

Letter by Maarsingh and van der Wouden Regarding Article, "Application of the ABCD² Score to Identify Cerebrovascular Causes of Dizziness in the Emergency Department"
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Letter by Maarsingh and van der Wouden Regarding Article, “Application of the ABCD² Score to Identify Cerebrovascular Causes of Dizziness in the Emergency Department”

To the Editor:

In their retrospective analysis of 907 consecutive patients with dizziness presenting to a tertiary care emergency department, Navi et al¹ evaluated the ABCD² score (a score developed to predict the risk of stroke after transient ischemic attack) for the identification of cerebrovascular causes of dizziness. Using the median modified ABCD² score as a cutoff, 5 of 512 patients with an ABCD² score of ≤ 3 had a cerebrovascular event compared with 32 of 395 patients with an ABCD² score of 4 to 7. The authors conclude that the ABCD² score may be a useful tool to identify dizzy emergency department patients with a low risk for cerebrovascular disease and they suggest further research to develop a validated clinical risk score.

Although we feel great sympathy for the development of a simple and accurate tool for ruling out cerebrovascular disease among dizzy patients, especially from a cost perspective, we believe that the authors overestimate the diagnostic performance of the ABCD² score for dizzy emergency department patients. First, different reference tests were used to determine the presence or absence of the target condition (only 35% of patients were evaluated by neuroimaging, the preferred reference standard), which may have resulted in a 2-fold overestimation of the diagnostic accuracy compared with studies using a single reference test (differential verification bias).^{2,3} Furthermore, the authors did not adjust for differential verification bias.^{3,4} Second, it was possible (and likely) that components of the ABCD² score were implicitly used by the reviewers during their interpretation of the reference test, which may have led to further overestimation of the diagnostic accuracy by approximately 30% compared with studies with adequate blinding (incorporation bias).^{2,3} Third, the ABCD² score was evaluated among selected patients seen in a tertiary care referral center. Application of the ABCD² score among dizzy patients seen in primary or secondary care (with a lower prior probability of the target condition) will negatively influence its discriminative ability. Fourth, we are not convinced that the “C” of the ABCD² score (Clinical: speech disturbance and unilateral weakness) has been assessed in a reliable way, because this information was collected retrospectively from medical records. It is likely that only a selection of

cases (the well-described, clearcut cases) received a positive score for this item, leading to overestimation of the diagnostic performance of the ABCD² score. Finally, it can be calculated that sensitivity and specificity are 86% and 58%, respectively, and positive and negative predictive values 8% and 99%, respectively, meaning that the probability of absence of cerebrovascular disease in dizzy patients changes from 96% to 99% in case of an ABCD² score of ≤ 3 . This is a relatively small change of probability, which certainly deserves a more elaborate discussion (eg, will a probability change from 96%–99%, but probably less, actually influence a clinician’s management decision?).

Based on these arguments, we doubt the diagnostic performance of the ABCD² score among dizzy patients presenting at an emergency department; therefore, the additional value of a future validation study can be questioned. We suggest the authors extend the current model with other potent variables⁵ to develop and validate a more tailored instrument for ruling out cerebrovascular causes of dizziness.

Disclosures

None.

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