# CYANOACRYLATE CLOSURE TREATMENT : WHAT IS THE FUTURE?


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# DISCLOSURE

- SERVIER
- MEDTRONIC

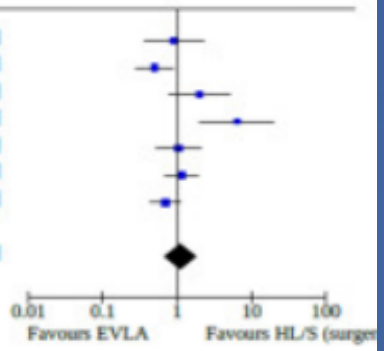
# Comparison between EVTA and open surgery

- Modern surgery under tumescent anaesthesia
- Use of ultrasound guidance
- 5 yr results comparable to EVTA

**Analysis 6.4. Comparison 6: Endovenous laser ablation versus SFJ ligation and stripping (HL/S, surgery), Outcome 4: Long-term recurrence > 5 years**

| Study or Subgroup | EVLA Events | EVLA Total | HL/S (surgery) Events | HL/S (surgery) Total | Weight | Odds Ratio M-H, Random, 95% CI |
|---|---|---|---|---|---|---|
| Flessenkämper 2013 | 11 | 45 | 14 | 53 | 12.1% | 0.90 [0.36 , 2.25] |
| HELP-1 2011 | 29 | 108 | 47 | 110 | 16.6% | 0.49 [0.28 , 0.87] |
| Magna 2013 | 14 | 63 | 8 | 63 | 11.7% | 1.96 [0.76 , 5.08] |
| Pronk 2010 | 19 | 61 | 4 | 60 | 9.6% | 6.33 [2.01 , 20.00] |
| Rasmussen 2007 | 25 | 69 | 24 | 68 | 14.8% | 1.04 [0.52 , 2.10] |
| Rasmussen 2011 | 42 | 144 | 38 | 142 | 17.3% | 1.13 [0.67 , 1.89] |
| RELACS 2012 | 69 | 152 | 70 | 129 | 17.9% | 0.70 [0.44 , 1.12] |
| **Total (95% CI)** | | **642** | | **625** | **100.0%** | **1.09 [0.68 , 1.76]** |
| Total events: | 209 | | 205 | | | |

Heterogeneity: $Tau^2 = 0.27$; $Chi^2 = 19.97$, df = 6 (P = 0.003); I² = 70%
Test for overall effect: Z = 0.36 (P = 0.72)
Test for subgroup differences: Not applicable




- More postoperative complications:
  - bleeding
  - haematoma
  - wound infection
  - paresthesia

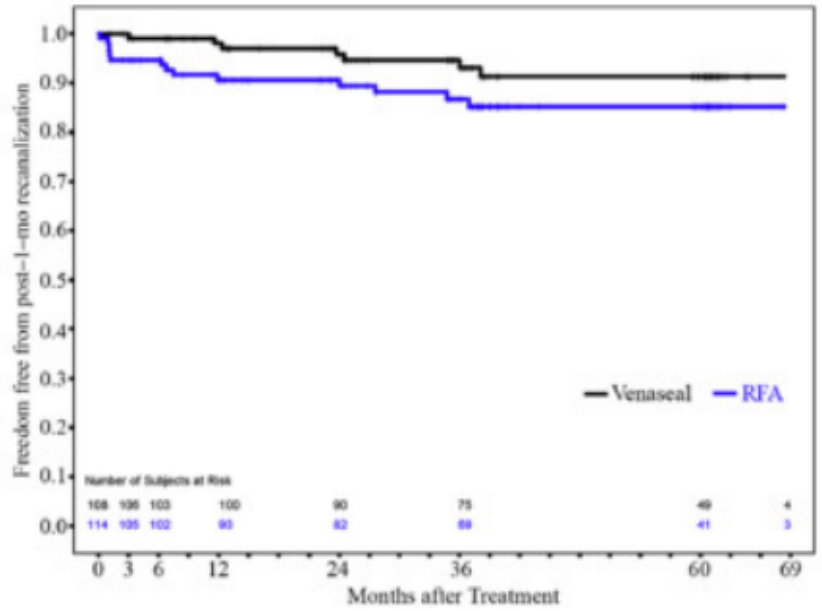
# EUROPEAN SOCIETY FOR VASCULAR SURGERY (ESVS) 2022 CLINICAL PRACTICE GUIDELINES ON THE MANAGEMENT OF CHRONIC VENOUS DISEASE OF THE LOWER LIMBS

