Dabigatran Provides Marked Protection from Hypertension-Carotid Artery Stenosis-Induced Vascular Cognitive Impairment*

**History:** Thrombin plays well-recognized roles in coagulation and cerebrovascular inflammation. High blood pressure can increase coagulation, vascular inflammation, and cerebral injury. The combination of hypertension and forebrain hypoperfusion leads to behavioral and forebrain pathology in rats, representing a “mixed-risk” model of vascular cognitive impairment (VCI).

**Questions to answer:** Does thrombin inhibition reduce VCI progression in a “mixed-risk” rat model?

**Trial Design**

- Hypertensive rats (SHR) underwent bilateral carotid stenosis to reduce forebrain perfusion and produce VCI. VCI SHR received control chow (VCI-Control; N=7) or chow containing dabigatran (VCI-Dabigatran; N=7). Sham-stenosed SHR received control chow (Sham-VCI; N=5) for comparison.
- **F/U:** Weekly evaluation for sensory-motor deficits; cognitive assessment over 6 weeks.

**Primary Endpoint**

- Sensory-motor deficits (based on modified Neurological Severity Score [mNSS] and Foot-Fault Test [FFT]) and cognitive decline (based on Active Place Avoidance [APA] errors) over 6 weeks.

**Trial Results**

<table>
<thead>
<tr>
<th></th>
<th>mNSS</th>
<th>FFT</th>
<th>APA Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sham-VCI</td>
<td>0.0 + 0.0**</td>
<td>0.2 + 0.2**</td>
<td>1.5 + 0.7**</td>
</tr>
<tr>
<td>VCI-Dabigatran</td>
<td>0.6 + 0.3**</td>
<td>2.5 + 0.5**</td>
<td>3.3 + 1.0**</td>
</tr>
<tr>
<td>VCI-Control</td>
<td>2.9 + 0.8</td>
<td>6.3 + 1.0</td>
<td>35.9 + 3.9</td>
</tr>
</tbody>
</table>

**Take Away:** Treatment with dabigatran produced a significant protection from sensory-motor deficits and cognitive decline following VCI in a “mixed-risk” rat model.

*Data from abstract

Presented by: Barone FC, International Stroke Conference, San Diego, CA © 2014, American Heart Association. All rights reserved.