FFR guided acute complete revascularization versus culprit lesion only treatment in STEMI patients presenting with multivessel disease; 3-year cost-analysis data from the COMPARE-ACUTE trial

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On behalf of all COMPARE-ACUTE investigators

With special thanks to:
Pietro Laforgia, Hanneke Fischer, Geert W. Frederix, Elmir Omerovic, Mohamed Abdel-Wahab, and Gert Richardt
COMPARE-ACUTE
Trial design

Acute STEMI patients undergoing primary PCI

885 stable multivessel STEMI pts. randomized

1:2 randomization

295 pts
- FFR-guided complete revascularization of non-IRA lesions

590 pts
- Infarct related artery only treatment + blinded FFR of non-IRA lesions
- 45 day treatment window for elective clinically indicated PCI

Follow-up at 30 days, 12, 24 and 36 months

24 Centres in Europe & Asia

FFR was measured by Pd/Pa at rest and after i.v. or i.c. adenosine

45 day treatment window for elective clinically indicated PCI
Primary endpoint MACCE: Cardiac death, Myocardial Infarction, Revascularization & Stroke

![Graph showing event-free survival over time with two strategies: FFR guided complete revascularisation and Infarct artery only strategy.](image)

- FFR guided complete revascularisation: 15.6%
- Infarct artery only strategy: 30.2%

HR: 0.46 (95% CI 0.33-0.64)
p<0.001

Smits et al. NEJM 2017; 376:1234-1244

Smits et al. ESC 2019
Purpose of study:
Cost analysis of both strategies from a payer (health insurer) perspective using DRG costs

- Costs: index PCI, revascularisation, MI, Stroke, Hospitalizations

- Costs per patient:

\[
\text{Average costs} = \frac{\sum \text{costs index PCI} + \sum \text{costs per event} \times \text{occurrence event}}{n}
\]

- Difference:

\[
\Delta \text{Cost} = \text{average costs "IRA only"} - \text{average costs "Full revasc"}
\]

\[
\text{Cost reduction} = 100 - \frac{\text{Average costs per pt IRA only}}{\text{Average costs per pt Full revasc}} \times 100 \, (\%)
\]
3 year cost analysis outcome

<table>
<thead>
<tr>
<th>Average cost/patient</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NL</td>
<td>DE</td>
<td>SE</td>
<td>IN</td>
</tr>
<tr>
<td>FFR guided complete</td>
<td>€ 8.653</td>
<td>€ 4.887</td>
<td>€ 6.205</td>
<td>€ 3.704</td>
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<tr>
<td>Revascularization</td>
<td></td>
<td></td>
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<tr>
<td>IRA only</td>
<td>€ 11.100</td>
<td>€ 5.200</td>
<td>€ 8.133</td>
<td>€ 3.685</td>
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<tr>
<td>Revascularization</td>
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<td></td>
</tr>
<tr>
<td>Difference</td>
<td>€ 2.477</td>
<td>€ 314</td>
<td>€ 1.928</td>
<td>€ -19</td>
</tr>
<tr>
<td>Cost reduction</td>
<td>22%</td>
<td>6%</td>
<td>24%</td>
<td>-0.5%</td>
</tr>
</tbody>
</table>
Conclusion

• FFR guided complete revascularization in the acute setting of STEMI PCI procedures can result in lower costs for society

• This strategy can result in 22% and 24% cost reduction for the Netherlands and Sweden, respectively, almost all obtained in the first year of follow-up

• In Germany a moderate 6% cost reduction and in Poland no cost reduction was seen, based on differences in DGR reimbursements at index procedure between both strategies, however FFR guided acute complete revascularization strategy results in less MACCE and less invasive procedures for patients
Trial Organization

Steering committee
Gert Richardt, Mohamed Abdel-Wahab, Elmir Omerovic, Franz-Josef Neumann, Pieter Smits (PI)

DSMB
Per-Anders Jansson, Marianne Hartford, Kjell Petersson

CRO
Gothia Forum (Gothenburg, Sweden): monitoring, data management
Diagram (Zwolle, The Netherlands): core lab and clinical event adjudication

Statistic analysis
Bianca Boxma - de Klerk

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