PROPHYLAXIS OF NEUROLOGICAL AND VISUAL DISTURBANCES AFTER SCLEROTHERAPY (PROCOMET STUDY)

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DISCLOSURE

Consultant for:
• Baldaccilab
IN GENERAL FOAM SCLEROTHERAPY HAS SIMILAR COMPLICATIONS TO LIQUID SCLEROTHERAPY BUT VISUAL AND NEUROLOGICAL DISTURBANCES ARE MORE FREQUENT
NEUROLOGICAL AND VISUAL DISTURBANCES AFTER LS AND FS

• NEUROLOGICAL DISTURBANCES: Forlee, Bush

• VISUAL DISTURBANCES:
The frequency of occurrence: 0% - 14% 
average rate: 1.4%

Jia X: Systematic review of foam sclerotherapy for varicose veins, BJS 2007
OUR HYPOTESIS IS THAT VASOACTIVE SUBSTANCES ARE RELEASED AFTER SCLEROTHERAPY FROM THE DAMAGED ENDOTHELIELUM
• Endothelin 1 and retinal vasospasm

• Endothelin and migraine

• Endothelin and cerebral ischemia
• Non-ST-elevation myocardial infarction following foam ultrasound-guided sclerotherapy

• A hypothesis of post sclerotherapy release of endothelin-1 .......leading to sustained coronary artery spasm ............is suggested

R Stephens R Dunn
Phlebology May 3, 2013
doi: 10.1177/0268355513481765
WHY WITH FOAM SCLEROTHERAPY THE INCIDENCE OF VISUAL AND NEUROLOGIC COMPLICATIONS IS HIGHER?

FOAM SCLEROTHERAPY HAS A LONGER AND MORE POWERFUL ACTION ON THE ENDOTHELium
• High production of endothelin after foam sclerotherapy: a new pathogenetic hypothesis for neurological and visual disturbances after sclerotherapy

• A Frullini et al

Results with POL

- GROUP 1 – ESSAY AT 1 AND 5 MINUTES AFTER INJECTION OF POL LIQUID
- GROUP 2 – ESSAY AT 1 AND 5 MINUTES AFTER INJECTION OF POL FOAM

* $p < 0.05$ vs. at T1 / $p < 0.01$ at T5
• Significant Endothelin Release in Patients Treated with Foam Sclerotherapy
• A.Frullini et al. Dermatologic Surgery
• Volume 38, Issue 5, pages 741–747, May 2012
Results with STS

Endothelin (pg/ml)

<table>
<thead>
<tr>
<th>Incubation time</th>
<th>Group 2</th>
<th>Group 1</th>
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<tbody>
<tr>
<td>T0</td>
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<td>T5</td>
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</table>
ET 1 after FS in VV patients

T0: 4.35 ± 4.20 pg/ml vs. T1: 5.41 ± 4.79 pg/ml, p < 0.05
• Prevention of excessive Endothelin-1 release in sclerotherapy: in-vitro and in-vivo studies
  A. Frullini et al. Dermatologic Surgery
• 2014 accepted for publication
FOAM SCLEROTHERAPY IN RATS WITH ANTI-ENDOTHELIN PRETREATMENT (aminaphtone)

- 3 groups
  - C: control
  - G1: oral AMNA 30mg/kg/die
  - G2: oral AMNA 150mg/kg/die
Mortality after large volume injection sclerosing foam

- Group C: 40%
- Group G1: 13.3%
- Group G2: 20%
ET-1 levels after sclerotherapy
Sclerotherapy on HUVEC CELLS: results

• After AMNA pre-treatment and POL treatment, ET 1 cellular release was significantly lower after 6 (p<0.01) and 12 hours (p<0.05) in respect to control without AMNA
PRO.COM.ET study
(Prophylaxis Complications ET 1 related)

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- P. PAVEI – PADOVA
Aims

TO EVALUATE IF PRETREATMENT WITH AMINAPHTHONE (AMNA) WAS ABLE TO AFFECT THE INCIDENCE OF NEUROLOGICAL OR VISUAL DISTURBANCES IN PATIENTS TREATED WITH SCLEROTHERAPY FOR CHRONIC VEIN DISEASE
PROCOMET STUDY design

- Retrospective
- Similar protocol for data collection
- Sclerotherapy conducted as usual and according to guidelines
- Aminaphtone is commonly used in venous patients (75mg/bid starting at least 3 days before sclerotherapy)
PROCOMET STUDY

- TOTAL SESSIONS ............................................. 1642
- TOTAL SESSIONS WITH LIQUID................. 430
- TOTAL SESSION WITH FOAM.................... 1212
PROCOMET STUDY

NUMBER OF PTS

540

(406 AMNA/134 NO AMNA)
ADVERSE EVENTS

• MIGRAINE
• TRANSIENT VISUAL DISTURBANCE
• TRANSIENT NEUROLOGICAL DISTURBANCE
MEAN INJECTED VOLUME

• NO AMNA........................................... 4,4 cc

• AMNA............................................ 4,1 cc
TYPE OF SCLEROSANT

• NO AMNA
  – STS ................................................................. 11,1%
  – POL ................................................................. 88,8%

