Assessment of the CHA2DS2-VASc score in predicting ischemic stroke and death in patients with acute myocardial infarction without atrial fibrillation

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Introduction: The CHA2DS2-VASc score is used in clinical practice to stratify the risk of stroke in patients (pts) with atrial fibrillation (AF). Its usefulness in the population of pts with acute myocardial infarction without AF is not well known.

Objectives: To investigate whether CHA2DS2-VASc predicts ischemic stroke and death during hospital stay in pts with acute myocardial infarction without known AF. To determine independent predictors of ischemic stroke in this population.

Methods: A multicentre, retrospective study was performed during 01/10/2010-04/09/2019 period, and included all pts admitted due to acute myocardial infarction. Pts with previous AF, AF rhythm in the electrocardiogram at admission or AF during hospital stay were excluded. Statistical analysis with Kaplan-Mayer and Cox regression was applied.

Results: Of 29851 pts admitted with acute myocardial infarction, were included in our study 19218 pts (74% male, mean age of 65 ± 14 years).

During hospital stay, 78 (0.4%) pts had an ischemic stroke and 462 (2.4%) pts died.

The event-free survival analysis showed significant differences according to the CHA2DS2-VASc score at admission (log rank test p = 0.015 for ischemic stroke; log rank test p < 0.001 for in-hospital mortality). (Figure)

The CHA2DS2-VASc score demonstrated a good predictive accuracy for in-hospital mortality (area under the ROC curve 0.69; 95% CI 0.67-0.72; p < 0.001). The area under the ROC curve indicates that the CHA2DS2-VASc score performed modestly for ischemic stroke (0.62; 95% CI 0.56-0.68; p < 0.001).

In univariate analysis, the factors that were positively associated with ischemic stroke during hospital stay were CHA2DS2-VASc, absence of previous therapy with statin, time between cardiac symptoms and hospital admission, absence of chest pain, Killip-Kimball class, cardiorespiratory arrest, complete left ventricular block and left ventricle ejection fraction <50% (p < 0.05).

After multivariate analysis, CHA2DS2-VASc≥3 (HR 2.25; 95% CI 1.37-3.71; p = 0.001), absence of chest pain (HR 3.17; CI 1.44-6.14, p < 0.001) and previous therapy with statin (HR 0.39; 95% CI 0.22-0.67; p = 0.001) were independent predictors of ischemic stroke.

Conclusion: Among patients with acute myocardial infarction without known atrial fibrillation, the CHA2DS2-VASc score was associated with risk of ischemic stroke and death during hospital stay. This score may be useful for estimating the risk of stroke and in-hospital mortality in these population without known atrial fibrillation.

Abstract Figure.