A simple risk score predicted 7 day stroke risk after transient ischaemic attack

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A simple risk score predicted 7 day stroke risk after transient ischaemic attack


Q Can a simple risk score predict stroke during the first 7 days after probable or definite transient ischaemic attack (TIA)?

A modified version of this abstract appears in ACP Journal Club.

**CONCLUSION**

In patients with transient ischaemic attack, a simple risk score based on age, blood pressure, clinical features, and duration of symptoms predicted 7 day stroke risk.

**MAIN RESULTS**

7 day stroke risk was 8.6% in OSCP cohort, 10.5% in the OXVASC (probable or definite TIA) cohort, 5.3% in the OXVASC (suspected TIA) cohort, and 6.7% in the clinic (suspected TIA) cohort. The distributions of ABCD scores in the validation cohorts are presented in the table. The areas under the receiver operating characteristic curve were 0.85 (95% CI 0.80 to 0.90) in the OXVASC (probable or definite TIA) cohort, 0.83 (95% CI 0.78 to 0.88) in the OXVASC (suspected TIA) cohort, and 0.70 (95% CI 0.64 to 0.76) in the clinic (suspected TIA) cohort. The scores in the latter 2 cohorts remained predictive when excluding strokes that occurred before patients sought medical attention (p≤0.01).

**METHODS**

Design: 3 cohort studies: a derivation cohort (Oxfordshire Community Stroke Project [OSCP]), and 2 independent validation cohorts (2 cohorts from the Oxford Vascular Study [OXVASC] and a cohort of patients referred to a hospital based TIA clinic).

Setting: 10 family practices in Oxfordshire, UK (OSCP and OXVASC cohorts) and a hospital based TIA clinic.

Patients: 209 patients (mean age 70 y) with a first ever probable or definite TIA (OSCP derivation cohort); 190 patients (mean age 74 y) with probable or definite TIA and 378 patients (mean age 70 y) with suspected TIA (OXVASC validation cohorts); and 210 patients (mean age 65 y) referred to the hospital clinic with suspected TIA (clinical validation cohort).

Description of prediction guide: analysis of predefined risk factors in the derivation cohort found that age ≥60 years, clinical features, symptom duration, and elevated blood pressure (BP) at presentation were predictive of stroke (p<0.1); diabetes and previous diagnosis of hypertension were not. The resulting risk score, termed the ABCD (age, BP, clinical features, and duration) score, therefore included age ≥60 y = 1, BP ≥140 mm Hg systolic or ≥90 mm Hg diastolic = 1, clinical features (unilateral weakness = 2, speech disturbance without weakness = 1, other = 0), and duration of symptoms ≥60 min = 2, 10–59 min = 1, <10 min = 0.

Outcomes: 7 day risk of stroke.

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**COMMENTARY**

A standardised evidence-based approach to triage applied across healthcare sectors and professional providers has potential to ensure that prevention clinics will continue to meet the urgent needs of those at high risk of stroke. The use of a validated triage tool would provide healthcare professionals with confidence that their assessments will not put patients at further risk. Given the mortality and morbidity associated with a major stroke event and the diversity of stroke expertise among providers, this is an important consideration. However, in order to implement the broad use of the ABCD tool, a considerable investment in professional education and marketing will be required.

Although the results reported by Rothwell et al indicate that a simple risk score predicted 7 day stroke risk in these populations, the study should be replicated in other geographic locations and at-risk stroke populations to ensure the generalisability of the findings. Studies are also needed to determine the feasibility of incorporating the tool in practice across sectors and professionals in various healthcare delivery systems (public and private).

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7 day stroke risk by ABCD score in OXVASC and clinic validation cohorts*

<table>
<thead>
<tr>
<th>ABCD score</th>
<th>OXVASC cohort (188 patients with probable or definite TIA)</th>
<th>OXVASC cohort (375 patients with suspected TIA)</th>
<th>TIA clinic cohort (206 patients with suspected TIA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Patients with score</td>
<td>7 day stroke risk (95% CI)</td>
<td>Patients with score</td>
</tr>
<tr>
<td>≤ 1</td>
<td>1%</td>
<td>0</td>
<td>7%</td>
</tr>
<tr>
<td>2</td>
<td>15%</td>
<td>0</td>
<td>20%</td>
</tr>
<tr>
<td>3</td>
<td>17%</td>
<td>0</td>
<td>22%</td>
</tr>
<tr>
<td>4</td>
<td>24%</td>
<td>2.2% (0 to 6.4)</td>
<td>24%</td>
</tr>
<tr>
<td>5</td>
<td>26%</td>
<td>16% (6 to 27)</td>
<td>18%</td>
</tr>
<tr>
<td>6</td>
<td>21%</td>
<td>36% (19 to 52)</td>
<td>9%</td>
</tr>
</tbody>
</table>

*OXVASC = Oxford Vascular Study, TIA = transient ischaemic attack. CI defined in glossary.