Validation of the PRECISE-DAPT Score in a real-world cohort of patients undergoing coronary stent implantation

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Background: The optimal duration of dual antiplatelet treatment (DAPT) following percutaneous coronary interventions (PCI) should be tailored to patient characteristics. The DAPT score is one of two risk scores recommended for use by the European practice guidelines to aid in decision making on DAPT duration. To date, it’s decision rule has not undergone external validation

Methods: A retrospective cohort study using a prospective all comers PCI registry.

Results: The PRECISE-DAPT score could be calculated for 6413/12,162 patients (52.7%). Of whom, 1,072 received DAPT for 3-6 months and 5,341 received DAPT for 12-24 months post PCI. The distribution of the score was similar to that in the original PRECISE-DAPT cohort.

During 24 months follow up, there were 254 (4.0% 95 CI 3.6-4.4%) actionable bleeding events. Higher PRECISE-DAPT quartiles were associated with higher risk for bleeding: 2.5%(95%CI 1.7-3.3%), 3.1% (95%CI 2.3-3.9%), 4.2%(95%CI 3.2-5.2%), and 6.7%(95%CI 5.5-7.9%), for Q1 through 4, respectively (p<0.001). However, within each quartile the risk for bleeding was similar in patients treated with long vs. short DAPT: 10.7 vs. 8.7%, (p=0.292); 10.6 vs.8.5%, (p=0.282); 11.0 vs.9.6%, p=(0.549) and 11.0 vs.9.6%, (p=0.498) for PRECISE-DAPT quartiles 1 through 4, respectively. The PRECISE-DAPT score was not associated with the risk for myocardial infarction(MI)/Cerebrovascular accident(CVA)/Target vessel revascularization(TVR). The Absolute risk difference (ARD) for overall benefit (bleeding+ischaemic events) was not statistically significant for long vs. short DAPT in any of the quartiles: 1.4% (95%CI -1.0 to 3.8%); 1.4% (95%CI -0.6 to 4.6%); 0.9% (95%CI -2.3 to 5.3%) and 0.4% (95%CI -2.2 to 3.0%) for PRECISE-DAPT quartiles 1 through 4, respectively

Conclusions: In a large cohort of real world PCI patients, higher PRECISE-DAPT score were associated with increased risk for bleeding. However, the PRECISE-DAPT decision rule was not able to identify patients more/less likely to benefit from extended vs. standard DAPT duration. The findings indicate that the PRECISE-DAPT score and its decision rule for DAPT duration may not be generalizable to real-world population, stress the need for physicians making decisions regarding DAPT duration be aware of the score’s limitations and use sound clinical judgement, when making decisions regarding DAPT duration. Our results also highlight the yet unmet need for a simple, reproducible and valid tool to aid in choosing optimal DAPT duration for patients undergoing PCI.