

Platelet function monitoring for the prediction of clinical outcomes: a pooled analysis of the randomized ARCTIC and ANTARCTIC trials

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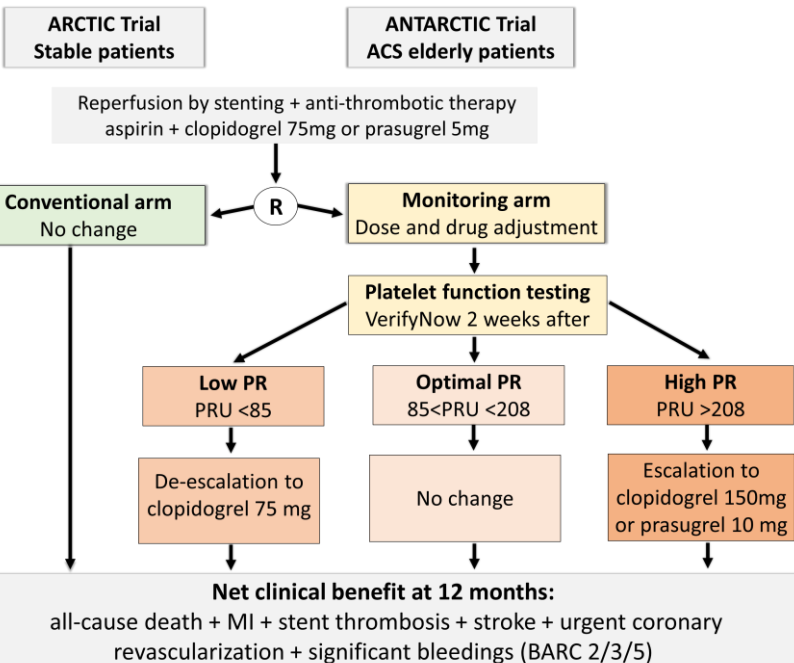
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BACKGROUND AND PURPOSES:

Platelet function monitoring offers the possibility to individualize antiplatelet therapy but failed to improve clinical outcomes in randomized trials. However, high-on-treatment platelet reactivity (HPR) remains a risk factor for recurrent ischemic events and low-on-treatment platelet reactivity (LPR) a risk factor for bleedings. This pooled analysis aimed to assess predictive value of PR status and treatment adjustment on risk-benefit ratio.

METHODS:

We collected data of patients randomized to the monitoring arms of the ARCTIC and ANTARCTIC trials that evaluated the PR by the VerifyNow P2Y₁₂ test two weeks after coronary stenting.

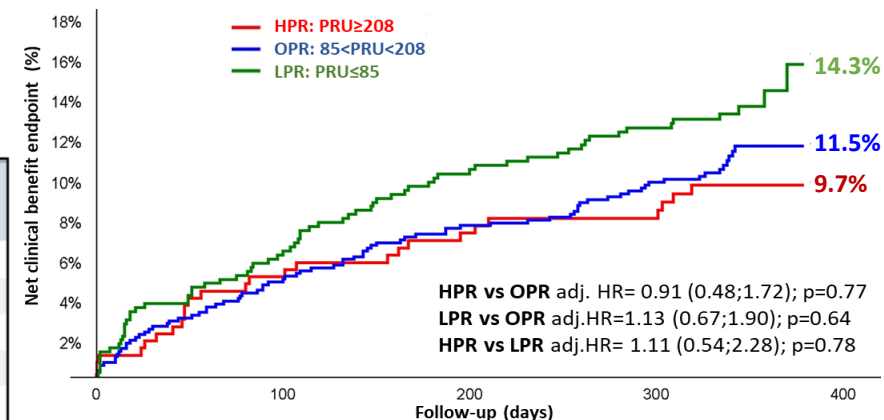


RESULTS:

Among the 1,418 patients included, Optimal Platelet Reactivity (OPR) was reached in 681 patients (48.0%) as HPR was present in 269 patients (18.9%), and LPR in 468 patients (33.0%).

Variables	LPR PRU≤85 (n=468)	OPR 85<PRU<208 (n=681)	HPR PRU≥208 (n=269)	P value
Age, median (Q1-Q3), yr	71 (58-79)	69 (58-78)	70 (59-76)	0.29
Female, n (%)	121 (25.9%)	145 (21.3%)	75 (27.9%)	0.05
BMI, median (Q1-Q3)	25.8 (23.7-28.6)	26.4 (24.2-29.3)	26.5 (24.1-29.7)	0.02
Diabetes, n (%)	114 (24.4%)	227 (33.3%)	126 (46.8%)	<0.01
Dyslipidemia, n (%)	274 (58.5%)	458 (67.3%)	175 (65.1%)	<0.01
Hypertension, n (%)	278 (59.4%)	454 (66.7%)	201 (74.7%)	<0.01
Current smoker, n (%)	97 (20.7%)	129 (18.9%)	54 (20.1%)	0.75
Chronic respiratory failure, n(%)	16 (3.4%)	32 (4.7%)	11 (4.1%)	0.56
Prior heart failure, n (%)	22 (4.7%)	30 (4.4%)	7 (2.6%)	0.35
Prior myocardial infarction, n(%)	113 (24.1%)	185 (27.2%)	71 (26.4%)	0.51
Prior PCI, n (%)	146 (31.2%)	264 (38.8%)	118 (43.9%)	<0.01
Prior CABG, n (%)	20 (4.3%)	52 (7.6%)	9 (3.3%)	<0.01
Prior periph. arterial disease, n(%)	42 (9.0%)	58 (8.5%)	40 (14.9%)	<0.01
ACS presentation, n (%)	265 (56.6%)	308 (45.2%)	84 (31.2%)	<0.01
Multivessel disease, n (%)	245 (52.4%)	353 (51.8%)	145 (53.9%)	0.85

The net clinical benefit endpoint occurred in 9.7% of HPR patients, 11.5% of OPR patients and 14.3% of LPR patients. without significant difference between HPR vs OPR patients and LPR vs OPR patients.



LPR vs OPR	PRU ≤ 85	85 < PRU < 208	adjHR (95% CI)	P
Death	12/468 (2.6%)	10/681 (1.5%)	1.87 (0.77;4.54)	0.17
MI	14/468 (3.0%)	22/681 (3.2%)	1.05 (0.53;2.09)	0.89
Stroke	7/468 (1.5%)	2/681 (0.3%)	4.60 (0.92;23.02)	0.06
Urgent revasc.	21/468 (4.5%)	30/681 (4.4%)	1.18 (0.66;2.10)	0.58
BARC 2/3/5 bleedings	39/468 (8.3%)	39/681 (5.7%)	1.22 (0.77;1.94)	0.40

HPR vs OPR	PRU ≥ 208	85 < PRU < 208	adjHR (95% CI)	P
Death	6/269 (2.2%)	10/681 (1.5%)	1.69 (0.57;5.05)	0.34
MI	10/269 (3.7%)	22/681 (3.2%)	1.01 (0.47;2.16)	0.98
Stroke	3/269 (1.1%)	2/681 (0.3%)	2.88 (0.38;21.91)	0.31
Urgent revasc.	4/269 (1.5%)	30/681 (4.4%)	0.30 (0.10;0.85)	0.02
BARC 2/3/5 bleedings	14/269 (5.2%)	39/681 (5.7%)	0.93 (0.50;1.74)	0.82

CONCLUSION: Less than half of patients reached an optimal platelet reactivity two weeks after stenting. The net clinical benefit did not differ according to platelet reactivity status despite a trend for more events in patients with low platelet reactivity.