The Risk Factors for Thromboembolism in Nonvalvular Atrial Fibrillation and CHADS2 Scoring in Japan

To the Editor:

In 2006, Inoue, et al1 published an interesting study on the results of risk factors in nonvalvular atrial fibrillation (NVAF) that employs stratified scoring (CHADS2).2 In their article, and in communications to date, they have advocated use of CHADS2 in the Japanese population. Unfortunately, their data provide little support for this advocacy.

In this report, event rates (% per year) among 3 risk levels for thromboembolism in NVAF are 5/64 (CHADS2 score =0), 5/134 (score 1+2), and 10/65 (score >3) in patients receiving warfarin (chi-square test p=0.015). In patients not receiving warfarin the results are 1/87, 7/126, and 3/33 (p=0.11). These results are inconsistent in that, in patients receiving warfarin, the event rate of the low-risk group is higher than that of the moderate risk group (ie, 3.9% vs 1.9%).

The authors deal with this problem by making a data-driven modification of CHADS2; that is, giving 1 point to hypertrophic cardiomyopathy. Thereafter, they reported that there was a significant difference between the score and the event rate in warfarin group; 2/59 (score =0), 8/135 (score = 1+2), and 10/69 (score >3) by chi-square test p=0.035.

Perhaps the biggest problem with this modification is that it was clearly driven by the data rather than an a priori decision. In addition, when as in this case, numbers of events are very small, a statistical correction such as Yates’ chi-square test (Yates’) or Fisher’s exact test is required to avoid an overly optimistic (easy to show significance) p-value. When the data reported by the authors are analyzed by Yates’, there is no statistical significance between the event rate and the 3 risk stratifications; 2/59 (1.7%), 8/135 (3%), and 10/69 (7.2%) in the warfarin group (Yates’ p=0.08); and 1/84 (0.6%), 6/126 (2.4%), and 4/36 (5.6%) in the non-warfarin group (Yates’ p=0.15).

The most recent and comprehensive report of independent predictors of stroke in patients with atrial fibrillation describes 4 key clinical features3 that overlap with CHADS2, but are not identical.

Based on these considerations, we require more rigorous study of the usefulness of CHADS2 scoring in Japan.

References


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