The Vascular Team- How to Improve Outcomes in Critical Limb Ischemia by Integrating Vascular Medicine and Surgery Services

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Disclosure

Speaker name: Leonardo C. Clavijo, MD, PhD

I have the following potential conflicts of interest to report:

- **Consulting:** AztraZeneca (Research Grants, Advisory Boards), Medtronic (Speaker Fees and Educational Grants)
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

- I do not have any potential conflict of interest
How do we develop a collaboration?
The Traditional Approach
CLI

Identify Areas of Common Interest and Need

Goals - Prevent:
- Cardiac Death
- Stroke
- Myocardial Infarction
- Amputation

CLI at 6 month outcomes from 19 studies

Dead 20%
Alive with amputation 35%
Alive without amputation 45%

What can we offer the group?

• Clinical expertise
• Technical expertise/skills
• Education
• Scientific/research
• Resources
How to do it?

• Integrated vascular medicine and surgery team (5 years)
  – Work and teaching rounds
  – Preoperatory conference
• Endo cases in both labs, cross training
• Education
• Research protocols
• Develop metrics
Medication Use

Gijjs, MJ et al. JACC 51 (16) 1588-96
Prognosis of PAD Patients

Gijjs, MJ et al. JACC 51 (16) 1588-96
Methods

• Based upon the American College of Cardiology/American Heart Association Guidelines we defined GDMT as:
  - Anti-platelet therapy with Aspirin
  - Statin use with LDL goal <100 mg/dl
  - ACE inhibitor therapy
  - Beta-blocker use in patients with hypertension

• These 4 GDMTs were evaluated in ~200 patients prior to implementation of the Integrated Program (pre group, n=97) and after (post group, n=123).
Baseline Characteristics

- 220 patients were included; 97 patients in the pre group and 123 patients in the post group.
- Demographic and clinical variables were similar between both groups except that HTN was more common and prior MI was less common in the post group.
- Diabetic patients were 66% and 71% in the pre and post groups respectively.

<table>
<thead>
<tr>
<th>Clinical Variables</th>
<th>Pre Group (N=97)</th>
<th>Post Group (N=123)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>63±12.2</td>
<td>62±13.4</td>
<td>0.64</td>
</tr>
<tr>
<td>Male</td>
<td>64(66)</td>
<td>73(59.3)</td>
<td>0.31</td>
</tr>
<tr>
<td>Female</td>
<td>33(34)</td>
<td>50(40.6)</td>
<td>0.31</td>
</tr>
<tr>
<td>HTN</td>
<td>71(73.2)</td>
<td>105(85.3)</td>
<td>0.03</td>
</tr>
<tr>
<td>DM</td>
<td>64(66)</td>
<td>88(71.5)</td>
<td>0.38</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>32(33)</td>
<td>53(43.1)</td>
<td>0.13</td>
</tr>
<tr>
<td>CAD</td>
<td>14(14.4)</td>
<td>18(14.6)</td>
<td>0.97</td>
</tr>
<tr>
<td>History of MI</td>
<td>8(8.2)</td>
<td>2(1.6)</td>
<td>0.02</td>
</tr>
<tr>
<td>History of PCI</td>
<td>1(2.5)</td>
<td>11(8.9)</td>
<td>0.01</td>
</tr>
<tr>
<td>CHF</td>
<td>5(5.1)</td>
<td>3(2.4)</td>
<td>0.31</td>
</tr>
</tbody>
</table>
All 4 GDMTs were more frequently prescribed in the post group compared to the pre group.

Aspirin was prescribed in the post group in 98% of patients as compared to the pre group 72% (p <0.0001).

Statins were given 53% in the pre group and 84% in the post group (p <0.0001).

Beta-blockers and angiotensin converting enzyme inhibitors were prescribed in the pre group 46%, 38% compared to the post group 60%, 53% respectively (p=0.04, 0.03).
Revascularization Strategy

Endovascular revascularization increased (p<0.0001) and bypass surgery decreased (p=0.0002) in the post group.

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Clinical Outcomes

- Cardiac events - MACE at 30 days was 5% (including 4 deaths and 1 MI) in the pre VMF group and 0% in the post VMF group (p=0.01).

- Limb events - MALE was similar in both groups; 4% and 7% in the pre and post VMF groups respectively, p=0.56.

<table>
<thead>
<tr>
<th>MACE/MALE at 30 Days</th>
<th>Before VMF (N=97)</th>
<th>After VMF (N=123)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACE at 30 days</td>
<td>5(5.1)</td>
<td>0(0)</td>
<td>0.01</td>
</tr>
<tr>
<td>Death</td>
<td>4(4.1)</td>
<td>0(0)</td>
<td>0.03</td>
</tr>
<tr>
<td>Myocardial infarction</td>
<td>1(1)</td>
<td>0(0)</td>
<td>0.41</td>
</tr>
<tr>
<td>Stroke</td>
<td>0(0)</td>
<td>0(0)</td>
<td>1.0</td>
</tr>
<tr>
<td>MALE at 30 days</td>
<td>4(4.1)</td>
<td>9(7.3)</td>
<td>0.56</td>
</tr>
<tr>
<td>Repeat Bypass surgery</td>
<td>2(2)</td>
<td>1(0.8)</td>
<td>0.57</td>
</tr>
<tr>
<td>Repeat Endovascular procedure</td>
<td>0(0)</td>
<td>3(2.4)</td>
<td>0.27</td>
</tr>
<tr>
<td>Unplanned Amputation</td>
<td>3(3.1)</td>
<td>5(4)</td>
<td>1.0</td>
</tr>
</tbody>
</table>
Conclusions

An integrated vascular program leads to:

– Increase GDMT
– Increased endovascular revascularization
– Improved clinical outcomes
– Benefits Education
– Improved Patient Care
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