Title: CHA$_2$DS$_2$-VASc score use in sinus rhythm: Can it predict cardiovascular events?

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Main text
The CHA$_2$DS$_2$-VASc score has been developed to stratify patients with Atrial Fibrillation (AF) with regards to risk of thromboembolism, and is a universally accepted guide to antithrombotic therapy in patients with AF.$^1$

However, higher scores have also been recently associated with increased mortality in patients with AF$^2$ and recent studies have investigated this association further in patients without AF. Such small studies in patients without AF determined that an increased CHA$_2$DS$_2$-VASc score was associated with increased risk of stroke and thromboembolism$^3$ as well increased risk of developing new AF in patients with$^4$ and without prior ischaemic stroke.$^5$

In this issue of the Journal Renda et al. present a large study of 22,179 middle-aged individuals with 18,367 in sinus rhythm.$^6$ The main purpose of the study was to assess the prognostic yield of CHA$_2$DS$_2$-VASc score in the non-AF population for new onset AF, cardiovascular morbidity and mortality. The authors should be congratulated for a well-designed and executed study which provides the largest study to date assessing the role of CHA$_2$DS$_2$-VASc
score as a risk factor for new AF. The participants were stratified according to their CHA\textsubscript{2}DS\textsubscript{2}-VASc score into 5 different groups (0,1,2,3 and ≥4) and the risk of major adverse cardiovascular events was compared between the different groups.

Over a 15-year follow up period in the participants with sinus rhythm; they identified 5% with an ischaemic stroke, 9% with coronary events, 7% cardiovascular mortality and 24% all cause mortality. A CHA\textsubscript{2}DS\textsubscript{2}-VASc ≥2 was associated with double the risk of all cause mortality, cardiovascular death and ischaemic stroke. Cumulative incidences, absolute and relative risks of major adverse events and mortality were greater with increasing CHA\textsubscript{2}DS\textsubscript{2}-VASc score in subjects with and, importantly, without AF.

Moreover, the incidence of AF during the follow up period was 14% and was more common with higher CHA\textsubscript{2}DS\textsubscript{2}-VASc score. More importantly they found that CHA\textsubscript{2}DS\textsubscript{2}-VASc ≥2 was an independent predictor for new onset AF with a hazard ratio of 2.2.

Furthermore, a novel and clinically relevant finding was that the incidence of ischaemic stroke was similar in patients with a CHA\textsubscript{2}DS\textsubscript{2}-VASc ≥4 in sinus rhythm and patients with a CHA\textsubscript{2}DS\textsubscript{2}-VASc=2 in AF. This is an important finding as it could further help sub-categorise patients with Embolic Stroke of Undetermined Source (ESUS) that could potentially benefit from anticoagulation.

In conclusion, this large study confirms the predictive role of CHA\textsubscript{2}DS\textsubscript{2}-VASc score for new onset AF in a population based on a large prospective cohort over several years of follow up and also identifies that cumulative incidence of AF is greater with increasing CHA\textsubscript{2}DS\textsubscript{2}-VASc strata. Whilst this is not surprising as most of the risk factors for AF\textsuperscript{7} are constituents of the CHA\textsubscript{2}DS\textsubscript{2}-VASc score, it is the first large study to support this.

Finally, although recently published data showed that anticoagulating patients with ESUS and sinus rhythm was not superior to antiplatelet therapy in
preventing stroke recurrence\textsuperscript{8} the current study by Renda et al.,\textsuperscript{6} would support that in future such studies should be directed towards patients at higher risk of showing AF, and the CHA\textsubscript{2}DS\textsubscript{2}-VASc score could be such a discriminating variable.

References