• AMNA
  – STS ................................................................. 2,3%
  – POL ................................................................. 97,6%
MEAN CONCENTRATION

• NO AMNA..........................1,78 %

• AMNA................................2,6 %
PROCOMET STUDY

disease distribution NO AMNA

The diagram represents the distribution of disease in various categories: 'coll', 'saph', 'rec', 'perf', 'ret', and 'tel', with 'TOTALE' indicating the total count. The categories are color-coded, with 'L' for light blue, 'F' for red, and 'TOTALE' for green.
PROCOMET

adverse events NO AMNA

\[
\frac{7}{430} = 1.62\%
\]
PROCOMET
adverse events AMNA

7/1212 = 0,57%
PROCOMET

adverse events AMNA <5cc foam

2/1076 = 0,18%
PROCOMET
adverse events TOTAL

• NO AMNA PROPHYLAXIS 1,62%

• AMNA PROPHYLAXIS 0,57%

• AMNA PROPHYLAXIS > 5CC foam 0,18%
p=NS
STUDY LIMITATIONS

• WIDE VARIATION OF VOLUMES, CONCENTRATIONS, TYPE OF SCLEROSANT AND FOAM/LIQUID INJECTIONS
• THIS WAS LESS EVIDENT FOR TELEANGECTASIAS WERE LIQUID POL RANGING FROM 0,25 TO 0,50 % HAS BEEN USED IN THE VAST MAJORITY OF SESSIONS
PROCOMET
TELEANGECTASIAS

L
S

TEL AMNA
TEL NO AMNA
PROCOMET TELEANGECTASIAS

- NO AMNA PROPHYLAXIS: 2.43%
- VISUAL OR NEUROLOGIC ADVERSE EVENTS

- AMNA PROPHYLAXIS: 0%

p = 0.02
PROCOMET

RECURRENTIES

- REC AMNA
- REC NO AMNA
PROCOMET
RECURRENTIES

- NO AMNA PROPHYLAXIS
  ADVERSE EVENTS 4,7%

- AMNA PROPHYLAXIS 0%
  \[ p=NS \]
PROCOMET
SAPPHENS < 5 cc foam

• NO AMNA PROPHYLAXIS
  adverse events 1,08%

• AMNA PROPHYLAXIS
  – Adverse events 0,95%
  – Statistically NS
MEAN CONCENTRATION

- NO AMNA: 1,78 %
- AMNA: 2,6 %
Complications & headache

AMNA
no AMNA
totale

migraine
sessions
Complications & headache

**NO AMNA**
- PERCENTAGE OF SESSIONS IN HEADACHE PATIENTS 3,0%

**AMNA**
- PERCENTAGE OF SESSIONS IN HEADACHE PATIENTS 7,6%
Complications & headache

- **NO AMNA PROPHYLAXIS IN HEADACHE PATIENT:**
  38.4% Probability Adverse Event

- **AMNA PROPHYLAXIS IN HEADACHE PATIENT:**
  3.2% Probability Adverse Event

p=0.002
• 2 patients had adverse events when AMNA prophylaxis at subsequent sclerotherapy session was stopped by the patient
• 1 patient referred significant amelioration of systemic hypertension after sclerotherapy
• 1 patients referred neurological symptoms in a sclerotherapy made 4 years before but didn’t showed any symptom with AMNA prophylaxis
PFO: SHUNT TO LEFT HEART OF ET 1 RICH BLOOD

HIGH ET 1

FOAM INJECTION
CONCLUSION 1

MICRO-BUBBLES COULD NOT BE THE CAUSE OF SUCH COMPLICATIONS
CONCLUSION 2

AMINAPHTHONE SIGNIFICANTLY REDUCE THE RISK OF NEUROLOGICAL AND VISUAL DISTURBANCES DURING SCLEROTHERAPY OF TELEANGECTASIAS
CONCLUSION 3

AMINAPHTHONE PROTECTS MIGRAINE PATIENTS FROM NEUROLOGICAL AND VISUAL DISTURBANCES WHEN SUBMITTED TO SCLEROTHERAPY
CONCLUSION 4

• THERE IS AN INTERESTING TREND IN PROTECTION FROM VISUAL AND NEUROLOGICAL COMPLICATIONS FOR LARGER VEINS SCLEROTHERAPY

• A STUDY WITH A LARGER NUMBER OF SESSIONS IS REQUIRED IN ORDER TO CONFIRM THIS DATA
CONCLUSION 5
THERE IS A TREND FOR BETTER SAFETY OF <5 CC VOLUMES OF FOAM
CONCLUSION 6

IN CONSIDERATION OF THE EXCELLENT SAFETY PROFILE OF AMINAPHTHONE SUCH PROPHYLAXIS IS RECOMMENDED IN SCLEROTHERAPY FOR CHRONIC VENOUS DISEASE IN EVERY CEAP STAGE
GRAZIE PER LA VOstra ATTENZIONE