

Use of PRECISE DAPT score and baseline platelet count in the assessment of overall mortality in patients with acute coronary syndrome

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Topic(s):

Acute Coronary Syndromes – Pathophysiology and Mechanisms

Citation:

Background

Platelet count (PC) on admission has been shown to be an independent marker of in-hospital and long-term mortality in patients undergoing percutaneous coronary intervention (PCI) or admitted for an acute coronary syndrome (ACS). The most recently released European Society of Cardiology guidelines on dual antiplatelet therapy (DAPT) suggest to stratify PCI patients according to the PRECISE DAPT score in order to address the bleeding risk in the mid and long-term follow-up and to tailor DAPT duration accordingly. The PRECISE DAPT score does not include baseline PC. It includes predictor variables usually associated to both ischemic and bleeding risk (age, chronic kidney failure, previous bleeding, leukocytes) and marker of patients' poor overall clinical status (hemoglobin). Therefore, the aim of this study was to explore the possible predictive role of the PRECISE DAPT score with or without the additional parameter of PC determination in predicting in-hospital and follow up mortality.

Methods and Results

Retrospective cohort study of 1000 ACS patients admitted to Niguarda Hospital between January 2014 and September 2017. PC was categorized into three classes (low: <150x10⁹/L; normal: 150-300x10⁹/L; high: ≥300x10⁹/L). The PRECISE DAPT score was calculated on admission for all patients who had all the predictors available and was categorized according to the original study definition (<25 versus =25). The primary endpoint was the association of PRECISE DAPT and PC with overall mortality, evaluated by adjusted Cox regression models.

The median age of the included patients was 66 years (range interquartile 57-76). Eighty-three patients (8.3%) had low PC, with only 12 patients with PC between 50 and 100x10⁹/L, and none below 50x10⁹/L. Three hundred and forty-eight patients out of 889 with calculated PRECISE DAPT (39%) had a score =25. Over a median follow up of 464 days, 76 patients (7.6%) died (31-3.1%- during index hospitalization). After adjustment for sex, previous myocardial infarction and ST elevation at presentation, a PRECISE DAPT score = 25 was independently associated with mortality (HR 8.14; 95% CI 4.07-16.27); PC showed a U-shaped association with overall mortality (HR 2.69, 95% CI 1.47-4.94 for low, and HR 2.18; 95% CI 1.19-4.00 for highPC). When we combined the PRECISE DAPT score and PC, compared with subjects with PRECISE DAPT < 25 and PC =150x10⁹/L, the adjusted HR was 5.63 (95% CI 1.45-21.8) for the group with PRECISE DAPT<25 and PC<150x10⁹/L, 21.8 (95% CI 8.24-57.7) for the group with PRECISE DAPT=25 and PC <150x10⁹/L, and 9.4 (95% CI 4.2-21.4) for the group with PRECISE DAPT=25 and PC =150x10⁹/L.

Conclusions

PRECISE DAPT score and PC are independent predictors of overall mortality in ACS patients and the combination of these two predictors improves risk assessment of these patients.