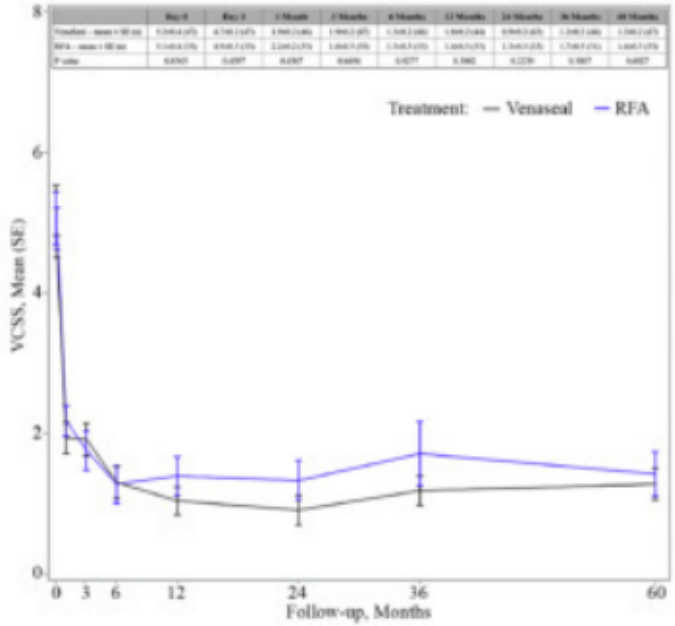
| Recommendation | Class | Level |
|---|---|---|
| For patients with great saphenous vein requiring treatment, endovenous thermal ablation is recommended as first choice treatment, in preference to high ligation/stripping and ultrasound-guided foam sclerotherapy. | I | A |
| For patients with saphenous trunk incompetence undergoing thermal ablation, the selection of the device should be left at the discretion of the treating physician. | I | B |

| Recommendation | Class | Level |
|---|---|---|
| For patients with great saphenous vein incompetence requiring treatment, cyanoacrylate adhesive closure should be considered when a non-thermal non-tumescent technique is preferred. | IIa | A |

# Comparison between CAC and EVTA

- CAC and EVLA/RFA were equally effective after 12 and 24 months[1]
- 1 RCT comparing CAC vs RFA - 5 yrs extension study[2]




- hypersensitivity to cyanoacrylate 6-7%

*[1]Garcia-Carpintero et al, JVS VLD 2020; [2]Morrison et al, JVS VLD 2020*

# ILLUSTRATIVE SUMMARY FOR GSV INCOMPETENCE

| Technique | Published follow up | Reflux abolition | Quality of life improvement | Tumescence needed | Risk for nerve injury below mid-calf‡ |
|---|---|---|---|---|---|
| EVTA | ≥ 5 y | +++ | +++ | Yes | Yes |
| HLS | ≥ 5 y | +++ | +++ | Yes† | Yes |
| CAC | 3-5 y | +++ | +++ | No | No |
| UGFS | ≥ 5 y | +/++* | ++/+++* | No | No |
| CDFS | 1 y | ++ | ++ | Yes/no | No |
| MOCA | 3 y | ++ | +++ | No | No |

*Truncal diameter < 6 mm †Or alternative anaesthesia technique ‡Other complications not mentioned

# Personal experience of Cyanoacrylate Closure (CAC)

## SEPTEMBER 2020 - DECEMBER 2021

- 52 patients — 43 female/9 male
- 66 GSV
- 6 SSV
- 3 AASV

Outpatient setting, out OR

Under local anesthesia

Total of 75 saphenous trunks

Median age : 53 ( 34- 77 ans)

CEAP classification : C2s-C4b

Device : Venaseal® (Medtronic),

Technical method : 1 drop 0,1 ml of adhesive each 3 centimeters.

Treatment of the  incompetent segment, without any phlebectomy of the tributaries;

Without Elastic Compression stockings

# Personal experience of Cyanoacrylate Closure (CAC)

- Follow up at 1 week, 1-5 and 12 months (complete for 35 patients)
- Post operative complications :
- Hypersensitive reaction : 2 (3,6%) ( required oral steroids, symptoms onset time 4-6 days, duration 5-7 days)
- Hematoma at the puncture site : 2
- Ecchymosis : 4
- Local inflammatory reactions : 5 (6% )
- Nerve injury : 0
- DVT : 0
- Low periprocedural pain
- Complete treatment : 71/75 (95%)
- Quick return to normal life (work and sport)

# Patients environment during their hospital stay

- Outpatient procedures well accepted and recommended for years
- But what about procedure out of the operating room?

Laminar flow uses positive pressure air currents through filtration units in order to create an ultraclean zone arround the operative site. Trials have shown lower infection rates especially for implant-related surgery ( orthopedics)

Glue injections through very small incisions are not at a high risk of infection in and out of the OR

- On a forensic level?

# Conclusions

- CAC treatment is a safe, reliable and effective technique.
- successful technique with high occlusion rates with few complications
- Factors affecting choice of CAC: anatomy, CEAP classification, patients expectations, physicians experience (DUS), financial aspects, (past history of allergic reaction)