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Original article

Liquid versus foam sclerotherapy.

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Abstract:

Objectives: A systematic review to compare efficacy and safety of foam (F) sclerotherapy versus liquid (L) sclerotherapy for primary varicose veins of the lower limbs.
Methods: Systematic searches of electronic databases were conducted in April 2009 to identify relevant published studies. Database searches were augmented with abstracts from conference proceedings and electronic and hand searching of journals not consistently indexed in the major databases.
Results: For treatment of saphenous veins, six trials (four randomized controlled trials) were considered. Despite containing much less sclerosing agent, F was markedly more effective compared with L, the difference being put at between 20 and 50%. Four studies were included in a meta-analysis showing efficacy of F at 76.8% (95% confidence interval [CI] 71-82) versus L at 39.5% (95% CI 33-46), 2 = 60.9740 ; P 0.0001.
For reticular veins and telangiectases, only two comparative trials were found and do not at present provide any conclusive evidence to support the superiority of efficacy of one form over the other.
Statistically, the side-effects reported in all the available comparative trials do not differ between F and L forms, even if visual disturbances seem to be more common with F.
Conclusion: In the treatment of varices of the lower limbs, F shows much greater efficacy compared to L. Concerning the side effects, no statistical significant differences were found between L and F.

Keywords: foam sclerotherapy, liquid sclerotherapy, varicose veins, varices, saphenous vein.

Original article

Foam sclerotherapy techniques: different gases and methods of preparation, catheter versus direct injection.

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Abstract:

Introduction: Foam sclerotherapy has gained a great popularity among phlebologists worldwide, although a major lack of homogeneity in the material used to produce sclerosant foam (SF) and to inject SF has been reported.
Aims: To highlight the literature data and a few personal clinical and experimental outcomes concerning the main variables in SF production and injection.
Methods: A review of the published literature and of our own 12 year clinical and experimental experience has been undertaken in order to focus on a few variables of the material and methods used to produce SF with Tessari method and to inject SF.
Results: In SF production, differences in gas components, liquid to gas ratio, as well in disposable material can variably influence the resulting SF. Similarly SF injection through ultrasound guidance, with needle, or with short/long catheter may exhibit different foam behaviours according to the variable material and techniques which are employed. More recently the introduction of long catheters, possibly together with hook phlebectomy, seems to potentiate the short-mid term outcomes of foam sclerotherapy.
Conclusion: SF formation is greatly influenced by the choice of the gas component, the liquid-to-gas ratio, the type of syringes; also larger needles are to be preferred for injection of SF, while long catheters seem to represent a valid alternative especially when combined with tumescence to minimise saphenous diameter.

Keywords: foam sclerotherapy, ultrasound-guided sclerotherapy.

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Original article

Foam sclerotherapy: cardiac and cerebral monitoring.

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Abstract:

Objectives: To investigate and review collected and reported transcutaneous ultrasound, transthoracic echocardiography (TTE) and transcranial Doppler (TCD) data obtained during ultrasound-guided foam sclerotherapy (USGFS) of incompetent saphenous, tributary and perforating veins of the lower extremities.
Methods: TTE and/or middle cerebral artery TCD were performed during USGFS. Ultrasound (US) findings and adverse events were recorded. Existing literature was reviewed.
Results: Ultrasound detected emboli circulating in superficial, perforating, communicating and deep veins and into the central circulation. TTE detected bright echoes in the right heart after every injection and in the left heart in up to 65% of selected patients. TCD high-intensity transient signals (HITS) were detected in 14-42% of the patients. Incidence of HITS was higher than patient reports of adverse events. Incidence of HITS was independent of foam volumes injected.
Conclusion: Echogenic signals were detected in non-treated veins, in heart chambers and in the cerebral circulation by transcutaneous US, TTE and TCD. Pathological consequences of such findings remain to be investigated.

Keywords: foam sclerotherapy, cerebral emboli.

Original article

Sclerotherapy and foam sclerotherapy for varicose veins.

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Abstract:

Objectives: To review published evidence concerning treatment of varicose veins using ultrasound-guided foam sclerotherapy (UGFS) to assess the safety and efficacy of this treatment.
Methods: Medical literature databases including MedLine, Embase and DH-DATA were searched for recent literature concerning UGFS. Papers describing the early results and later outcome have been assessed and their main findings were included in this summary.
Results: Few randomized studies have been published in this field and much of the available data come from clinical series reported by individual clinicians. It is clear that foam sclerotherapy is far more effective than liquid sclerotherapy and that ultrasound imaging allows the treatment to be delivered accurately to affected veins. There is evidence that 3% polidocanol foam is no more effective than 1 % polidocanol foam. The optimum ratio of gas to liquid is 4 : 1, although a range of ratios is reported in the published work. There is a wide variation in the volume used as well as the method by which it is injected. The use of carbon dioxide foam reduces the systemic complications, particularly visual disturbance, as compared with air foams. Very few serious adverse events have been reported in the literature despite the widespread use of this method. Rates of recanalization of saphenous trunks following UGFS are similar to those observed after endovenous laser and endovenous RF ablation of veins, as well as the residual incompetence after surgical treatment.
Conclusion: UGFS is a safe and effective method of treating varicose veins. The relative advantages or disadvantages of this treatment in the longer term have yet to be published.

Keywords: varicose veins, foam sclerotherapy, duplex ultrasound imaging, treatment outcome, complications.

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Original article

Complications and side-effects of foam sclerotherapy.

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Abstract:

Aims: To describe and report incidence and frequency of side-effects and complications of sclerotherapy with foamed sclerosing agents. To explain, when possible, their pathophysiology and to indicate possible manoeuvres and techniques to limit them.
Methods: Review of current literature and personal research.
Results: Complications of foam sclerotherapy include complications of sclerotherapy in general and specific complications of foamed sclerosing agents. Side-effects related to the sclerosing compounds are also taken into account.
Conclusion: Complications and side-effects of careful foam sclerotherapy remain uncommon. However, more research is needed to understand them better and to further reduce their incidence. Their description to patients in the course of the informed consent is a prerequisite to any sclerosing treatment.

Keywords: sclerotherapy, foam, complications.

Original article

Evaluation of published reports of foam sclerotherapy: what do we know conclusively?

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Abstract:

Objectives: The aim was to evaluate the published literature to assess what is conclusively known about optimal technique and outcome for foam sclerotherapy.
Methods: A literature search was performed for randomised controlled trials, meta-analyses and observational studies using appropriate statistical techniques with survival analysis for long-term outcome.
Results: Foam is more effective than liquid for ultrasound-guided sclerotherapy. Both sclerosants commonly used are equally effective for sclerotherapy for small veins. Ultrasound signals appear in the systemic circulation in most patients after foam sclerotherapy but do not appear to be associated with serious complications.
Conclusion: Little else is known about the optimal preparation of foamed sclerosants and the best technique for administering foam for sclerotherapy. Long-term studies are required to determine outcome for various techniques. There is an opportunity for many controlled trials to assess results.

Keywords: foam sclerotherapy, varicose, veins, reticular, telangiectases.