When to use which technology?

Considerations based on clinical and preclinical insights

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Disclosure

Speaker name: Michael Kendler

I have the following potential conflicts of interest to report:

- [ ] Consulting
- [ ] Employment in industry
- [ ] Stockholder of a healthcare company
- [ ] Owner of a healthcare company
- [ ] Other(s)

- [x] I do not have any potential conflict of interest
Aim GSV / SSV treatment

C 4

6 week post intervention
Ultrasound competence

Topographic Anatomy
- vein, artery, nerve
- large/ small diameter
- groin neovascularisation
- recanalisation
- trabeculation
- which method?
- what to do

Procedure monitoring
- access
- tumescent for displacing surrounding structures
- documentation

- Measurement of Results (symptomatic ?)
- Follow up of complications

Procedure monitoring
Preclinical insights Foam
Preclinical insights - Foam

Contact of the sclerosant with endothelium

Denudation of endothelial layer

Thrombosis facilitates acute closure

Fibrosis and permanent closure
Significant endothelin release in patients treated with foam sclerotherapy.

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Abstract

BACKGROUND: Foam sclerotherapy has been proven to be a safe and effective treatment for superficial venous insufficiency, but transient visual and neurologic disturbances continue to be reported. These side effects have been theorized to be related to the presence of air or gases in the sclerosing foam that results in "bubble" migration into the cerebral circulation. We present a differing hypothesis that significant amounts of endothelin are released from the treated veins, amounts capable of causing these complications.

MATERIAL AND METHODS: We tested the release of endothelin 1 (ET-1) in 12 rats after sclerotherapy with sodium tetradeyl sulfate (STS) in liquid and foam preparations. In 11 human subjects, we measured ET-1 in systemic circulation and in a draining vein after foam sclerotherapy with polidocanol.

RESULTS: Rats treated with STS showed a significant increase in ET-1 levels 1 and 5 minutes after foam sclerotherapy. Patients treated with foam sclerotherapy showed a marked increase in ET-1 levels that correlated significantly with local ET-1 levels.

CONCLUSIONS: Evidence of ET-1 release represents a plausible relationship explaining neurologic and visual disturbances reported after sclerotherapy.

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Related citations
Preclinical insights - Mechanochemical
Preclinical insights - Mechanochemical

Incomplete denutation of endothelial layer

Contact of the sclerosant with resting endothelium

Thrombosis facilitates acute closure

Fibrosis and permanent closure
Preclinical insights - Mechanochemical

Endothelin 1 release before, during, after 1) CV and 2) Surgery

Endothelin 1 release is in normal range before, during, after mechanochemical treatment
Preclinical insights - n-butyl cyanoacrylate
Preclinical insights - n-butyl cyanoacrylate

Contact of n-butyl cyanoacrylate with endothelium

Polymerization facilitates acute closure

Granulomatous foreign body reaction + fibrosis permanent closure
Surgery
Thermal-based techniques (EVLA, RF, H20)

Chemical-based techniques (liquid, foam, n-butyl cyanoacrylate)

Phlebotomy

Conservative
When to use which technology?

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