Patients with coronary artery disease should be screened for peripheral vascular disease - CON

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Disclosures

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Background

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- **Coronary Artery Disease** $\rightarrow$ the most frequent and severe location of atherosclerosis

- **Symptomatic multisite artery disease (MSAD)** $\rightarrow$ frequent §

- **Symptomatic multisite artery disease (MSAD)** $\rightarrow$ integrator of the global CV risk (2-fold increase in MACCE versus Single site) §

REPORTED RATE RANGES OF OTHER LOCALIZATIONS OF ATHEROSCLEROSIS IN PATIENTS WITH A SPECIFIC ARTERIAL DISEASE

- **CAD Carotid Stenosis >70%**
  - 72%
  - 61%
  - 39%

- **LEAD (ABI <0.90)**
  - 25%
  - 22%
  - 19%

- **RAS >75%**
  - 72%
  - 19%
  - 10%
1-year outcome according to symptomatic MSAD

- CV death
- Non-fatal MI
- Non-fatal stroke
- CV death / MI / stroke

Percentages:
- CV death: 0.6, 1.4, 2.4, 3.8
- Non-fatal MI: 0.7, 1.2, 1.9
- Non-fatal stroke: 0.8, 1.5
- CV death / MI / stroke: 1.5, 3.4, 5.7, 7.1

References:
- Steg PG. JAMA 2007;297:1197-206;
- Alberts MJ. Eur Heart J 2009;30:2318-26;
- Subherwal S. Circ CVQO 2012;5:541-9;
The prevalence and associated-risk of asymptomatic MSAD in high risk coronary patients are unknown.

Whether systematic identification of MSAD and treatment when appropriate combined with an aggressive secondary prevention is relevant has not been evaluated.
Carotid disease in patients scheduled for CABG

Carotid disease in patients scheduled for CABG

- 86-95% of post-CABG strokes are not related to carotid disease

**Revascularization strategies**
- CEA synchronous with off-pump CABG has lowest 30-day death/stroke rates (2.2%)
- Synchronous CEA (before) + CABG is the worst strategy: 30-day death/stroke = 8.2%
- Staged (or same-day) CAS + CABG is an alternative: 30-day death/stroke = 5.9%

### Carotid disease Prevalence Risk of post-CABG stroke

<table>
<thead>
<tr>
<th>Carotid disease</th>
<th>Prevalence</th>
<th>Risk of post-CABG stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>unilateral stenosis 50-99%</td>
<td>11.1%</td>
<td>3.2%</td>
</tr>
<tr>
<td>bilateral stenosis 50-99%</td>
<td>5.6%</td>
<td>5.2%</td>
</tr>
<tr>
<td>unilateral occlusion</td>
<td>1.3%</td>
<td>9.0%</td>
</tr>
</tbody>
</table>
ESC PAD Guidelines 2017: screening for CAD in CABG

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Class</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>In patients undergoing CABG, DUS is recommended in patients with a recent (&lt;6 months) history of TIA/stroke.§</td>
<td></td>
<td></td>
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<tr>
<td>In patients with no recent (&lt; 6 months) history of TIA/stroke, DUS may be considered in the following cases: age ≥70 years, multivessel coronary artery disease, concomitant LEAD, or carotid bruit.</td>
<td>IIb</td>
<td>B</td>
</tr>
<tr>
<td>Screening for carotid stenosis is not indicated in patients requiring urgent CABG with no recent stroke/TIA.§</td>
<td>III</td>
<td>C</td>
</tr>
</tbody>
</table>

Management of carotid stenosis in patients undergoing CABG

<table>
<thead>
<tr>
<th>Recommendations</th>
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</thead>
<tbody>
<tr>
<td>In neurologically <strong>asymptomatic</strong> patients scheduled for CABG:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Routine prophylactic carotid revascularization in patients with a 70-99% carotid stenosis is not recommended.§</td>
<td>III</td>
<td>B</td>
</tr>
<tr>
<td>• Carotid revascularization may be considered in patients with bilateral 70-99% carotid stenoses or 70-99% carotid stenosis + contralateral occlusion.§</td>
<td>IIb</td>
<td>B</td>
</tr>
<tr>
<td>• Carotid revascularization may be considered in patients with a 70–99% carotid stenosis, in the presence of one or more characteristics that may be associated with an increased risk of ipsilateral stroke,* in order to reduce stroke risk beyond the perioperative period.</td>
<td>IIb</td>
<td>C</td>
</tr>
</tbody>
</table>


*Contralateral TIA/stroke; Ipsilateral silent infarction; Stenosis progression >20%; Spontaneous embolization on TCD; Impaired cerebral vascular reserve; Large or echolucent plaques; Increased juxta-luminal hypoechochogenic area; Intraplaque haemorrhage or Lipid-rich necrotic core at MRI
LEAD in patients with SCAD
Patients with Lower Extremity Artery Disease associated with CAD are at twice the level of risk as those presenting with CAD alone.

