Response to Letter to the Editor re: Outcome of Endovenous Laser Therapy for Saphenous Reflux and Varicose Veins: Medium-Term Results Assessed by Ultrasound

Drs. Ghosh and Baguneid agree with our conclusion that "It may well be that success rates will improve with increasing power...", although multivariate analysis showed no relation between power and outcome. However, the references quoted provide little assistance. Mordon et al. studied a mechanical model and reported that "for a 3 mm vein diameter... for 10 W and 2 mm/s pullback speed... a minimum of 100 J/cm..." and that "for a 5 mm vein diameter... for 15 W and 2 mm/s pullback speed... a minimum of 150 J/cm..." is required to damage the vessel wall. Theivacumar et al. reported median energy density of 48 J cm⁻¹ in limbs with complete occlusion and 37 J cm⁻¹ in those with partial occlusion; it is unlikely that these would differ significantly from the median 44 J cm⁻¹ reported in our study. The techniques in both references differed from ours and, therefore, comparisons cannot be made.

Prince et al. reported no difference for early re-canalisation rates for energy ranging from <60 J cm⁻¹ to >100 J cm⁻¹, whereas Vuylsteke et al. reported a significantly higher mean fluence for veins that remained occluded than for those that failed early. Proebstle et al. reported that low fluence increased risk for early failure, and that patients treated with 30 W had better medium-term results than for those treated with 15 W. These studies also used techniques other than those used in our report.

The effect of laser energy is dependent on wavelength, power, probe-withdrawal rate and whether energy is continuous or pulsed. Commercial systems use wavelengths from 810 nm to 1500 nm. Planck’s formula indicates that energy is proportional to frequency so that higher wavelengths require more exposure time. Published reports use either continuous or pulsed power at various levels to 15 W. We agree with Ghosh and Baguneid that determining best protocols to provide highest long-term occlusion rates with least patient discomfort requires randomisation for these variables with long-term surveillance, and we thank them for stimulating discussions.

References


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Plaque Biology, Realizing the Clinical Potential

In their carotid masterclass, Loftus and Thompson address the question if plaque biology is interesting science or a pharmacological treasure trove, concluding that it is more of the former than the latter.

Recent data suggest that carotid plaque phenotype in fact may be the major independent determinant of the degree of benefit of carotid endarterectomy. Carotid plaque composition is closely related to clinical presentation, gender, age, and time interval between most recent ischemic symptoms and CEA. We think it is no coincidence that these clinical characteristics are also the major determinants of CEA benefit, because they are all associated with plaque composition that is thought to portray an increased stroke risk if untreated, i.e. an inflamed plaque with a large lipid pool and a thin fibrous cap.

There is strong accumulating evidence from descriptive and now also longitudinal studies that specific plaque composition is related with adverse outcome following CEA. Recently the Athero-Express study reported that plaque composition is a strong independent predictor of restenosis following CEA.

Considering these recent data, we feel the question should not be if plaque composition is relevant, but rather how soon we will be able to include measurements of plaque composition in decision making in clinical practice.
References


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