Defining Critical Limb Ischemia: Does the Current Definition Need Improvement?

Jaafer Golzar, MD, FACC, FSCAI
Interventional Cardiology
 Advocate Medical Group
Clinical Assistant Prof. Medicine Univ. Of Illinois at Chicago
Course Director CVC
Chicago, Illinois
Disclosures

Speaker’s Bureau/Consultant:

- Arstasis
- Avinger
- Bard
- Boston Scientific
- Covidien/Medtronic
The term critical limb ischemia refers to a condition characterized by chronic ischemic rest pain, ulcers, or gangrene in one or both legs attributable to objectively proven arterial occlusive disease.

Critical limb ischemia implies chronicity and is to be distinguished from acute limb ischemia.
### Table 2. Classification of PAD

<table>
<thead>
<tr>
<th>Rutherford Stage</th>
<th>Clinical Symptoms</th>
<th>Fontaine Stage</th>
<th>Clinical Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Asymptomatic</td>
<td>I</td>
<td>Asymptomatic</td>
</tr>
<tr>
<td>1</td>
<td>Mild Claudication</td>
<td>II</td>
<td>Intermittent Claudication</td>
</tr>
<tr>
<td>2</td>
<td>Moderate Claudication</td>
<td>IIa</td>
<td>Pain walking more than 200 m</td>
</tr>
<tr>
<td>3</td>
<td>Severe Claudication</td>
<td>IIb</td>
<td>Pain walking less than 200 m</td>
</tr>
<tr>
<td>4</td>
<td>Rest Pain</td>
<td>III</td>
<td>Rest pain</td>
</tr>
<tr>
<td>5</td>
<td>Minor Tissue Loss</td>
<td>IV</td>
<td>Necrosis and gangrene</td>
</tr>
<tr>
<td>6</td>
<td>Mayor Tissue Loss</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Definition of CLI

- Definition meets the presentation
- Treatment of CLI needs to improve
- Over 50% of patients presenting with CLI primary treatment is amputation
Peripheral arterial disease and critical limb ischaemia: still poor outcomes and lack of guideline adherence

Holger Reinecke, Michael Unrath, Eva Freisinger, Holger Bunzemeier, Matthias Meyborg, Florian Lüders, Katrin Gebauer, Norbert Roeder, Klaus Berger, Nasser M. Malyar

- 37% received no angiogram or revascularization during within 24 months

- 4 year mortality
  - R4 - 37.7%
  - R5 - 52.2%
  - R6 - 63.5%

- 4 year Amputation Risk
  - R4 - 12.1%
  - R5 - 35.3%
  - R6 - 67.3%

Conclusion: Regardless of recent advances in PAD treatment, current outcomes remain poor especially in CLI. Despite overwhelming evidence for reduction of limb loss by revascularization, CLI patients still received significantly less angiographies and revascularizations.
Changing the Culture - Current myths

• “They will eventually lose their leg anyway..”
• Too costly to save a limb
• Patient is too old
• No bypass targets
• Amputation considered “conservative therapy”
Significant Variations Exist in the Treatment of Patients with CLI
Map or revascularization rates, by hospital referral region, from 2003 to 2006.

The Battle for Limb Salvage

• Morality
• Hospitalization
  • Wounds
  • Amputation
• Rapid Decline
• Amputation is never the final answer
  • Infection
  • Pain
  • Psychological impact
• Living Condition
Amputations have a higher mortality

AMPUTATION

• Peri-operative Mortality
  • BKA 5%-10%
  • AKA 15-20%

LIMB SALVAGE

• Peri-operative mortality
  • 2%-8% (bypass)
  • 1%-3% (endovascular)
Amputations have a higher rate of complications

**AMPUTATION**

- Major Complications
  - 20%-37%

**LIMB SALVAGE**

- Major Complications
  - 16% -17% (bypass)
  - 1% - 9% (endovascular)


Post amputation complications

- Wound Infection (10%-30%)
- If wound infection not resolved higher amputation
- In hospital amputation revision
  - 13%-20% BKA
  - 8%-12% AKA
- DVT 13%-26%
- Cardiac Complications (9%-10%)
- Sepsis (9%)
- Bleeding 8%
- Renal Failure 2%-3%

Amputation is less cost effective than revascularization

• Multiple Studies confirm that amputation is less cost effective than revascularization

• Higher Readmission rates within the first month of hospitalization
  • 26% v 20%


Cost of Amputation

$10.6 Billion

Figure 2. Annual cost of amputation by type of cost and level of amputation. Reprinted with permission from Yost ML. The Economic Cost of Dysvascular Amputation. The Sage Group. In press.
When can amputation be considered appropriate?

Primary amputation might be the best therapy in certain patient groups

- Dementia
- Institutionalized
- Non-ambulatory

How do we promote more aggressive treatment of CLI?

• Change the Culture of Amputation
• Limb Salvage Team Approach
  • Podiatry
  • Wound Care
  • Nurse
  • Primary Care
• Patient Education
• Better Technology
• Improve knowledge and capability
Improve Knowledge

• Educational Conferences
  • NCVH
  • C3
  • CVC
  • AMP
  • VIVA
  • ISET
• On-site proctoring
• Educational Journals
Conclusion

• CLI has a high mortality and morbidity
• Despite advancements in treatment - current outcomes remain poor due to under-treatment
• Overcome myths in the treatment of CLI
• Team approach including wound care, podiatry and nursing
• Improve outcomes by changing the culture, educational conference and advancement of technologies
Thank You
Defining Critical Limb Ischemia: Does the Current Definition Need Improvement?

Jaafer Golzar, MD, FACC, FSCAI
Interventional Cardiology
Advocate Medical Group
Clinical Assistant Prof. Medicine Univ. Of Illinois at Chicago
Course Director CVC
Chicago, Illinois