Repeat coronary revascularization in high-risk patients treated with ticagrelor monotherapy after PCI: Insights from the randomized TWILIGHT trial

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On behalf of The TWILIGHT investigators

Funding Acknowledgements: Type of funding sources: Other. Main funding source(s): Astra Zeneca provided a research grant to the Icahn School of Medicine

Background: Repeat revascularization after percutaneous coronary intervention (PCI) remains a major concern, even though its impact on mortality is limited. The effect of ticagrelor monotherapy vs. standard dual antiplatelet therapy (DAPT) on this outcome is unclear.

Aim: To assess the impact of ticagrelor monotherapy vs. DAPT on repeat revascularization after PCI.

Methods: In the TWILIGHT trial, high-risk patients who were event-free and adherent to a ticagrelor-based DAPT for 3 months after PCI were randomized to ticagrelor plus aspirin or ticagrelor plus placebo for 12 additional months. In this post-hoc analysis, the primary endpoint was repeat revascularization due to recurrent or persistent symptomatic myocardial ischemia. Secondary endpoints included target lesion revascularization (TLR), target vessel revascularization (TVR) and major adverse cardiac and cerebrovascular events (MACCE) and net adverse clinical events (NACE) (Figure). All endpoints were adjudicated and assessed at 12 months after randomization in the per-protocol population.

Results: Among 6,759 patients, ticagrelor monotherapy and ticagrelor plus aspirin were associated with a similar risk of repeat revascularization (7.1% vs 6.7%, HR 1.07, 95% CI 0.89-1.29), TLR, TVR and MACCE (Figure), while NACE was lower with ticagrelor monotherapy.

Conclusion: In high-risk patients undergoing PCI, ticagrelor monotherapy after 3 months of ticagrelor plus aspirin was associated with similar rates of recurrent coronary revascularization and MACCE and a lower risk of NACE compared with continued DAPT.
## Outcomes at 12 months after randomization.

<table>
<thead>
<tr>
<th></th>
<th>Ticagrelor + Placebo N = 3,377</th>
<th>Ticagrelor + Aspirin N = 3,376</th>
<th>Hazard ratio (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeat revascularization</td>
<td>237 (7.1%)</td>
<td>222 (6.7%)</td>
<td>1.07 (0.89 – 1.29)</td>
<td>0.447</td>
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<tr>
<td>Target lesion revascularization</td>
<td>125 (3.8%)</td>
<td>117 (3.5%)</td>
<td>1.07 (0.83 – 1.38)</td>
<td>0.585</td>
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<tr>
<td>Target vessel revascularization</td>
<td>131 (3.9%)</td>
<td>121 (3.6%)</td>
<td>1.09 (0.85 – 1.39)</td>
<td>0.507</td>
</tr>
<tr>
<td>MACCE*</td>
<td>299 (8.9%)</td>
<td>291 (6.7%)</td>
<td>1.03 (0.88 – 1.22)</td>
<td>0.683</td>
</tr>
<tr>
<td>NACE*</td>
<td>413 (12.4%)</td>
<td>403 (14.7%)</td>
<td>0.83 (0.73 – 0.94)</td>
<td>0.005</td>
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<tr>
<td>BARC 2, 3 or 5</td>
<td>136 (4.1%)</td>
<td>239 (7.2%)</td>
<td>0.56 (0.45 – 0.69)</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

* Major adverse cardiac and cerebrovascular events included all-cause death, any MI, any stroke, any coronary revascularization.
* Net adverse clinical events included: all-cause death, any myocardial infarction, any stroke, any coronary revascularization, and BARC 2, 3 or 5 bleeding.