

Preliminary results of the Lyra Long Pulsed Nd:YAG Laser Treatment of Leg Veins

Abstract of the Presentation by Dr. Brian Zelickson at the ISCLS in May 2000

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Objective

The objective of the study was to compare the efficacy and side effects of the long pulsed Nd:YAG 1064nm laser and sclerotherapy in the treatment of red, blue and purple leg veins between 0.5mm and 3.5mm in diameter.

The rationale behind this study was to research any benefits of a long pulsed Nd:YAG laser and evaluate its potential in the treatment of deeper leg veins. Long pulsed Nd:YAG was chosen for four reasons: a) Nd:YAG wavelength is well absorbed in blood cells – thus it can be used for vascular lesions; b) Longer wavelength provides deeper tissue and vessel penetration – thus it can attack deeper and larger vessels; c) Nd:YAG wavelength is less absorbed in melanin than other wavelengths – thus no energy could be lost in the epidermis and it would be safe on various skin types; d) Nd:YAG lasers are solid state lasers that are reliable and easy to manufacture.

Methods

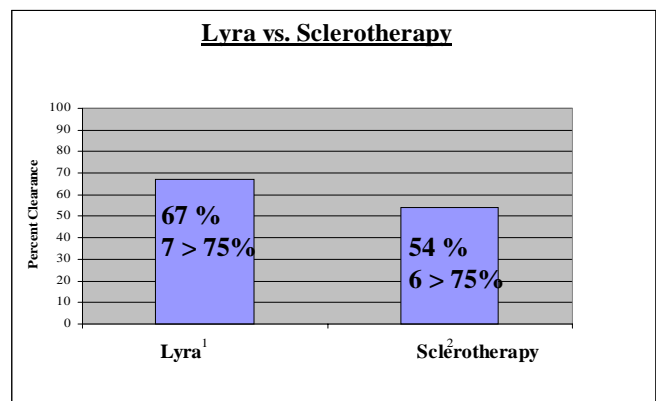
The study was performed on 20 patients with skin types between II and IV. Patients with large varicosities or perforators were excluded from the study. The laser system used in this study was Lyra (Laserscope, San Jose, CA) and the sclerosant was *Sotradecol*® (*Sodium Tetradecyl Sulfate Injection*).

All patients were treated one to two times with 6 weeks between the treatments. One

leg was treated with the laser and another with sclerotherapy. The sides were chosen randomly.

Results

The preliminary results of 14 patients are represented on the following chart. Four months following the treatments the results were as follows: there was an average of 67% improvement on the laser side with 7 patients exhibiting over 75% clearance. The same patients responded to sclerotherapy with the average of 54% improvement with 6 patients exhibiting over 75% clearance.



14 Subjects four months following last treatment

All subjects were evaluated for side effects. On the laser side, 2 subjects exhibited matting, 1 subject experienced persistent erythema and 8 subjects had pain during treatment. On the sclerotherapy side, 5 subjects developed post-

inflammatory hyperpigmentation, 2 subjects exhibited matting and 2 subjects experienced delayed pain, which lasted several days after treatment.



Before the laser treatment



12 weeks after the laser treatment the patient developed matting

There is a number of long pulsed Nd:YAG systems in the market including:

System	Mnfg	J/cm2	Msec	Spot (mm)	Cooling
Vasculight	ESC/ Sharplan	125	Up to 16	6	Contact
Lyra	Laserscope	200	10-100	1.5, 3, 5	Contact
Varia	Laser Aesthetics	100	20-200	5	DCD
CoolGlide	Altus	100	20-100	10	Contact

As seen from the above table, each system has its own unique combination of spot size, pulse duration, fluence and cooling.

Establishing the right combination for the treatment of leg veins is an important factor in achieving successful treatment.

Summary

In the summary of the preliminary evaluation of the Lyra long pulsed Nd:YAG laser treatment of leg veins, we can see that possibly we have a challenge to the gold standard of leg vein treatment – sclerotherapy. Since not all systems are created equal, it's important to remember that high fluences, long pulses and aggressive cooling is required for this treatment. Additionally, topical anesthesia is important as derived from our experience.

The preliminary investigation showed that the Lyra long pulse Nd:YAG laser produces comparatively greater clearance and less side effects than sclerotherapy. Additional blinded investigator assessment is required for the final conclusion.



Before the laser treatment



12 weeks after the laser treatment