Searching for the final diagnosis using cardiac magnetic resonance in MINOCA patients

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Introduction: In patients with clinical evidence of acute myocardial infarction (AMI), absence of obstructive coronary disease does not imply absence of acute thrombotic process. Thereafter, it can be designated as Myocardial Infarction with Non-obstructive Coronary Arteries (MINOCA). In these cases, performing Cardiac Magnetic Resonance (CMR) can be essential for establishing a final diagnosis, due to evaluation of the presence and pattern of late enhancement.
Purpose: The aim of this study is to evaluate the diagnostic and prognostic impact of cardiac magnetic resonance in patients with a possible diagnosis of MINOCA.
Methods: A 7-years prospective study in our centre, which included all patients proposed to CMR with a presumptive diagnosis of MINOCA due to acute chest pain, troponin raise and absence of angiographically significant coronary disease (luminal stenosis of $<$50%). All patients performed functional, anatomical evaluation, as so late gadolinium enhancement search. We analysed clinical characteristics, electrocardiographic presentation, echocardiographic and coronariography results. A presumptive diagnosis was elaborated after coronariography and comparison was made with the definitive one after CMR.
Results: A total of 85 patients were included, 53% were male, with a mean age of 49±20 years old. Clinical history of hypertension was observed in 52% patients, 34% had dyslipidaemia, 8% with diabetes, obesity was present in 21% of patients and smoking habits in 33%. At admission, 47% had ST segment elevation, so emergent coronariography was performed. The mean highest troponin I was 7,54±9,39ng/mL. Late gadolinium enhancement was observed in 50 (59%) of patients. After CMR realization a final diagnosis of MINOCA was made in only 13 patients (15%) and in 51 patients (60%) CMR evaluation allowed a diagnosis modification, with impact on patients' management and prognosis. Of these 51 patients, a definitive diagnosis of myocarditis was seen in 65% of cases, of Takotsubo's myocardiopathy in 27%, and hypertrophic cardiomyopathy in 8%. In 21 (25%) of patients, late gadolinium enhancement was not found. However its absence could exclude type 1 AMI as definitive diagnosis.
Conclusion: CMR is a fundamental technique on MINOCA patients' management. In our population, performing CMR allowed initial diagnosis modification in about two thirds of the cases, with important therapeutic and prognostic implications.

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