achieved for all patients. The diameter of the GSV reduced at 3 cm below the sapheno-femoral junction from 1.1 to 0.6 cm, 1.0 to 0.6 cm and 0.9 to 0.6 cm respectively in the three groups. The modified CEAP clinical score improved significantly in all groups. In Group A patients have been administered analgesic tablets for a shorter period. There was also a trend to less postinterventional pain and analgesic use in Group A, but it was not significant. Ecchymosis was rare in both groups (8 in Group A, 7 in Group B).

CONCLUSIONS:

In this prospective randomized comparative study the power of the laser did not influence the occlusion rate when a high LEED with comparable values was used. In both groups pain and ecchymoses were less frequent in this study with a 1 470 nm diode laser than reported in studies with 810-980 nm systems. A lower power level significantly reduced use of analgesic tablets.

Endovenous laser ablation of great saphenous veins using a 1470 nm diode laser and the radial fibre--follow-up after six months.

[Pannier F](#), [Rabe E](#), [Rits J](#), [Kadiss A](#), [Maurins U](#).

Source

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Abstract

BACKGROUND:

Endovenous laser ablation (EVLA) is an efficient method to treat insufficient great saphenous veins (GSV) with high occlusion rates. Most studies used 810, 940 or 980 nm diode lasers and a bare fibre. Moderate postoperative pain and bruising are frequent findings. Laser systems with higher wavelengths like 1470 nm with a higher absorption in water show less pain and bruising after the procedure. A newly-developed fibre (radial fibre, Biolitec) emits the laser energy radially around the tip directly into the venous wall contrary to the bare fibre.⁽⁹⁾ The aim of this study was to demonstrate the outcome and side-effects after EVLA of GSV with a 1470 nm diode laser (Ceralas E, Biolitec) by using the radial fibre.

METHODS:

Non-randomized, prospective study including 50 unselected limbs of 50 patients with a duplex sonographically verified incompetent GSV. EVLA was performed with a 1470 nm diode laser (Ceralas E, Biolitec) and a radial fibre. In the same session all insufficient tributaries were treated by phlebectomy. Tumescence local anaesthesia with 0.05% lidocaine was applied perivenously. Laser treatment was carried out in a continuous mode with a power of 15 W. Compression stockings (30 mmHg) were applied for one month. Postinterventional checkups took place one, 10, 30 days and six months after the procedure.

RESULTS:

Three patients were lost to follow-up. The average linear endovenous energy density (LEED) was 90.8 J/cm vein (SD 35.3). At the six month follow-up all treated veins remained occluded and no new reflux in the treated segments occurred. No recurrent varicose veins had occurred so far. No severe complications such as deep venous thrombosis could be detected. In four patients at 30 days and three patients at six months local paresthesia occurred in the region of EVLA. **Forty-four percent of patients did not have any pain after the treatment and 50% did not take any analgesic tablets at any time after the procedure.** Postoperative ecchymoses in the track of the treated GSV was rare. In 80% of the limbs, no ecchymoses was observed after the treatment.

CONCLUSION:

EVLA of GSV with a radially emitting laser fibre by using a 1470 nm diode laser is a safe and efficient treatment option.