VERAPAMIL FOR PEYRONIE’S DISEASE:
NOT VIALBLE

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I have the following relevant financial relationships to disclose:

- Consultant: American Medical Systems, Coloplast

- Member, Board of Directors: Sexual Medicine Association of North America
AGENDA

- Verapamil
  - Mechanism of Action
- Technique of ILV
- Research Data
- Results with Other Agents
- Conclusions
VERAPAMIL

- “L-type” blocker of voltage-dependent calcium channel blocker of the phenylalkylamine class.

- Used commonly for HTN, angina pectoris, cardiac arrhythmia, cluster headaches.

- Useful as vasodilator during cryopreservation of blood vessels.

- Approved by Food & Drug Administration (FDA) - March 1982.
Proposed Mechanism of Action for Peyronie’s Disease

The flow of calcium into cells, known as fibroblasts, is required for the production of excess collagen that forms the Peyronie’s plaque.

Verapamil blocks calcium channels. This slows or stops the production of collagen and the growth of the Peyronie’s plaque.

Fibroblasts are also responsible for making collagenases which break down excess collagen. Blocking calcium channels causes an increase in collagenase production.


VERAPAMIL INJECTION TECHNIQUE

Treatment Technique

- Penile block with 10 mL 0.5% bupivacaine/2% lidocaine
- **MULTIPLE** puncture technique w/25 g needle
- Verapamil 5 mg in 3 cc NaCl (total volume 5 mL)
- 1 injection q 2 weeks x 3 months (6 total)
- Wrap with compression dressing
- Monitor blood pressure
- Give 6 additional injections if no improvement

ISSUES WITH VERAPAMIL STUDIES

- **Study Design**
  - Few Randomized
  - Few Placebo-controlled
  - Adequately powered?

- **Definition of successful treatment**
  - Absolute change in curvature
  - Resolution of pain
  - Change in plaque size
  - Improvement in EF

- **Best way to measure outcomes**
  - Objective – office-based assessment
  - Subjective – patient report
## OVERVIEW OF STUDIES

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Dose/Duration</th>
<th>Method</th>
<th>F/U (mos)</th>
<th>Results</th>
<th>↓ Curvature (Degree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levine (2007)</td>
<td>156</td>
<td>10 mg Biweekly x 6 mo</td>
<td>No Control group</td>
<td>30.4</td>
<td>↑ Plaque size  ↓ Curvature 62%  ↓ Pain 84%  ↑ Sexual function 71%</td>
<td>31.0</td>
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<tr>
<td>Bennett (2007)</td>
<td>94</td>
<td>10 mg Biweekly x 3 mo</td>
<td>No Control group</td>
<td>5</td>
<td>↓ Curvature 18%  ~ Curvature 60%  ↑ Curvature 22%  ↓ Pain 100%</td>
<td>12.0</td>
</tr>
<tr>
<td>Rehman (1998)</td>
<td>14</td>
<td>10-27 mg weekly x 6 mo</td>
<td>Randomized, Placebo-controlled</td>
<td>3</td>
<td>↓ Plaque size 57%  ↓ Deviation 29%  ↓ Pain 100%  ↑ Sexual function 43%</td>
<td>8.1</td>
</tr>
<tr>
<td>Nicolai (1998)</td>
<td>40</td>
<td>10 mg Biweekly x 6 mo</td>
<td>Randomized, Placebo-controlled</td>
<td>3</td>
<td>No Effect</td>
<td>5.2</td>
</tr>
<tr>
<td>Steiger (1999)</td>
<td>52</td>
<td>1 umol biweekly x 6 months</td>
<td>Randomized, Placebo-controlled</td>
<td>48</td>
<td>No Effect</td>
<td>9</td>
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</table>
Evaluation of Verapamil Efficacy in Peyronie’s Disease Comparing With Pentoxifylline

M. Alizadeh¹, F. Karimi² & M. R. Fallah¹

- Prospective, randomized study of 190 patients with PD
- 3 Groups
  - Oral pentoxifylline 400 mg TID x 6 months
  - Verapamil 10 mg biweekly x 6 months
  - Pentoxifylline + ILV x 6 months

<table>
<thead>
<tr>
<th></th>
<th>Pentox (%)</th>
<th>ILV (%)</th>
<th>Pentox+ILV (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>↓ Curve</td>
<td>26.7</td>
<td>36.7</td>
<td>36.7</td>
</tr>
<tr>
<td>↓ ED</td>
<td>46.7*</td>
<td>66.7</td>
<td>86.7*</td>
</tr>
<tr>
<td>↓ Pain</td>
<td>73.3**</td>
<td>76.7</td>
<td>80**</td>
</tr>
</tbody>
</table>

* p=0.001 ** p=0.001

- No significant difference in curvature reduction
## OTHER INJECTABLES

<table>
<thead>
<tr>
<th>Agent</th>
<th>Dose</th>
<th>Mechanism of Action</th>
<th>Clinical Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interferons</td>
<td>1–10 000 U per week</td>
<td>Decrease fibroblast proliferation <em>in vitro</em>, reduce ECM, and increase collagenase activity</td>
<td>↓ Curvature of 27% Resolution of pain in 67% ↓ Plaque size by 54.6%</td>
</tr>
<tr>
<td>Orgotein</td>
<td>4 mg biweekly</td>
<td>Anti-inflammatory with pronounced superoxide dismutase activity</td>
<td>Improvement in “sexual function”</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>25-50 mg every 1-6 weeks</td>
<td>Anti-inflammatory</td>
<td>100% resolution of pain No significant difference in curvature, or plaque size</td>
</tr>
<tr>
<td>Collagenase</td>
<td>0.58 mg</td>
<td>Lysis of collagen</td>
<td>↓ Curvature of 17.0° [34.0%]</td>
</tr>
</tbody>
</table>


VERAPAMIL

- Requires multiple sessions
- Requires multiple penile injections in each session
- Not FDA approved for PD
- Limited curvature correction
VERAPAMIL FOR PD?

Time to show verapamil the door.
THANK YOU

Green Power (1975)
David Hammons (American b. 1943)