

# Patients presenting with acute myocardial infarction and no apparent cardiovascular risk factors: are they wolves in sheep's clothing?

 **Marijana Mikačić**<sup>1</sup>

 **Duška Glavaš**<sup>1</sup>

 **Josip Anđelo Borovac**<sup>1,2\*</sup>

<sup>1</sup>University Hospital of Split, Split, Croatia

<sup>2</sup>University of Split, School of Medicine, Split, Croatia

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**\*ADDRESS FOR CORRESPONDENCE:** Josip Anđelo Borovac, Klinički bolnički centar Split, Spinčićeva ul. 1, HR-21000 Split, Croatia. / Phone: +385-92-1721-314 / E-mail: [jborovac@mefst.hr](mailto:jborovac@mefst.hr)

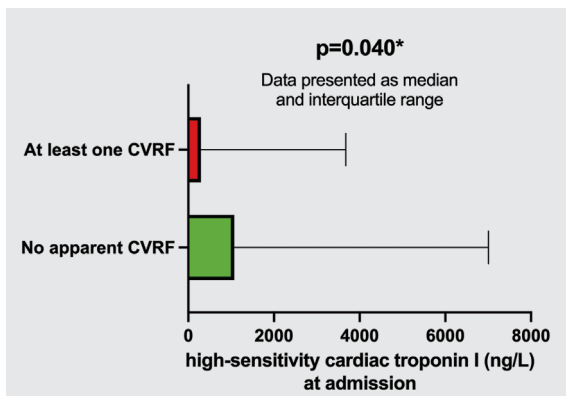
**ORCID:** Marijana Mikačić, <https://orcid.org/0000-0002-9712-432X> • Duška Glavaš, <https://orcid.org/0000-0003-2649-0936> Josip Anđelo Borovac, <https://orcid.org/0000-0002-4878-8146>

**Introduction:** Recent studies showed that patients without standard modifiable cardiovascular risk factors (CVRFs) suffering an acute myocardial infarction (AMI) might have worse outcomes and prognoses than patients with established CVRFs<sup>1</sup>. The goal of the present study was to determine the proportion and relevant characteristics of patients with no apparent CVRFs who present with AMI at a tertiary-level clinical center.

**Patients and Methods:** We grouped and analyzed a cohort of consecutive patients admitted for AMI to our center during the 2019-2020 period. We examined the presence or absence of apparent CVRFs including smoking, arterial hypertension, diabetes mellitus, history of myocardial infarction or revascularization, and atrial fibrillation.

**Results:** The proportion of patients with AMI and without apparent CVRFs in our sample was 14.4% (29/202 patients). The rate of composite outcome consisting of in-hospital death and emergent referral to coronary artery bypass graft surgery was lower in patients without than with CVRFs (3.4% vs. 8.7%). Both groups had a similar prevalence of multivessel coronary disease (17.2% vs. 23.1%). Furthermore, they were less likely to present with dyspnea or nausea and vomiting, compared to patients with CVRFs (13.8 vs. 27.7% and 17.2 vs. 33.5%, respectively). Notably, both groups did not significantly differ in terms of age (median 67 vs. 65 years), male sex (62.1 vs. 68.8%), AMI type (ST-elevation myocardial infarction in 66 vs. 58% of cases), hemoglobin (median 139 vs. 141 g/L), renal function (median creatinine of 74 vs. 79 μmol/L), and C-reactive protein (median 6.1 vs. 5.0 mg/L). However, patients without apparent CVRFs exhibited a significantly greater degree of myocardial injury as evidenced by higher median high-sensitivity cardiac troponin I levels, compared to patients with at least one CVRF [1073 (IQR 156-7000) vs. 300 (IQR 65-3551) ng/L,  $p < 0.05$ ] as shown in **Figure 1**.

**Conclusion:** About 14 in 100 patients with AMI in our cohort did not have apparent CVRFs. These patients seem to be less likely to present with dyspnea or nausea and vomiting and do not differ significantly in most of the clinical and laboratory variables to patients with CVRFs. However, these patients had more than a 3-fold greater myocardial injury as measured by circulating troponin levels. Therefore, clinical scrutiny should be applied to patients without overt symptoms and a history of CVRFs that present to emergency department with chest pain.



**FIGURE 1.** Median circulating high-sensitivity cardiac troponin I levels in patients admitted for acute myocardial infarction with and without apparent cardiovascular risk factors.  
CVRF = cardiovascular risk factors

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## LITERATURE

1. Figtree GA, Vernon ST, Hadziosmanovic N, Sundström J, Alfredsson J, Nicholls SJ, et al. Mortality and Cardiovascular Outcomes in Patients Presenting With Non-ST Elevation Myocardial Infarction Despite No Standard Modifiable Risk Factors: Results From the SWEDEHEART Registry. *J Am Heart Assoc.* 2022 Aug 2;11(15):e024818. <https://doi.org/10.1161/JAHA.121.024818>