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Impact of pro-inflammatory conditions on myocardial infarction with non-obstructive coronary arteries

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On behalf of IMACORN

Background: Despite all the recent publications, including new guidelines, myocardial infarction with non-obstructive coronary arteries (MINOCA) is still a controversy "working diagnosis". MINOCA patients have a characteristic risk profile, with a lower prevalence of classical risk factors (CVRF). The aim of this study is to analyze the relationship between known proinflammatory conditions and MINOCA.

Methods: Analytical and observational study developed in a University Hospital, which covers 220.000 individuals. We analyzed data of 109 consecutive MINOCA patients admitted to our center during a 3 years period (2016–2018). We used the definitions and the clinical management of the 2016 European Society of Cardiology Working Group Position Paper on MINOCA.

The composite of proinflammatory conditions (PIC) includes vasculitis and other autoimmune pathologies; connective tissue diseases, the presence of active cancer and the fact of presenting the myocardial infarction as a complication during admission for a non-cardiovascular pathology. Follow up analysis included death from any cause and major adverse cardiovascular events (MACE). Survival analysis is based on Cox regression and represented by Kaplan Meier curves. Median follow up was 17 months.

Results: Around one-third of the MINOCA patients had PIC (34.8%). They tended to be older (67.9 ± 14 vs 62.8 ± 15 , p 0.08), with no differences in rate of female sex (55.3 vs 49.3%, p 0.55) neither in traditional CVRF: Tobacco (40.5 vs 42.6%), diabetes (18.4 vs 26.8%), dyslipidaemia (39.5 vs 48.6%) or hypertension (55.3 vs 64.8%). Patients with PIC had a higher proportion of ischemic ECG at presentation (75.7 vs 53.5%, p 0.03), a tendency to worse ejection fraction (45.9 vs 28.2%, p 0.07) and higher in-hospital mortality (2.6 vs 0.0%, p 0.17). Levels of troponin were similar (4.0 ± 6.0 vs 6.6 ± 10.4 , p 0.2)

During follow-up (Figure 1), PIC was related to a higher all-cause-mortality (16.2 vs 1.5%, Hazard Ratio (HR) 10.7 (95% Confidence Interval [CI]: 1.3–89.0, p 0.03). Patients with PIC also showed a non-significant higher cardiovascular mortality (5.3 vs 1.4%, HR 3.5 [CI: 0.3–38.5], p 0.3) and higher rate of MACE (13.5 vs 9.2%, HR 1.6 [CI: 0.5–5.1], p 0.4).

Conclusion: In this study, MINOCA patients had a high prevalence of PIC, being present in more than one-third of them. They are linked to worse prognosis, with higher all-cause mortality and a non-significant increase in cardiovascular mortality and MACE, which could be significant with the appropriate number of patients.

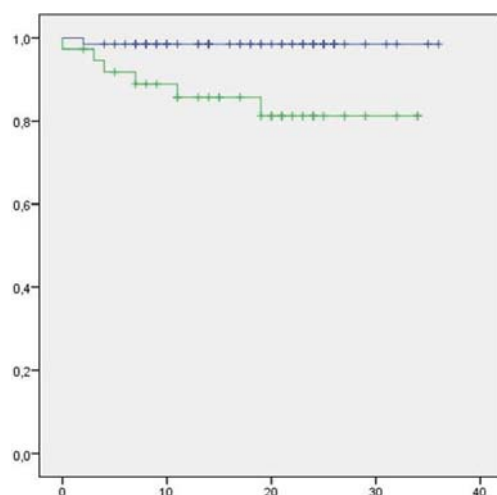


Figure 1: Kaplan Meir Curve representing mortality during follow-up. Green: Presence of proinflammatory conditions. Blue: absence of proinflammatory conditions.