Abstract: 1269

Dual antiplatelet therapy to inhibit myocardial injury in patients with high-risk coronary artery plaque: a randomized controlled trial

Authors:
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Topic(s):
Positron Emission Tomography (PET)

Citation:

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Background

High-risk coronary atherosclerotic plaque is associated with higher plasma troponin concentrations suggesting ongoing myocardial injury that may be a target for dual antiplatelet therapy.

Purpose

To determine whether ticagrelor reduces high-sensitivity troponin I concentrations in patients with established coronary artery disease and high-risk coronary plaque with 18F-fluoride uptake.

Methods

In a randomized double-blind placebo-controlled trial, patients with multivessel coronary artery disease underwent coronary 18F-fluoride positron emission tomography-computed tomography and measurement of high-sensitivity cardiac troponin I and were randomized (1:1) to ticagrelor 90 mg twice daily or matched placebo. The primary endpoint was troponin I concentration at 30 days in patients with increased coronary 18F-fluoride uptake.

Results

In total, 202 patients were randomized and 191 met the pre-specified criteria for inclusion in the primary analysis. In patients with increased coronary 18F-fluoride uptake (n=120/191) there was no evidence that ticagrelor had an effect on plasma troponin concentrations at 30 days (ratio of geometric means for ticagrelor versus placebo, 1.11, [95% confidence interval 0.90 to 1.36], p=0.32) (Table 1). Over 1 year, ticagrelor had no effect on troponin concentrations in patients with increased coronary 18F-fluoride uptake (ratio of geometric means, 0.86, 95% confidence interval 0.63 to 1.17, p=0.33).

Conclusions

Dual antiplatelet therapy with ticagrelor does not reduce plasma troponin concentrations in patients with coronary 18F-fluoride uptake. This suggests that subclinical plaque thrombosis does not contribute to ongoing myocardial injury in this setting.

Clinical Trials Study ID: NCT02110303

Adjusted Geometric Mean (GSE)

<table>
<thead>
<tr>
<th></th>
<th>Ticagrelor</th>
<th>Placebo</th>
<th>Ratio of Geometric Means</th>
<th>p-valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac troponin I, ng/L (18F-fluoride activity)</td>
<td>3.8 (1.1)</td>
<td>3.4 (1.1)</td>
<td>1.11 (0.90 to 1.36)</td>
<td>0.32</td>
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<tr>
<td>Cardiac Troponin I, ng/L (No 18F-fluoride activity)</td>
<td>2.4 (1.1)</td>
<td>2.3 (1.1)</td>
<td>1.02 (0.80 to 1.31)</td>
<td>0.87</td>
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Plasma high-sensitivity cardiac troponin I concentration (ng/L) at 30 days for the per-protocol population. Estimates are back-transformed estimates from analysis of log transformed values at 30 days adjusting for age, sex and log transformed baseline troponin. Ratio of geometric means is Ticagrelor divided by Placebo. GSE, geometric standard error.
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### Table 1

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**Coronary 18F-fluoride PET-CT**

**Ticagrelor versus Placebo**

**30-day hsTroponin I concentration**