

Association Of CHA2DS2-VASc Score With Stroke, Thromboembolism And Death In Hip Fracture Patients With Or Without Atrial Fibrillation: A Nationwide Cohort Study.

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Background

The risk of postoperative stroke and other thromboembolic events in hip fracture surgery patients is elevated up to 10 times compared to the background population. Postoperative mortality is also high, 8-10% of the patients die within 30 days following hip fracture. Identifying high-risk patients at the time of admission is thus of great clinical interest. The CHA2DS2-VASc score has been widely used to assess stroke risk in patients with atrial fibrillation (AF), but it is unclear if the score can be used to assess risk of cardiovascular events in hip fracture patients without AF.

Objectives

Evaluate the association of CHA2DS2-VASc score and stroke, thromboembolism and all-cause mortality in hip fracture patients with or without AF.

Study Design & Methods

In this nationwide cohort study, we used prospectively collected data from the Danish Multidisciplinary Hip Fracture Registry to identify all patients aged 65 years and older, admitted with a first time hip fracture between 1st January 2004 and 30th November 2016. We collected data on medical and pharmacological history from other medical databases. Outcomes was first-time hospitalization for ischemic stroke, all thromboembolisms (stroke, myocardial infarction, peripheral arterial embolism or pulmonary embolism), or death. We calculated cumulative incidences and hazard ratios (HR) with 95% confidence intervals, by CHA2DS2VASc score, stratified on previous history of AF.

Results

Among 78,096 hip fracture patients, 12,319 (15.8%) had a diagnosis of AF. The AF patients had a mean CHA2DS2-VASc score of 4.6 (standard deviation (sd) 1.5) whereas the non-AF patients had a mean score of 3.6 (sd 1.4). Only 31 % of patients in the AF- group were treated with anticoagulants at the time of admission. The cumulative incidence of ischemic stroke 1 year after hip fracture increased with ascending CHA2DS2-VASc score, being 1.9% for patients with a score of 1 and 8.6% for patients with a score of ≥ 6 in the AF group. Corresponding incidences in the non-AF group were 1.6% and 7.6%. Compared with a CHA2DS2-VASc score of 1, adjusted HRs were 5.53 (95% CI: 1.37-22.24) among AF patients and 4.91 (95% CI: 3.40-7.10) among non-AF patients with a score of ≥ 6 . A dose-response like association was observed for all cardiovascular outcomes. All-cause mortality risks and HRs were substantially higher for all CHA2DS2-VASc scores above 1 in both the AF and non-AF groups, but no dose-response like pattern was observed.

Conclusions

Among hip fracture patients, CHA2DS2-VASc score was associated with risk of stroke, thromboembolism and death in patients with and without AF. Patients with high CHA2DS2VASc scores had almost similar absolute risks for cardiovascular outcomes, irrespective of AF. Less than one third of the patients diagnosed with AF were treated with anticoagulants, indicating a very conservative treatment approach in these high-risk patients.