Vascular Protection in Patients with CAD and PAD: New Options

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Disclosures

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- Grants/research support from **COOK and Vascutek**
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The Rotterdam study

- Patients aged ≥55 years
- 19.1% had PAD
- Prevalence higher in women (20.5%) than in men (16.9%)
- Clear increase of PAD with age
- >50% of patients aged ≥85 years have PAD
PAD Is Currently Under-diagnosed

- Most patients with lower extremity PAD are asymptomatic\(^1\)
  - Even asymptomatic patients are at high risk of cardiovascular events

Cardiovascular mortality according to PAD status\(^2\)

Estimated cases of PAD in Europe and North America\(^3\)

PAD: It’s All About Prevention

Central Illustration: Cardiovascular Prevention in PAD

Peripheral artery disease (PAD)
Patients are at risk for impaired quality of life and significant morbidity and mortality

Medical therapy
(任何一个抗血小板治疗, 调脂药, ACEI/ARB, cilostazol)
and Lifestyle counseling
(exercise or diet and smoking cessation)
reduce incident cardiovascular events in PAD

These prevention strategies are underused:
(percentage of PAD patients)
- Antiplatelet therapy (38%)
- Statin (35%)
- ACEI/ARB (31%)
- Cilostazol (5%)
- Exercise or diet counseling (20%)
- Smoking cessation counseling or medication (36%)

PAD Is a Polyvascular Disease

- REACH registry (n=67,888): more than 3 in 5 patients with PAD have atherothrombotic disease in other arterial territories

24.8% of patients with CAD had concomitant disease in other vascular beds

61.5% of patients with PAD had concomitant disease in other vascular beds

Are vascular specialists aware of this and how does it inform their treatment?

Bhatt DL et al, JAMA 2006;295:180–189
## What Is New in the 2017 ESC/ESVS PAD Guidelines?

<table>
<thead>
<tr>
<th><strong>2017 New recommendations</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Lower extremity artery disease (LEAD)</strong></td>
</tr>
<tr>
<td>- Screening for LEAD in CAD patients</td>
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<tr>
<td>- Screening for LEAD in HF patients</td>
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<tr>
<td>- Clopidogrel preferred over aspirin</td>
</tr>
<tr>
<td>- Antiplatelet therapy in isolated asymptomatic LEAD</td>
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</tbody>
</table>

Patients with PAD Are at Risk of Adverse Events and Disease Progression

5-year cumulative incidence rates

- Asymptomatic PAD: (4–11%)
- Intermittent claudication: (12–29%)
- CLI or worsening IC

Limb prognosis (leg)
- Stable: 70–80%
- Worsening claudication: 10–20%
- CLI: 5–10%

General prognosis (systemic)
- All-cause mortality: 10–36%
- CV mortality: 9–25%
- Non-fatal MI/stroke: 20%

Are vascular specialists aware of these outcomes and how to prevent them/manage these patients?

Acute Limb Ischemia and Outcomes With Vorapaxar in Patients With Peripheral Artery Disease

Results From the Trial to Assess the Effects of Vorapaxar in Preventing Heart Attack and Stroke in Patients With Atherosclerosis–Thrombolysis in Myocardial Infarction 50 (TRA2°P-TIMI 50)

Marc P. Bonaca, MD, MPH; J. Antonio Gutierrez, MD, MHS; Mark A. Creager, MD; Benjamin M. Scirica, MD; Jeffrey Olin, MD; Sabina A. Murphy, MPH; Eugene Braunwald, MD; David A. Morrow, MD, MPH
CV Event Rates at 1 year

Event Rate at 1 Year in 3,787 Patients with Symptomatic PAD and no Recent MI or Stroke

- CV Death: 1.8%
- Non-CV Death: 1.4%
- Myocardial Infarction: 1.9%
- Hospitalization for Unstable Angina: 1.0%
- Ischemic Stroke: 0.9%
- Any stroke: 1.0%
- Acute Limb Ischemia: 1.3%
- Amputation: 1.2%

Bonaca MP et al, Circulation 2016;133:997–1005
Causes of Acute Limb Ischemia

- Surgical graft thrombosis: 93 (62%)
- Native vessel thrombosis: 14 (9%)
- Peripheral stent thrombosis: 6 (4%)
- Thromboembolic: 37 (25%)

N=150 ALI Events
Outcomes After Acute Limb Ischemia

<table>
<thead>
<tr>
<th>Event</th>
<th>Proportion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACE</td>
<td>11.7%</td>
</tr>
<tr>
<td>Death</td>
<td>12.1%</td>
</tr>
<tr>
<td>Recurrent ALI</td>
<td>24.0%</td>
</tr>
<tr>
<td>Amputation</td>
<td>27.0%</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>54.0%</td>
</tr>
<tr>
<td>Peripheral Revascularization</td>
<td>63.2%</td>
</tr>
</tbody>
</table>

Bonaca MP et al, Circulation 2016;133:997–1005
<table>
<thead>
<tr>
<th>Stage</th>
<th>Symptoms</th>
<th>Grade</th>
<th>Category</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Asymptomatic</td>
<td>0</td>
<td>0</td>
<td>Asymptomatic</td>
</tr>
<tr>
<td>II</td>
<td>Non-disabling intermittent claudication</td>
<td>I</td>
<td>1</td>
<td>Mild claudication</td>
</tr>
<tr>
<td>III</td>
<td>Ischaemic rest pain</td>
<td>II</td>
<td>4</td>
<td>Ischaemic rest pain</td>
</tr>
<tr>
<td>IV</td>
<td>Ulceration or gangrene</td>
<td>III</td>
<td>5</td>
<td>Minor tissue loss</td>
</tr>
<tr>
<td></td>
<td></td>
<td>III</td>
<td>6</td>
<td>Major tissue loss</td>
</tr>
</tbody>
</table>

Modern management of claudication:

- CVD prevention
- Exercise therapy
- Revascularization

Vasoactive drugs = no proof in the modern management

Key Points in PAD Treatment with Revascularization

- Post-revascularization PAD **has different thrombotic risks** than stable PAD

- PAD antithrombotic practice patterns vary widely
  - Likely influenced by CAD treatment patterns
  - Little data to support varying DAPT prescribing patterns

- We are still searching for the best way to care for post-revascularization PAD
ESC/ESVS Guidelines: Antiplatelet Therapy in Patients with Lower Extremity Artery Disease

Management of antiplatelet therapy in patients with LEAD not requiring anticoagulation

Asymptomatic
- No SAPT*
  - Class III A

Symptomatic
- SAPT#
  - A or C
  - Class I A

Revascularization
- Percutaneous
  - DAPT
    - A + C
    - Class Ila C
- Surgery
  - SAPT‡
    - A or C
    - Class Ila C

Time delay
- 0
- 1 mo.
- 1 year
- Long term

Asymptomatic
- Symptomatic
- Revascularization

* SAPT should be considered if CAD/CAS; †DAPT may be considered if ACS/PCI <1 year or complex PCI; ‡evidence is weak and bleeding doubles as compared to SAPT.

The Optimal Antithrombotic Management of Patients with PAD Undergoing Revascularization Is Unknown

- DAPT after endovascular interventions is unproven but standard practice
- DAPT failed in a surgical revascularization trial
- Full-dose warfarin after surgical bypass shows no benefit over aspirin alone
Conclusions

- PAD affects millions of people worldwide yet remains under-diagnosed and under-treated
- Revascularization is not a cure – patients with a history of ALI are at high risk of recurrent limb events or cardiovascular events
- Current therapeutic strategies for both chronic and post-interventional PAD are based on limited clinical data
Thank you!

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