Abstract: P946

Abnormal ankle brachial indices are associated with ischemic stroke: evidence from a large cohort study

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Background: Peripheral arterial disease is a marker of aggressive atherosclerosis. The ankle brachial index (ABI) is a simple and non-invasive tool to diagnose peripheral arterial disease (PAD). Patients with PAD are at increased risk for ischemic strokes and other cardiovascular diseases.

Purpose: To evaluate the association of abnormal ABI and poorly compressible vessels with ischemic stroke in a large patient cohort.

Methods: We analyzed lower extremity vascular studies of all patients with ABI measurements at a tertiary care hospital between January 1996 and August 2018. PAD is defined as ABI<1.0, and poorly or non-compressible (PC/NC) arteries as ABI>1.4 while ABI between 1.0-1.4 is normal. Association of these ABIs with new ischemic stroke events post ABI measurement were analyzed after adjusting for high risk confounders such as atrial fibrillation. Hazard ratios (HR) were calculated using multivariable Cox proportional regression with 95% confidence intervals.

Results: In total, 38,016 unique patients (mean age 66.1 ± 14.8 years, female 42.3%) were included. Abnormal ABI was found to be more prevalent among elderly male patients compared to patients with normal ABI. In contrast to non-PAD patients, both PAD and PC/NC patients as defined by ABI had a statistically significant risk of ischemic stroke, with PAD conferring the greatest risk compared to PC/NC vessels. The data is summarized in Table 1.

Conclusion: This study adds to the growing body of evidence that PAD and poorly-compressible vessels are independently associated with an increased risk of ischemic stroke. Given the associated risk of cerebrovascular disease, clinicians should aggressively treat to minimize risk factors in those with abnormal ABIs.

<table>
<thead>
<tr>
<th></th>
<th>Unadjusted HR</th>
<th>p-value</th>
<th>Adjusted HR</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>PAD vs. No PAD</td>
<td>2.77 (2.62, 2.92)</td>
<td>&lt;0.001</td>
<td>2.10 (1.98, 2.22)</td>
<td>&lt;0.001</td>
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<tr>
<td>PC/NC vs. No PAD</td>
<td>2.11 (1.95, 2.28)</td>
<td>&lt;0.001</td>
<td>1.38 (1.26, 1.51)</td>
<td>&lt;0.001</td>
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<tr>
<td>PAD vs. PC/NC</td>
<td>1.37 (1.28, 1.46)</td>
<td>&lt;0.001</td>
<td>1.37 (1.28, 1.48)</td>
<td>&lt;0.001</td>
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Adjusted and unadjusted hazard ratios with p-values. HR adjusted for age, sex, atrial fibrillation, ischemic stroke, transient ischemic attack, chronic heart failure, diabetes mellitus, hyperlipidemia, hypertension, and coronary artery disease. PAD=Peripheral artery disease and PC/NC= poorly compressible/ non-compressible.