Whether the management of CAD patients should differ in the case of concurrent LEAD is not obvious. There are no specific trials.

In patients with CAD, screening for LEAD by ABI measurement should be considered.

Eur Heart J. 2011 Nov;32(22):2851-906
Screening of concomitant LEAD and CAD
PAD Guidelines 2017

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</thead>
<tbody>
<tr>
<td>In patients with CAD, screening for LEAD by ABI measurement may be considered for risk stratification.§</td>
<td>IIb</td>
<td>B</td>
</tr>
</tbody>
</table>

LEAD to guide DAPT duration

Bonaca MP JACC 2016; 67: 2719-28

Prolonged (i.e. >12 months) DAPT duration may be considered in CAD patients with LEAD.

DAPT Update 2017
Screening of associated atherosclerotic disease in additional vascular territories

<table>
<thead>
<tr>
<th>Leading disease</th>
<th>CAD</th>
<th>LEAD</th>
<th>Carotid</th>
<th>Renal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduled for CABG</td>
<td>IIa(^a)</td>
<td>Ib</td>
<td>IIb(^c)</td>
<td>U</td>
</tr>
<tr>
<td>Not scheduled for CABG</td>
<td>IIb</td>
<td>NR</td>
<td>U</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Especially if venous harvesting is planned. \(^b\) In patients with stroke/TIA. \(^c\) In asymptomatic patients with: age $\geq 70$ yrs, multivessel CAD, associated LEAD or carotid bruit. \(^d\) Screening with ECG in all patients; with imaging stress testing in case of poor functional capacity and $>2$ of the following: history of CAD, heart failure, stroke/TIA, CKD, diabetes requiring insulin therapy. NR = no recommendation; U = uncertain.
Prognosis Implications

To demonstrate the superiority of a pro-active strategy of detection and management of the extension of atherothrombosis to other territories than coronary combined with an aggressive pharmacological secondary prevention strategy in a population with very high risk features of coronary disease (pro-active strategy)

As compared with a conservative strategy based on a clinically-guided identification of MSAD and standard pharmacological treatment (conventional strategy).
Study Design

Three vessels disease $\geq 18$ years old ($\leq 6$ months) and/or
Acute coronary syndrome $\geq 75$ years old ($<1$ month)

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Pro-Active Strategy
- Active detection/management of asymptomatic atherothrombosis
  - Total body vascular doppler ultrasound investigation combined with CTA or MRI if needed
  - Ankle-brachial index measure
  - Creatinine clearance, fasting glycemia, LDL-cholesterol every 6 months
- Intensive medical therapy
  - Dual antiplatelet therapy during whole follow-up
  - High dose statin
  - Systemic beta-blockade and ACE inhibition irrespective of LVEF
  - Anti-aldosterone blockade after MI if LVEF<40%
  - Smoking cessation and rehabilitation programs

Conventional Strategy
- No detection of asymptomatic atherothrombosis
- Standard medical therapy

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Occurrence of Primary endpoint during the two year follow up
- Death (any cause)
- Any ischemic event leading to hospitalization
- Evidence of organ failure
Primary Endpoint at 2 years-FU*

* death, any ischemic event leading to rehospitalization or any evidence of organ failure

Conservative Arm
Active Arm

HR 1.03; 95% CI [0.80-1.34]

Days after randomization

Subjects at risk
Active arm 263 181 156 135 97
Conservative arm 258 174 155 133 97
Main secondary endpoint at 2 years-FU*

* All-cause death, MI, stroke or any revascularization

Subjects at risk:
- Active arm: 263, 236, 223, 208, 147
- Conservative arm: 258, 226, 217, 205, 147

HR 0.94; 95% CI (0.58-1.50)
## Localisation of MSAD (n=56)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Pro-active group (n=263)</th>
</tr>
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<tbody>
<tr>
<td>Aortic arch</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Carotid (extra and intracranial)</td>
<td>9 (4.5%)</td>
</tr>
<tr>
<td>Aortic Abdominal Aneurism ≥50mm</td>
<td>1 (0.5%)</td>
</tr>
<tr>
<td>Aortic Abdominal Aneurism &lt;50mm</td>
<td>11 (5.9%)</td>
</tr>
<tr>
<td>Renal artery disease</td>
<td>6 (3.5%)</td>
</tr>
<tr>
<td>Visceral arteries</td>
<td>4 (2.5%)</td>
</tr>
<tr>
<td>Femoro-iliac stenosis</td>
<td>27 (13.8%)</td>
</tr>
</tbody>
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Key Messages

− MSAD is identified in one out of five patients
− MSAD is associated with worse clinical outcomes;
− Systematic screening for asymptomatic MSAD is not indicated
− Clinical assessment of symptoms of MSAD is necessary;
− Patients scheduled for CABG or CEA represent specific subsets where identification of asymptomatic lesions may affect outcome

Slides available at www.action-coeur.org