Intensity of dual antiplatelet therapy based on thrombotic and bleeding risks after coronary stenting


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Background/Introduction: High thrombotic risk (HTR) features are associated with higher ischemic rate, which may be mitigated by potent antiplatelet therapy. However, concomitant high bleeding risk (HBR) may be present, making it unclear whether the intensity of antiplatelet therapy should be prioritized.

Purpose: This study investigated the prognostic implications of HTR and HBR strata according to intensity of antiplatelet therapy (indicated by platelet reactivity) after coronary stenting.

Methods: HTR was defined as having at least one of the three risk factors: 1) index presentation with acute coronary syndrome; 2) complex coronary artery disease and stenting; and 3) guideline-directed clinical ischemic risk factors. HBR was determined according to presence of Academic Research Consortium (ARC)-HBR criteria. In addition, high platelet reactivity (HPR) was decided depending on the level of platelet reactivity (> 208 P2Y12 reaction unit measured by VerifyNow assay).

Results: Among 4,550 patients, HTR features were observed in 3,973 patients (87.3%) and 1,451 (31.9%) met the ARC-HBR criteria. HPR phenotype (n=2563, 56.3%) significantly increased the risk of 4-year ischemic events (adjusted hazard ratio [HRadj]: 1.40; 95% confidence interval [CI]: 1.15-1.70; P=0.001). Among patients who met the ARC-HBR criteria, HPR was not associated with the rate of ischemic events, regardless of HTR features. In cases of non-HBR patients, HPR phenotype increased ischemic events only in patients with HTR feature(s), which risk proportionally increased according to the number of HTR features (HRadj: 0.67, 1.47 and 1.58; 95% CI: 0.22-2.08, 0.94-2.29 and 1.09-2.28 in 0 [9.2%], 1 [31.2%] and ≥2 [27.7%] HTR features). In HBR patients, the risk of major bleeding was not increased by the level of antiplatelet effect.

Conclusion: HPR phenotype was significantly associated with the risk of ischemic events after coronary stenting, which proportionally increased according to the number of HTR features only if the ARC-HBR criteria were not present. These observations suggested that when concordant, bleeding risk, more than ischemic risk, should inform decision-making on the intensity of antiplatelet therapy.
KM curve and HR forest plot for MACCE
KM curve and HR forest plot for NACE