Impact of severe anemia (hemoglobin <10 g/dl) in the ischemic-bleeding profile during treatment with dual antiplatelet therapy after hospital discharge for acute coronary syndrome

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On behalf: BleeMACS, CardioCHUVI/ARRITXACA and RENAMI investigators

Topic(s):
Acute Coronary Syndromes: Post-Infarction Period

Citation:
Introduction. Anemia is strongly associated with increased risk of morbidity and mortality in patients after acute coronary syndromes (ACS). The aim of our study was to determine, after matching the baseline characteristics, the bleeding-ischemic risk profile during treatment with Dual Antiplatelet Therapy (DAPT) of patients with severe anemia (hemoglobin <10 g/dL) after an ACS undergoing Percutaneous Coronary Intervention (PCI).

Methods. The data analyzed in this study were obtained from the fusion of 3 clinical registries of ACS patients: BleeMACS (2004-2013), CardioCHUVI/ARRITXACA (2010-2016) and RENAMI (2013-2016). All 3 registries include consecutive patients discharged after an ACS with DAPT and undergoing PCI. The merged data set contain 26,076 patients. A propensity-score analysis was performed to match the baseline characteristics of patients according to presence or not of severe anemia (hemoglobin <10 g/dL). The impact of severe anemia in the ischemic and bleeding risk was assessed by a competitive risk analysis, using a Fine and Gray regression model, with death being the competitive event. For ischemic risk we have considered a new acute myocardial infarction, whereas for bleeding risk we have considered major bleeding defined as bleeding requiring hospital admission. Follow-up time was censored by DAPT suspension/withdrawal.

Results. From the 26,076 ACS patients, 630 had severe anemia (2.4%). During a mean follow-up of 12.2 ± 4.8 months, 964 patients died (3.7%), 640 had myocardial infarction (2.5%) and 685 had major bleeding (2.6%). After propensity-score matching, we obtained two matched groups (with hemoglobin < and >= 10 g/dL) of 621 patients. In comparison with patients without severe anemia, patients with hemoglobin < 10 g/dL had similar risk of myocardial infarction (SHR 1.37, 95% CI 0.82-2.31, p=0.231) with higher risk of major bleeding (SHR 1.89, 95% CI 1.18-2.72, p=0.006). After propensity score matching, the cumulative incidence of myocardial infarction was 6 and 5 per 100 patients/year in patients with and without severe anemia, respectively, during DAPT. And the cumulative incidence of major bleeding was 12 and 6 per 100 patients/year in patients with and without severe anemia, respectively. The difference between myocardial infarction rate and major bleeding rate was -6 in patients with severe anemia (more bleeding than ischemic event rates; p<0.05) and -1 in patients with hemoglobin >= 10 g/dL (similar bleeding and ischemic event rates; p>0.05), per 100 patient-years (Figure).

Conclusions. After an ACS underwent PCI, during DAPT, the ischemic-bleeding balance of patients with severe anemia (hemoglobin < 10 g/dL) is not favorable. In those patients, a short-term DAPT (< 6 months) should be recommended.
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