Cardiovascular Disease in CLI Patients

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Disclosure

Speaker name: 

I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☒ I do not have any potential conflict of interest
Introduction: Case-Presentation

- 71 years old male patient
- Hospital admission 15.12.17: infected non-healing wounds on right foot, acute deterioration of symptoms
- Diabetes mellitus type 2
- PAOD, Stenting left CIA, fem.-popl. Bypass left 2007 and Re-Bypass left 2011, Minor amputations left
- CAD (3 vessel-disease)
- DUS on admission: SFA-Occlusion right

AB + Recanalization
Introduction: Angiography

- Long SFA- and BTK-Occlusions
- Failed primary recanalisation-attempt
- During intervention: neglect, aphasia, hemiplegia left

CT-Scan
Introduction: CT-Scan

- Chronic Occlusion of right ICA but acute stroke (drop of bloodpressure)

Stroke-Unit-Treatment
Introduction: Disease Process

- Neurologic disorders, dysphagia, aspiration, pneumonia, intubation, tracheostoma
- **02.01.18**: NSTEMI
- **Coronary angiography**: LCA-main stem and RCX- stenosis, RCA-Occlusion
- During **PTCA**: CPR
- Further deterioration
- **10.01.18** Death !!
Coprovalence of PAD and polyvascular Disease

~ 3/5 of the 8,273 patients with PAD also have atherothrombotic disease in other arterial territories

Patients with PAD = 12.2% of the total REACH Registry population

REACH Registry Investigators, JAMA 2006
Mortality Rates in PAD

GetABI-Study

S3, German Guideline, PAD, 2015

PAD 4-year Mortality Risks

Kaplan-Meier Model Estimates

34% died within 12 months

Lung Cancer, NIH National Cancer Institute

Reinecke H, Eur Heart J, 2015
How to reduce these high mortality risks in PAD?
Smoking cessation

- Smoking is the most important risk factor
- The extent of smoking exposure correlates with PAD disease severity and mortality
- **Smoking cessation programme** (22% cessation rate) vs. 5% in the group not undergoing this programme

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ESC, 2017

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Class</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking cessation is recommended in all patients with PADs.</td>
<td>I</td>
<td>B</td>
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ES VascSurg, 2011

- CLI patients should be strongly and repeatedly advised to stop smoking. (Level 2a; Grade B)
- Smoking cessation rates can be improved by offering medical advice, group counseling session, nicotine replacement, nicotine receptor partial agonists (varenicline) or antidepressant drug therapy (bupropion). (Level 1a; Grade A)

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1Hirsch AT Vasc Med 1997;2(3):243—51
Antiplatelet therapy in PAD

**Recommendations**

<table>
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<td>Antiplatelet therapy is recommended in patients with symptomatic PADs.</td>
<td>I</td>
<td>C[^d]</td>
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ESC, 2017

- CV risk reduction[^1] of 23% (no difference: Aspirin, Clopidogrel)
- EUCLID-Trial[^2]: Ticagrelor not superior to Clopidogrel
- **COMPASS-Trial[^3]**: Rivaroxaban (2.5 mg twice daily) + Aspirin better CV-outcomes, lower MALE but more major bleeding events

[^1]: Clagett et al, Chest 2004;126(3):609S-626S
Statins in PAD

**Recommendations ESC, 2017**

<table>
<thead>
<tr>
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<th>Classa</th>
<th>Levelb</th>
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<td>Statins are recommended in all patients with PADs.</td>
<td>I</td>
<td>A</td>
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<tr>
<td>In patients with PADs, it is recommended to reduce LDL-C to &lt; 1.8 mmol/L (70 mg/dL) or decrease it by ≥ 50% if baseline values are 1.8–3.5 mmol/L (70–135 mg/dL).</td>
<td>I</td>
<td>C</td>
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- Statins: reducing major vascular events by **22%**

- Statins may prevent plaque instability and thrombosis due to their pleiotropic effects

- PCSK9-Inhibitors (Evolocumab) added to Statins better reduction of LDL-levels and major events (FOURIER-Trial)

- PAD-subgroup benefits more

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1. Lancet 2002;360(9326):7—22, Heart Protection Study
Antihypertensive and diabetes therapy

**ESC, 2017**

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<th>Level&lt;sup&gt;b&lt;/sup&gt;</th>
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<td>In patients with PADs and hypertension, it is recommended to control blood pressure at &lt; 140/90 mmHg.</td>
<td>I</td>
<td>A</td>
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<tr>
<td>ACEIs or ARBs should be considered as first-line therapy&lt;sup&gt;c&lt;/sup&gt; in patients with PADs and hypertension.</td>
<td>IIa</td>
<td>B</td>
</tr>
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- **HOPE-Trial<sup>1</sup>:** 22% CV risk reduction on in patients randomised to Ramipril
- Benefit of ACE independent of lowering BP

- Controversial data to CV-mortality
- Significant postive effects on microvascular complications<sup>2</sup>

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Undertreatment of risk factors

Patients not receiving proven therapy (%)

- **CAD (n=40,258)**
  - Antiplatelets: 14%
  - Lipid-lowering: 19%
  - Statin: 24%

- **Cerebrovasc Dis (n=18,843)**
  - Antiplatelets: 18%
  - Lipid-lowering: 39%
  - Statin: 44%

- **PAD (n=8,273)**
  - Antiplatelets: 18%
  - Lipid-lowering: 30%
  - Statin: 36%

- **Multiple Risk Factors (n=12,389)**
  - Antiplatelets: 46%
  - Lipid-lowering: 19%
  - Statin: 28%

REACH Registry Investigators, JAMA 2006
Adherence to Guidelines & Survival

- Adherence to guideline-recommended therapies (smoking cessation, antiplatelet, antihypertensive (ACE) & statin therapy) improves survival in PAD patients
- Only 32% of the patients met all 4 guideline-recom. therapies

Armstrong EJ et al. JAHA 2014
Summary

• Cardiovascular mortality in PAD patients is high

• Cardiovascular mortality in CLI patients is higher

• Still lacks in medical therapy in patients with PAD/CLI

• Treat PAD-patients accordingly to guidelines:
  - Statins
  - Platelet-Inhibitors
  - ACE-Inhibitors
  - Smoking cessation

• Promissing new data from NOACs and PSCK9-Inhibitors on further risk reduction