

Title	Endovenous ablation interventions for symptomatic varicose veins of the legs
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Aim

To assess the safety, effectiveness, cost, and cost-effectiveness of endovenous laser ablation (EVLA) and radiofrequency ablation (RFA), compared with conventional open surgery, for treating symptomatic varicose leg veins due to greater saphenous vein (GSV) reflux in working-age patients.

A social and system demographic analysis was also conducted.

Conclusions and results

Safety and efficacy/effectiveness
According to evidence (mainly short-term data from randomized controlled trials) synthesized by three good quality, recently published systematic reviews, EVLA and RFA were associated with lower rates of wound infection and hematoma, less post-procedural pain, better symptomatic relief, improved early quality of life, and faster recovery and return to normal activities/work than surgery up to 1 month after treatment. Also, these techniques were at least as effective as surgery in terms of venous occlusion, recanalization, and neovascularization in the short- to medium-term. Recurrence rates were similar for EVLA, RFA, and surgery up to 2 years' follow-up. Although RFA was slightly better tolerated by patients than EVLA, it had a significantly higher risk of superficial thrombophlebitis than conventional surgery.

Economic outcomes
While the cost of EVLA and surgery was similar, the cost for RFA was approximately CND 274 more per procedure than for surgery. Therefore, EVLA and surgery are equivalent from a cost-effectiveness perspective, whereas RFA costs more to produce equivalent patient outcomes. In Alberta, the total number of patients requiring EVLA and RFA annually is 1,696, which would result in a budget impact of approximately C\$4,062,912 for EVLA and C\$4,532,704 for RFA per year.

Recommendations

EVLA and RFA were as safe and effective as conventional open surgery (high ligation and stripping) and may provide a viable alternative for adults with symptomatic varicose leg veins due to GSV reflux. However, it is still too early to ascertain the durability of the benefits provided by EVLA or RFA for this indication.

EVLA and surgery are equivalent from a cost-effectiveness perspective, with EVLA having the advantage of being less invasive. RFA costs more to produce the same patient outcomes and is, therefore, not cost-effective compared with conventional open surgery.

Methods

Comprehensive searches of various electronic databases were conducted to identify relevant systematic reviews published in English between January 2007 and November 2012. A grey literature search was also conducted. Studies were selected by one reviewer; data extraction was performed by one reviewer and verified by another. The methodological quality of the selected studies was appraised independently by two reviewers. The data were synthesized qualitatively. Cost-effectiveness was addressed through a systematic review of economic studies and an economic evaluation using a decision analytic model.

Further research/reviews required

Further research is warranted to conclusively determine which of the EVLA and RFA devices and techniques should be offered as a minimally invasive alternative to conventional open surgery for each type of venous reflux. In particular, it is unclear which of the EVLA or RFA devices available in Canada are best for treating GSV reflux. There is also a lack of data on the long-term clinical effects of EVLA and RFA for GSV reflux, and there were no comparative studies addressing the use of EVLA or RFA for treating venous reflux in other leg veins.

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