Characteristics of patients with acute ST-segment elevation myocardial infarction treated with different combinations of antiaggregation therapy: experience from the Croatian branch of the ISACS-CT Registry

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Background and Aim: The relevance of dual antiplatelet therapy (DAPT) in acute ST-segment elevation myocardial infarction (STEMI) is well-established (aspirin and P2Y12 inhibitors).[1] The role of glycoprotein (GP) IIb/IIIa inhibitors in clinical practice is not completely defined. Administration in the event of thrombotic complications is considered reasonable, although there is no evidence for routine use in primary percutaneous coronary intervention (pPCI). The aim was to analyze early outcomes of STEMI patients (pts) in the Croatian branch of the ISACS-CT (International Registry of Acute Coronary Syndromes in Transitional Countries) registry, depending on received antiaggregation therapy.

Patients and Methods: Data were gathered retrospectively from pts hospitalized between January 2012 to October 2017. The study included 2503 pts with acute coronary syndrome, from which 48.9% (n=1224) were diagnosed with STEMI. The patients were divided into 4 groups depending on administered antiaggregation therapy.

Results: For 7.8% (n=96) pts antiaggregation therapy data were missing, and 5.8% (n=71) were not treated with DAPT. Remaining 1057 (86.4%) pts were analyzed. Aspirin was administered in 95% of pts in the first 24 hours. 41.9% (n=443) of pts were additionally treated with clopidogrel, 16.1% (n=170) with ticagrelor, 28.6% (n=302) with clopidogrel and eptifibatide, and 13.4% (n=142) with ticagrelor and eptifibatide (**Table 1**). The groups did not differ in comorbidities, while pts receiving eptifibatide had lower systolic blood pressure on admission. Patients treated with eptifibatide were more frequently male, smokers, of younger age, had more thrombotic complications seen on coronary angiography (predominantly distal embolisation and "no-reflow" phenomenon) and lower in-hospital mortality. In a multivariable regression model adjusted for age, gender, hypertension, diabetes, and pPCI, increasing age (OR=1.1), diabetes (OR=1.9) and pPCI (OR=0.5) remained relevant to in-hospital mortality.

Conclusion: STEMI patients that are young, male and smokers are more frequently treated with eptifibatide, likely due to a higher burden of thrombotic complications. Unlike the choice of antiaggregation therapy, increasing age, diabetes and non-invasive management of STEMI were associated with in-hospital mortality.

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LITERATURE

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TABLE 1. Patients' characteristics.

	ASA+ Clopidogrel (n=443)	ASA+ Ticagrelor (n=170)	ASA+ Clopidogrel + Eptifibatide (n=302)	ASA + Ticagrelor + Eptifibatide (n=142)	p-value
Male gender, n (%)	296 (66.8)	112 (65.9)	224 (74.2)	110 (77.5)	0.020
Age (IQR)	63 (53, 75)	66 (55, 77)	62 (54, 71)	59 (52, 68)	0.002
Hypertension, n (%)	294 (68.9)	119 (73.0)	199 (66.6)	91 (64.1)	0.348
Hypercholesterolemia, n (%)	179 (44.8)	68 (43.0)	150 (51.2)	76 (54.3)	0.085
Diabetes mellitus, n (%)	106 (24.3)	37 (22.3)	51 (16.9)	34 (23.9)	0.106
Chronic kidney disease, n (%)	32 (9.3)	10 (6.1)	23 (8.0)	7 (5.0)	0.344
Smoking, n (%)	221 (55.4)	87 (58.8)	179 (61.9)	96 (69.6)	0.025
HR median (IQR)	80 (70, 92)	80 (71, 94)	80 (70, 92)	78 (66, 92)	0.318
SBP median (IQR)	138 (120, 150)	135 (115, 153)	130 (112, 145)	130 (120, 150)	0.017
Creatinine (IQR)	95 (81, 112)	83 (72, 101)	93 (78, 111)	81 (69, 95)	<0.001
hsTnT max median (IQR)	3.63 (1.45, 9.40)	3.2 (1.31, 7.74)	4.22 (1.90, 9.60)	4.86 (2.04, 8.93)	0.156
Platelets (IQR)	219 (188, 262)	229 (189, 265)	231 (187, 266)	231 (192, 258)	0.704
LVEF median (IQR)	50 (40, 55)	45 (40, 52)	45 (40, 55)	45 (40, 55)	0.007
pPCI, n (%)	338 (77.0)	152 (89.4)	294 (97.7)	139 (97.9)	<0.001
Coronary angiography - number of lesions >2, n (%)	105 (31.1)	48 (30.4)	77 (25.8)	31 (22.1)	0.161
PCI - number of treated lesions >1, n (%)	57 (19.6)	38 (25.7)	55 (18.9)	26 (18.7)	0.350
Thrombotic complications, n (%)	29 (8.7)	9 (6.0)	48 (16.5)	29 (20.7)	<0.001
Distal coronary embolisation	3 (0.9)	1 (0.7)	12 (4.1)	13 (9.3)	
"No-reflow" phenomenon	10 (3.0)	3 (2.0)	11 (3.8)	5 (3.6)	
Other	16 (4.8)	5 (3.3)	25 (8.6)	11(7.8)	
In-hospital mortality, n (%)	33 (7.4)	14 (8.2)	9 (3.0)	5 (3.5)	0.020

ASA - acetylsalicylic acid; IQR - interquartile range; HR - heart rate; SBP - systolic blood pressure; hsTnT - high-sensitive troponin T; LVEF - left ventricular ejection fraction; pPCI - primary percutaneous coronary intervention; PCI - percutaneous coronary intervention.