Acute Coronary Syndromes

Extended Abstract

Exploring the relationship between smoking status and the total number of coronary arteries with significant stenoses in a young population with ST-segment elevation myocardial infarction

- ©Filip Puškarić*,
- Zvonimir Ostojić,
- Nina Jakuš.
- Ivo Planinc,
- Marijan Pašalić,
- Joško Bulum,
- Davor Miličić,
- Maja Čikeš

University of Zagreb School of Medicine, University Hospital Centre Zagreb, Zagreb, Croatia **KEYWORDS:** acute coronary syndrome, ST-segment elevation myocardial infarction, young, smoking, coronary angiography.

CITATION: Cardiol Croat. 2019;14(9-10):215-6. | https://doi.org/10.15836/ccar2019.215

*ADDRESS FOR CORRESPONDENCE: Filip Puškarić, Klinički bolnički centar Zagreb, Kišpatićeva 12, HR-10000 Zagreb, Croatia. / Phone: +385-99-7505-240 / E-mail: fpuskaric@gmail.com

ORCID: Filip Puškarić, https://doi.org/0000-0001-5519-439X • Zvonimir Ostojić, https://doi.org/0000-0003-1762-9270 Nina Jakuš, https://doi.org/0000-0001-7304-1127 • Ivo Planinc, https://doi.org/0000-0003-0561-6704 Marijan Pašalić, https://doi.org/0000-0002-3197-2190 • Joško Bulum, https://doi.org/0000-0002-1482-6503 Davor Miličić, https://doi.org/0000-0001-9101-1570 • Maja Čikeš, https://doi.org/0000-0002-4772-5549

Background: A plethora of studies have proven the increase in cardiovascular risk associated with smoking in all age groups¹, including the one at the focus of this study – the young^{2,3}. With regard to the total number of coronary arteries (CA) with significant stenoses, one might expect current smokers to have more affected CA than non- and former smokers. *Aim:* To explore the relationship between smoking status and the total number of CA with significant stenoses in a young ST-segment elevation myocardial infarction (STEMI) population.

Patients and Methods: Data were attained from medical records of 147 patients (mean age 43.9 ± 6.5 years) hospitalized with STEMI at the University Hospital Centre Zagreb from January 2012 to October 2018, with a cut-off age at 45 years for men (n = 93) and 55 years for women (n = 54). Patients were divided in 2 groups based on smoking status – non- and former smokers (N = 29 (20%), with former smokers making up 9/29 or 31% of the group), and current smokers (N = 118 (80%)). To evaluate whether smoking status was associated with a higher total number of CA with significant stenoses, Pearson's chi-squared test was performed. During post hoc testing, the p value was adjusted to maintain the familywise error rate at 0.05 (p = 0.008) and compared to p values of each subgroup.

Results: The two groups had no significant differences in baseline characteristics (**Table 1**). In both groups, the majority of patients (58.6% vs. 74.6%) had only one affected CA, followed by two (27.6% vs. 19.5%) and three (13.8% vs. 5.9%) CA. Pearson's chi-squared test showed no statistically significant difference in the total number of affected CA between the two groups (p = 0.176). Post hoc testing confirmed statistically insignificant associations in all subgroups (p > 0.008, **Table 2**). In multiple regression (F (2, 144) = 9.27, p < 0.001, $R^2_{adjusted}$ = 0.10), age (B = 0.03, p = 0.001) and family history for cardiovascular disease (B = 0.30, p = 0.003) remained associated with the number of affected CA.

RECEIVED: August 15, 2019 ACCEPTED: September 16, 2019



Characteristic	Non-smokers and former smokers (N = 29)	Current smokers (N = 118)	P-value	
Age – years	43.4 ± 6.9	44.0 ± 6.4	0.698	
Female sex – n (%)	10 (34.5)	44 (37.3)	0.780	
Body mass index – kg/m²	29.6 ± 5.4	28.6 ± 4.8	0.290	
Hypertension – n (%)	16 (55.2)	55 (46.6)	0.410	
Diabetes mellitus – n (%)	2 (6.9)	10 (8.5)	0.782	
Family history for cardiovascular disease – n (%)	16 (55.2)	65 (55.1)	0.993	

Exploring the relationship between smoking status and the total number of coronary arteries with significant stenoses in a young population with ST-segment elevation myocardial infarction

TABLE 2. Contingency table analysis of smoking status and the total number of coronary arteries with significant stenoses.

		Number of corona	Number of coronary arteries with significant stenoses		
		One	Two	Three	
Non-smokers and former smokers — —	Count	17.0	8.0	4.0	29.0
	Expected Count	20.7	6.1	2.2	29.0
	% within group	58.6%	27.6%	13.8%	100.0%
	Adjusted p value	0.088	0.338	0.149	
Current smokers	Count	88.0	23.0	7.0	118.0
	Expected Count	84.3	24.9	8.8	118.0
	% within group	74.6%	19.5%	5.9%	100.0%
	Adjusted p value	0.088	0.338	0.149	
Total	Count	105.0	31.0	11.0	147.0
	Expected Count	105.0	31.0	11.0	147.0
	% of total	71.4%	21.1%	7.5%	100.0%

Conclusion: Within our dataset of young patients with STEMI, a very high proportion (reaching 80%) were active smokers. A similar total number of CA was affected by significant stenoses, regardless of smoking status. However, caution should be exercised when interpreting these results that require additional input on comorbidities and risk factors enabling conclusions to be drawn from a broader context.

LITERATURE

^{1.} Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, et al; INTERHEART Study Investigators. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. Lancet. 2004 Sep 11-17;364(9438):937-52. https://doi.org/10.1016/S0140-6736(04)17018-9

^{2.} Shah N, Kelly AM, Cox N, Wong C, Soon K. Myocardial Infarction in the "Young": Risk Factors, Presentation, Management and Prognosis. Heart Lung Circ. 2016 Oct;25(10):955-60. https://doi.org/10.1016/j.hlc.2016.04.015

^{3.} Oliveira A, Barros H, Azevedo A, Bastos J, Lopes C. Impact of risk factors for non-fatal acute myocardial infarction. Eur J Epidemiol. 2009;24(8):425-32. https://doi.org/10.1007/s10654-009-9352-9