The role of the CRUSADE bleeding score in the prediction of major bleeding in the follow-up of acute coronary syndrome patients.

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Topic(s):
Acute Coronary Syndromes – Epidemiology, Prognosis, Outcome

Citation:
Background: In Acute Coronary Syndrome (ACS) patients, major bleeding is a strong predictor of worse short and long term prognosis. The CRUSADE bleeding score predicts the risk of in-hospital major bleeding in patients with non-ST-segment elevation myocardial infarction. Its use is not validated for the prediction of major bleeding in the follow-up of ACS patients and is not recommended for this purpose.

Aim: To evaluate the CRUSADE bleeding score accuracy to predict major bleeding in the follow-up of ACS patients.

Methods: Retrospective study of ACS patients admitted in a single center. The CRUSADE bleeding score was calculated for each patient. We used the International Society on Thrombosis and Haemostasis definition of major bleeding as the primary endpoint. We assessed the power of the score to discriminate major bleedings by ROC curve analysis and COX regression.

Results: We included 515 patients (age 66.6 ± 13 years; 72% males; 42% STEM patients). The average CRUSADE score was 23.8 ± 15.9. Based on CRUSADE bleeding risk categories, 47% of patients had very low risk (<21); 20% had low risk (21-30), 15% had intermediate risk (31-40), 11% had high-risk and 7% had very high risk (>50) of major bleeding.

During a median follow-up of 45 months (IQR: 24-61) 76 patients (15%) died, 53 (10%) had major bleeding and 7 (1.4%) had intracranial bleeding. The incidence of major bleeding was 0.62 per 100 patients.year(p*a) in the very low risk group; 1.1 per p*a in the low risk group; 2.6 per 100 p*a in the intermediate risk group; 3.1 per 100 p*a in the high risk group and 11.7 per 100 p*a in the very high risk group. The CRUSADE bleeding score showed a good accuracy for predicting major bleeding, with an AUC of 0.77 (95%CI: 0.70-0.84; p<0.001).

In multivariate analysis, comparing with the very low and low risk groups, patients with an intermediate, high risk and very high risk scores had a significantly higher risk of major bleeding. Respectively: HR 3.34 95%CI 1.61-7.12; HR 3.7 95%CI 1.71-8.12; HR 11.8 95%CI 5.81-24.01; p<0.001).

Conclusions: The CRUSADE bleeding score is good predictor of major bleeding in the follow of acute coronary syndrome patients. Given that it is usually calculated on the admission of NSTEMI patients, its results should also be regarded for bleeding risk assessment during the follow-up. The high incidence of major bleeding in the very high risk group should be regarded in the therapeutic strategy.
Abstract:
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