Contraindications and limits: MOCA

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Mechano-chemical ablation

Mechanical damage: rotating wire (3,500 rpm)
Chemical damage:
- Polidocanol
- Sotradecol

Mechanism of action
- Mechanism of action is still not fully understood
- Histology: cellular fibrotic material with fibrotic alterations to the surrounding media and adventitia
- MOCA increases the effectiveness of sclerosants alone by inducing endothelial damage and probably vasoconstriction

What is the ideal sclerosant?
What is the optimal dose of sclerosants?
Optimal balance mechanical en chemical damage?

Advantages of MOCA
- No tumescence anesthesia necessary
- Significantly less procedural and post-procedural pain
- Good short-term outcomes that are in line with thermal ablative techniques

But,
- No published RCT’s on efficacy with >6 months follow-up

- 170 randomized patients
  - MOCA versus RFA
  - Less procedural pain
  - Equal 6 month outcome;
    - Occlusion rate
    - VCSS
    - AVVQ
• Prospective observational trial comparing MOCA with RFA
• 68 patients with unilateral GSV insufficiency
• MOCA;
  • Significantly less post procedural pain
  • Earlier resumption of normal activities and work

Maradona trial
preliminary data

• RCT comparing MOCA with RFA
• 209 randomized patients

<table>
<thead>
<tr>
<th></th>
<th>MOCA(n=104)</th>
<th>RFA(n=104)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>54.9 (16.3; 81.2)</td>
<td>53.4 (22.8; 77.9)</td>
<td>0.25</td>
</tr>
<tr>
<td>Gender (female; %)</td>
<td>62.4</td>
<td>59.3</td>
<td>0.43</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>172 (154; 196)</td>
<td>173 (156; 195)</td>
<td>0.81</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>80 (55; 140)</td>
<td>80 (50; 110)</td>
<td>0.86</td>
</tr>
<tr>
<td>Clinical classification (CEAP)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td>5.9</td>
<td>4.2</td>
<td>0.25</td>
</tr>
<tr>
<td>C3</td>
<td>59.8</td>
<td>66.7</td>
<td>0.12</td>
</tr>
<tr>
<td>C4a</td>
<td>31.4</td>
<td>22.9</td>
<td>0.12</td>
</tr>
<tr>
<td>C4b</td>
<td>0</td>
<td>3.1</td>
<td>0.86</td>
</tr>
<tr>
<td>C5</td>
<td>2.0</td>
<td>3.1</td>
<td>0.86</td>
</tr>
<tr>
<td>Diameter GSV at SFJ junction (mm)</td>
<td>6.0 (0.8; 12.0)</td>
<td>6.0 (1.2; 14.0)</td>
<td>0.86</td>
</tr>
<tr>
<td>Length treated segment (mm)</td>
<td>45.0 (15.0; 65.0)</td>
<td>45.0 (15.0; 57.0)</td>
<td>0.86</td>
</tr>
<tr>
<td>Duration procedure (min)</td>
<td>12.0 (5.0; 45.0)</td>
<td>13.0 (4.0; 85.0)</td>
<td>0.86</td>
</tr>
</tbody>
</table>

• Similar complication rate without procedure-related serious adverse events
• More anatomical failures (n=4) but better VCSS in the MOCA-group
• Median pain scores during the first 14-days were lower after MOCA (p=0.010)

Maradona trial
30-day outcome

• Anatomical success rate
  • MOCA: 83.5% 94.2% p=0.025
  • RFA: p=NS
• Clinical success rate
  • MOCA: 88.7% 93.2% p=NS
  • RFA: p=NS
• Equal re-intervention rate through 2-years follow-up (n=3 versus n=2, p=0.675)

Maradona trial
2-year outcome

When not to perform MOCA?

• When you like to give tumescence anesthesia or like to inflict pain to your patients
• Allergy or contraindications for the sclerosants
• Very small veins (<3 mm)
• Very large veins (>12mm)
• Severe tortuosity
• Previous treatment with synchiae in the vein

Disadvantages of MOCA

There is still a lack of standardization and thus many variances in the treatment itself;
• Type of sclerosant; Sotradecol vs. polidocanol
• Dose of sclerosant
• Volume of sclerosant
• Pullback rate
• Repeated treatment of proximal 10 cm
• Flushing with saline; loss of sclerosant volume
Sotradecol versus polidocanol

- STS is more powerful; More endothelial loss and damage to the media with sotradecol foam compared to polidocanol
- Maximum dosage
  - Sotradecol: The maximum single treatment should not exceed 10 mL
  - Polidocanol; weight-based, but no more than 10 mL
- MOCA typically requires 5-8 mL of sclerosants

Simultaneous bilateral treatment is mostly not possible

Maximum dosage

- Sotradecol: The maximum single treatment should not exceed 10 mL
- Polidocanol; weight-based, but no more than 10 mL

MOCA typically requires 5-8 mL of sclerosants

Fully disposable system

Summery

- MOCA can be used in ≥ 95% of our patients except
  - When contraindicated for sclerosants
  - In very small, very large or very tortuous veins
  - In veins with synchiae
- MOCA is related to less pain and equal outcomes compared to RFA
- The gaps in literature will be filled in time and the procedure itself will further mature

Fully disposable system

Contraindications And Limits MOCA

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371 veins in 300 patients

- Mean volume sotradecol used
  - Bilateral GSV (n=62) 13.3 ± 2.4 mL
  - Bilateral SSV (n=6) 7.8 ± 2.4 mL
  - Combined GSV/SSV (n=25) 10.6 ± 2.2 mL

Bilateral procedures can be successfully performed and are well tolerated as can multiple veins in the same leg