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Accuracy of the PRECISE-DAPT score vs. CRUSADE score for in-hospital and post-discharge bleeding prediction in patients with acute coronary syndrome

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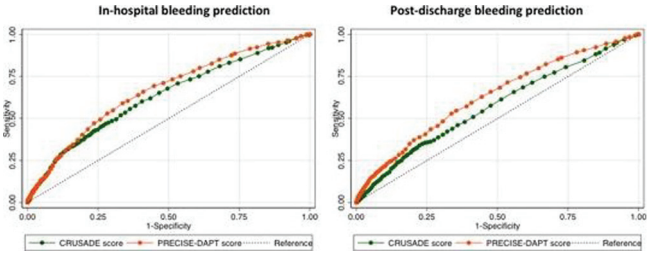
Background: Estimation of in-hospital and especially post-discharge bleeding risk remains a clinical challenge in the management of patients with acute coronary syndromes (ACS). The PRECISE-DAPT score has been recently proposed as bleeding risk estimator for decision–making in prolonged dual antiplatelet treatment.
Objective: To compare the predictive capacity of the PRECISE-DAPT score vs. the CRUSADE score in a large cohort of patients with ACS.
Methods: Multicenter, observational and prospective study that included all patients admitted for ACS in two hospitals between 2005 and 2016. The predictive capacity was assessed by the area under the curve (AUC) in receiver-operator curves (ROC). Post-discharge bleeding events were assessed by competing risk regression, taking all-cause mortality as a competing event. Patients were categorized according to the PRECISE-DAPT score categories: <10, 10–17, 18–25 and >25.
Results: 8771 patients were admitted for an ACS and 562 (6.4%) were excluded for lacking of any of the score variables, so 8209 patients were analyzed. Mean age was 66.9 (12.9), 72.5% males, 35.3% STEMI, mean GRACE score 143.1 (40.3). In-hospital mortality was 5.1% and 587 (6.7%) patients had a significant bleeding within the hospitalization. The AUC of the PRECISE-DAPT score (0.66, 95% CI 0.64.0.69) was slightly and significantly (p=0.002) higher than the CRUSADE score (0.63, 95% CI 0.61–0.65) for in-hospital bleeding prediction. After hospital discharge, median follow- 58.7 months (IQ range 22.8–81 months), 1,852 (21.1%) died, being 1,286 (14.7%) cases attributed to cardiovascular causes. Major bleeding rate was (9.8%) and it was increasingly higher in each category of the PRECISE-DAPT score: 5.6%; 8.6%; 10.2%; 13.8% (p<0.01). The AUC of the PRECISE-DAPT score (0.63, 95% CI 0.61.0.65) was significantly higher (p<0.001) than the CRUSADE score (0.57, 95% CI 0.55–0.59) for post-discharge bleeding prediction. The risk associated with the PRECISE-DAPT score >25 in multivariate analyses was sHR: 1.93 (95% CI 1.04–3.55 p=0.03).



Conclusions: The predictive power of both scales was similar for in-hospital mortality but the PRECISE-DAPT score had better performance of post-discharge bleeding prediction.

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External validation of the DAPT score in nationwide real-world data: ischemic and bleeding events following coronary stent implantation

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Background: The dual antiplatelet therapy (DAPT) score aims to guide decisions on DAPT duration after coronary stenting by simultaneously predicting ischemic and bleeding risk. Its performance in an unselected and contemporary patient population is unknown.
Methods: We used nationwide register data in Sweden (2006–2013) from 41,101 patients without oral anticoagulation who had undergone 12 months of event-free DAPT and followed them from month 12 through 30 post-PCI. We assessed rates of myocardial infarction (MI) or stent thrombosis, major adverse cardiovascular and cerebrovascular events (MACCE; MI, stroke and all-cause death) and fatal or major bleeding by level of score.
Results: Few patients (7.9% at month 30 post-PCI) received DAPT during follow-up. C statistics for the DAPT score was 0.58 (95% CI, 0.56–0.60) for MI or stent thrombosis and 0.51 (0.47–0.54) for fatal or major bleeding events. Compared to scores of -2 or -1 (cumulative incidence, 2.4%), rates of MI or stent thrombosis were significantly higher at scores of 3 (4.8%, hazard ratio [HR] 95% CI, 1.94 [1.47–2.57]), 4 (8.0%, HR, 3.38 [2.51–4.56]), and ≥5 (11.3%, HR, 4.99 [3.60–6.91]), while risks were similar at scores of 0–2. (Table) Rates of MACCE followed a U-shaped pattern with increased risk only at scores of 4 and ≥5. Fatal or major bleeding rates did not differ significantly by level of score. The results remained similar when limiting the analyses to patients receiving new generation drug-eluting stents.
Conclusions: In a large real-world population, the DAPT score identified patients at high ischemic risk who could potentially experience larger benefits from extended DAPT but did not discriminate between high and low bleeding risk. The relationship between score and ischemic risk was non-linear and did not correspond to the cut-off (≥2 points) of the suggested decision rule for extended DAPT.
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LIFESTYLE CHOICES AND BLOOD PRESSURE

