Abstract: 6072

Risk of stroke in hypertensive patients with atrial fibrillation treated with oral anticoagulants

Authors:
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Topic(s):
Hypertension – Epidemiology, Prognosis, Outcome

Citation:

BACKGROUND:
Hypertension is common in patients with atrial fibrillation (AF) and carries an additional risk for complications, most notably stroke and bleeding. We assessed the history of hypertension, level of blood pressure control, and an interaction with the choice of oral anticoagulants on clinical outcomes.

PURPOSE:
To gain insights into the risks of hypertension in the setting of AF and explore possible interactions with the safety and efficacy of non-vitamin K oral anticoagulants (NOACs) versus vitamin K antagonists (VKAs).

METHODS:
We performed a systematic review and meta-analysis of studies that randomised patients to NOACs or VKAs and reported outcomes stratified by presence of hypertension. Collected outcomes included: ischaemic stroke or systemic embolism (SE), death from any cause, hemorrhagic stroke, major bleeding, and intracranial hemorrhage. Log adjusted hazard ratios (HR) and corresponding standard error were calculated, and HRs were compared using Mantel-Haenszel random effects. Quality of the evidence was assessed with Cochrane risk of bias tool.

RESULTS:
Five high-quality studies were eligible, including 71,602 participants who received NOACs (apixaban, dabigatran, edoxaban, rivaroxaban) or VKAs, with median follow-up of 1.8-2.8 years. 89.2% of participants had a history of hypertension. Compared with patients without hypertension, those with controlled and uncontrolled hypertension had higher risk for stroke/SE (HR:1.21 [1.04-1.41] and HR:1.50 [1.12-2.01], respectively) and haemorrhagic stroke (HR:1.78 [1.06, 3.00] and HR:1.66 [0.99-4.01], respectively). On a continuous scale, the risk of stroke increased 7% per 10mmHg increase in systolic blood pressure. As shown in the Table, no interactions were found between hypertension status and the efficacy or safety of NOACs versus VKAs.

CONCLUSIONS:
Adequate blood pressure management is vital to optimally reduce the risk of stroke in patients with atrial fibrillation. The benefits of NOACs over VKAs, also apply to patients with elevated blood pressure.

<table>
<thead>
<tr>
<th></th>
<th>Hypertension (n=63,869)</th>
<th>No hypertension (n=7,733)</th>
<th>P-value (int)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adjusted HR, 95%-CI</td>
<td>Adjusted HR, 95%-CI</td>
<td></td>
</tr>
<tr>
<td>Stroke or systemic embolism</td>
<td>0.80, 0.72-0.89</td>
<td>0.79, 0.53-1.19</td>
<td>0.98</td>
</tr>
<tr>
<td>Haemorrhagic stroke</td>
<td>0.55, 0.41-0.74</td>
<td>0.24, 0.04-1.37</td>
<td>0.36</td>
</tr>
<tr>
<td>Death from any cause</td>
<td>0.91, 0.84-0.98</td>
<td>0.89, 0.76-1.04</td>
<td>0.82</td>
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<td>Death from any cause</td>
<td>0.84-0.98</td>
<td>0.76-1.04</td>
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</tr>
<tr>
<td>Major bleeding</td>
<td>0.76-1.07</td>
<td>0.69-1.01</td>
<td>0.84</td>
</tr>
<tr>
<td>Intracranial haemorrhage</td>
<td>0.48-1.69</td>
<td>0.14-1.69</td>
<td>0.48</td>
</tr>
<tr>
<td>Major or clinically relevant non-major</td>
<td>0.68-1.18</td>
<td>0.55-1.53</td>
<td>0.91</td>
</tr>
<tr>
<td>bleed</td>
<td></td>
<td></td>
<td>0.91</td>
</tr>
</tbody>
</table>

Interaction of presence of hypertension on the comparative efficacy and safety of NOAC versus VKA