Abstract: **P5740**

ACE2 activity level is associated with embolic stroke of undetermined source.

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Topic(s):
Stroke – Pathophysiology and Mechanisms

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Background: ACE2 activity levels correlate with adverse left atrial remodelling in patients with atrial fibrillation (AF). Several biochemical and structural markers have been associated with embolic stroke of undetermined source (ESUS). The relationship between ACE2 activity and ESUS is unknown.

Purpose: Randomised controlled trials failed to demonstrate a clear benefit of oral anticoagulation in an unselected ESUS population. As selective use of oral anticoagulation guided by biomarker risk-profiling may benefit these patients, we evaluated the association between ACE2 activity and ESUS.

Methods: This prospective case control study compared patients with ESUS against a control group matched for vascular risk factors. ESUS was diagnosed following cerebral vascular imaging and 24 hours of cardiac monitoring to exclude AF. Blood samples were collected for measurement of ACE2 activity, D-Dimer and high sensitivity troponin T (hsTnT).

Results: A total of 51 patients in the ESUS group were compared with 47 patients in the Control group. ACE2 activity and D-Dimer levels were significantly higher in the ESUS group. There was a significant but weak positive correlation between ACE2 activity and hTnT (r = 0.20, p < 0.05). Left atrial volume index (LAVI) on echocardiography was significantly higher in the ESUS group. On regression modelling adjusting for LAVI, only ACE2 activity remained significant for ESUS, with a 20% rise in odds for every 4 unit increase in ACE2 activity (OR 1.20; 95% CI: 1.01 - 1.36, p = 0.04).

Conclusion(s): ACE2 activity is associated with ESUS independent of left atrial volume and correlate with elevated Troponin. Further studies are warranted to investigate the utility of ACE2 activity in identifying ESUS patients that may benefit from oral anticoagulation.
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<table>
<thead>
<tr>
<th>LA size &amp; Biomarkers</th>
<th>Control</th>
<th>ESUS</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA volume index (ml/m²)</td>
<td>36.5 (32.6 - 42.5)</td>
<td>39.1 (36.2 - 46.0)</td>
<td>0.04</td>
</tr>
<tr>
<td>ACE2 (pmol/ml/min)</td>
<td>7.24 (2.66 - 14.64)</td>
<td>10.16 (4.54 - 18.80)</td>
<td>0.04</td>
</tr>
<tr>
<td>D-Dimer (mg/L)</td>
<td>0.35 (0.3 - 0.5)</td>
<td>0.40 (0.30 - 0.60)</td>
<td>0.02</td>
</tr>
<tr>
<td>hsTroponin T (ng/L)</td>
<td>7.0 (5 - 10)</td>
<td>9.00 (6. - 13.5)</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Values are expressed as mean ± standard deviation, median (IQR), or n(%).

**Median ACE2 activity**

![Graph showing median ACE2 activity with p<0.05](image-url)