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Smoking accelerates albumin excretion in hypertensive patients with metabolic syndrome

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Introduction: Microalbuminuria is a marker of kidney organ damage and has independent prognostic value for future cardiovascular events. Metabolic syndrome (MS) is prognostic of cardiovascular disease, either as a distinct entity or through its clustering cardiometabolic abnormalities. Whether smoking may accelerate microalbuminuria in patients with MS, is not well clarified.
Purpose: The aim of the present study was to investigate the effect of smoking on albumin excretion in hypertensive patients with MS.
Methods: We studied 524 patients with never-treated arterial hypertension and metabolic syndrome defined by the ATP III criteria. Smoking status was assessed by recording the current habit of smoking. Albumin excretion was evaluated in all patients after 24h urine collection, using immunonephelometry and albumin to creatinine ratio (ACR) was calculated. High-sensitivity C-reactive protein (hsCRP) was measured as an inflammatory biomarker. All participants were free from overt cardiovascular disease.
Results: Smokers (n=274) were younger compared to non-smokers (mean age: 51 vs 56 years old, p<0.001), had increased levels of hsCRP (1.9±1.2 vs 1.7±1.1 mg/L, p<0.01) and, marginally, lower mean arterial pressure (MAP) levels, compared to non-smokers (111.3±11.8 vs 113.2±12.8 mmHg, p=0.06). Albumin excretion was significantly higher in smokers compared to non-smokers (mean ACR: 40.4 vs 32.9 mg/g, p=0.04). In linear regression analysis, ACR was independently associated with smoking (b=0.10, p=0.01) after adjustment for age, gender, BMI, plasma glucose, MAP and hsCRP.
Conclusions: Smoking accelerates microalbuminuria in hypertensive patients with MS, independently of other classic or novel risk factors. Given the prognostic significance of microalbuminuria, it might be assumed that smoking may enhance the cardiovascular risk associated with MS through its adverse effect on albumin excretion. Whether quitting smoking may be associated with regression of microalbumiuria, thus with a more favorable cardiovascular risk profile, is a question that warrants further investigation.

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Risk of urinary sodium excretion and sodium-to-potassium ratio on major cardiovascular events in patients with clinical manifest vascular disease

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Abstract 1400 – Event rates and hazard ratios for ischemic and bleeding events from month 12 through 30 post-PCI by level of DAPT score

DAPT score	n (%)	MI or stent thrombosis			MACCE			Fatal or major bleeding		
		n events (IR)	Cumulative incidence, %	HR (95% CI)		Cumulative incidence, %	HR (95% CI)	n events (IR)	Cumulative incidence, %	HR (95% CI)
–1 and –2	3159 (7.7)	63 (17)	2.4	1.00 (ref)	171 (45)	6.5	1.00 (ref)	27 (7)	1.0	1.00 (ref)
0	7871 (19.2)	202 (21)	3.1	1.28 (0.96–1.70)	416 (44)	6.3	0.97 (0.81–1.16)	61 (6)	1.0	0.90 (0.57–1.41)
1	11585 (28.2)	294 (21)	3.0	1.24 (0.94–1.63)	515 (36)	5.3	0.80 (0.67–0.95)	68 (5)	0.7	0.67 (0.43–1.04)
2	10363 (25.2)	274 (21)	3.1	1.27 (0.96–1.67)	482 (37)	5.4	0.82 (0.69–0.97)	51 (4)	0.6	0.55 (0.34–0.87)
3	5375 (13.1)	218 (32)	4.8	1.94 (1.47–2.57)	347 (52)	7.5	1.14 (0.95–1.36)	39 (6)	0.8	0.80 (0.49–1.31)
4	1913 (4.7)	136 (56)	8.0	3.38 (2.51–4.56)	193 (80)	11.2	1.76 (1.44–2.17)	13 (5)	0.8	0.74 (0.38–1.43)
≥5	835 (2.0)	85 (83)	11.3	4.99 (3.60–6.91)	126 (124)	16.4	2.73 (2.17–3.44)	13 (12)	1.7	1.72 (0.89–3.33)

IR, incidence rate per 1000 person years.

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