

Transient Ischemic Attack (TIA): Prognosis and Key Management Considerations

ABCD² Score

The ABCD² score is a risk assessment tool designed to improve the prediction of short-term stroke risk after a transient ischemic attack (TIA). The score is optimized to predict the risk of stroke within 2 days after a TIA, but also predicts stroke risk within 90 days. The ABCD² score is calculated by summing up points for five independent factors.

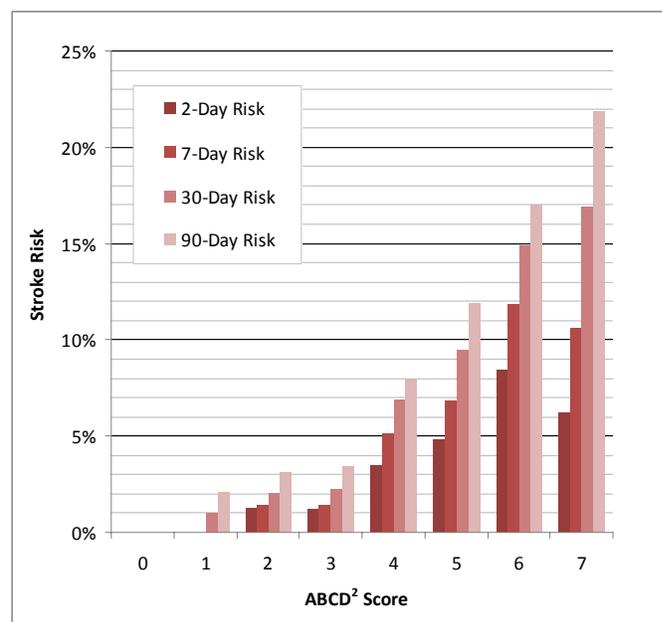
| Risk Factor | Points | Score |
|---|--------|--------------------------|
| Age ≥ 60 years | 1 | <input type="checkbox"/> |
| Blood pressure Systolic BP ≥ 140 mm Hg OR Diastolic BP ≥ 90 mm Hg | 1 | <input type="checkbox"/> |
| Clinical features of TIA (choose one) Unilateral weakness with or without speech impairment OR Speech impairment without unilateral weakness | 2 1 | <input type="checkbox"/> |
| Duration TIA duration ≥ 60 minutes TIA duration 10-59 minutes | 2 1 | <input type="checkbox"/> |
| Diabetes | 1 | <input type="checkbox"/> |
| Total ABCD² score | 0-7 | <input type="checkbox"/> |

Using the ABCD² Score

Higher ABCD² scores are associated with greater risk of stroke during the 2, 7, 30, and 90 days after a TIA (Figure). The authors of the ABCD² score made the following recommendations for hospital observation:¹

| ABCD ² Score | 2-day Stroke Risk | Comment |
|-------------------------|-------------------|--|
| 0-3 | 1.0% | Hospital observation may be unnecessary without another indication (e.g., new atrial fibrillation) |
| 4-5 | 4.1% | Hospital observation justified in most situations |
| 6-7 | 8.1% | Hospital observation worthwhile |

[1] Johnston SC, Rothwell PM, Huynh-Huynh MN, Giles MF, Elkins JS, Sidney S, "Validation and refinement of scores to predict very early stroke risk after transient ischemic attack," *Lancet*, 369:283-292, 2007.



Key Management Considerations for TIA

Clinical consensus guidelines recommend urgent evaluation and treatment of patients with TIA. The following recommendations were redacted from the National Stroke Association Guidelines.²

EVALUATION

- **Initial Evaluation:** Prompt initial evaluation (within 12h); evaluation completed within 48 hours
- **Hospitalization:** Should be considered to facilitate early therapy and secondary prevention
- **Lab testing:** Full blood count, serum electrolytes and creatinine; fasting blood glucose and lipids
- **Electrocardiography:** Recommended within 48 hours
- **Brain imaging study:** CT or MRI within 48 hours
- **Vascular imaging:** Carotid imaging, CT or MR angiography, or transcranial Doppler within 48 hours

MEDICAL MANAGEMENT

- **Antithrombotic Therapy**
 - **Atherothrombotic TIA:** Daily long-term antiplatelet therapy: combination extended-release dipyridamole plus aspirin (reasonable as first choice), clopidogrel, or aspirin alone. Anticoagulation is not recommended
 - **Cardioembolic TIA:** Long-term anticoagulation for atrial fibrillation (continuous or paroxysmal). If patient intolerant to anticoagulation, aspirin 325 mg daily; clopidogrel 75 mg daily if intolerant to aspirin.
- **Hypertension:** Lower blood pressure to <140/90 mm Hg or <130/80 mm Hg for diabetics, with an ACE inhibitor alone or in combination with a diuretic, or with an angiotensin-receptor blocker
- **Lipids:** Initiate a daily statin. Goal LDL-cholesterol level <2.59 mmol/l (<100mg/dl)
- **Smoking:** Initiate a cessation program
- **Diabetes:** Fasting blood glucose goal <126mg/dl
- **Physical activity:** Recommend ≥10 min of exercise such as walking, bicycling, running, or swimming ≥3 times/week

SURGICAL MANAGEMENT

- **Carotid endarterectomy:** Preferably within 2 weeks of cerebral or retinal TIA in those with TIA attributed to a high-grade internal carotid artery stenosis:
 - **70-99% internal carotid artery stenosis:** Recommended
 - **50-69% stenosis:** Recommended for certain patients and only at centers with perioperative complication rate <6%
 - **<50% stenosis:** Not recommended
- **Bypass surgery:** Not recommended

Abbreviations: MR, magnetic resonance; TIA, transient ischemic attack

[2] Johnston SC, Nguyen-Huynh MN, Schwarz ME, Fuller K, Williams CE, Josephson SA, et al. National Stroke Association guidelines for the management of transient ischemic attacks. *Ann Neurol* 60: 301-313, 2006.

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