Biomarkers can predict long-term (10 years) adverse cardiovascular events in vascular patients: Which ones and how can they be used

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Introduction

• Patients with peripheral artery disease have a high rate of vascular events (MI, Stroke)
• Hospitalization due to vascular events 20% at 1 and 30% at 3 years

Aim of the study

Can biomarkers predict long-term outcome in PAD patients?

Study design

• Single-center, non-randomized study
• Follow-up of PAD patients of 10 years (blood samples taken between 2002 – 2004)
• Retrospective evaluation of predictive value of:
  • Apolipoproteins A-1 and B (apoA-1 and apoB)
  • pro-BNP
  • Troponin T

Baseline characteristics

• 95 patients (73 m/22 f), median age 68.3 years (range 47-86)
• Smokers 35%
• Diabetes 27%
• Hypertension 76%
• Hypercholesterolemia 73%
• Coronary heart disease 40%
• Stroke 23%
Baseline characteristics
Rutherford Stage

<table>
<thead>
<tr>
<th>Stage</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>0</td>
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<tr>
<td>1</td>
<td>15%</td>
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<tr>
<td>2</td>
<td>14%</td>
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<tr>
<td>3</td>
<td>15%</td>
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</tbody>
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Results

• 79 patients available for follow-up and included in analysis
  • 39 pts died (16 MI, 3 stroke)
  • 40 alive
  • 16 unknown

Transport hydrophobic lipids
• Risk factor for atherosclerotic diseases (high level protective)
• Not an independent risk factor for mortality in PAD pts. (p = .78)
• Higher level: Tendency to better survival

Results: Apolipoproteine A1

• Transport hydrophobic lipids
• Higher concentrations of apoB increase the risk of cardiovascular disease
• Not an independent risk factor in PAD patients for mortality (p = .87)

Results: pro-BNP

• pro-BNP is an independent risk factor for mortality in PAD pts. (p < .001, OR 3.1)
• doubled BNP increases the risk of death 3 times at 10 years
Troponin T is an independent risk factor for mortality in PAD pts. (p > .001, OR 2.0)

Doubled Troponin T doubles risk of death

Results: Troponin T

Summary

Apolipoproteins A-1 and B no correlation with survival in PAD pts

Troponin T and pro-BNP are independent RF for mortality in PAD pts (multivariate analysis)

- double Troponin T doubles risk of death
  - double pro-BNP triples risk of death

Rutherford stage was not an independent risk factor for survival