

UNIVERSITY OF MEDICINE AND PHARMACY OF TÂRGU MUREȘ

**ACUTE COMPLICATED MYOCARDIAL INFARCTION WITH
ATRIAL FIBRILLATION – CLINICAL AND PARACLINICAL
CORRELATIONS**

ABSTRACT

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This thesis contains a general part and a special part.

The general part contains data from the literature related to acute myocardial infarction and to post myocardial infarction atrial fibrillation identifying the mechanisms of its appearance, morphopathological and physiopathological data, as well as the consequences of this rhythm disorder as a complication of the AMI. **The special part** contains the personal study starting with the formation of the study group and continuing with the working method, the statistical processing of data as well as the results obtained through correlation of different clinical and paraclinical parameters, with the identification of prejudicial and prognostic factors of post AMI atrial fibrillation appearance.

Introduction: atrial fibrillation complicates about 15-20 % of the myocardial infarction and it is frequently associated with severe damages of left ventricle and cardiac insufficiency, usually being self-limited.

Aim of the study: the aim of the study is to evaluate the incidence and the predictive factors for the apparition of atrial fibrillation as complication of acute myocardial infarction with elevation of ST segment. Its purposes are the statistic evaluation of clinical and epidemiological factors of a sample of patients with ST segment elevation myocardial infarction, the analyse of obtained data and finding correlation between these parameters and the atrial fibrillation.

Data collection: the retrospective study analysed all patients that were hospitalised within the Cardiology Clinic at the Institute of Cardiovascular Diseases and Transplantation of Tîrgu Mureş between January 1st 2008 and December 31st 2010. 341 patients aged over 18 were selected, diagnosed with myocardial infarction with ST segment elevation, out of which 4 patients were excluded due to lack of information about AF apparition. The patients with acute myocardial infarction with elevation of ST segment were excluded from selection.

Statistical analyse of data used the Chi-squared test and the Student test, and a value of P less than 0.05 was considered statistically significant.

Results – out of the 337 patients, a number of 39 patients suffered from atrial fibrillation, as a complication after STEMI, equivalent to an incidence of 11.5 %. Statistically significant correlations were registered concerning the apparition of post AMI AF and the age ($p = 0.0003$), the non-smoking statute ($p = 0.009$), the left ventricle ejection fraction ($p = 0.01$), the existence of mitral insufficiency ($p = 0.04$), as well as its degree ($p = 0.0001$). Statistically significant correlations were also registered between other clinical and paraclinical analysed parameters: localisation of the infarction and the apparition of branch blocks, the apparition of mitral insufficiency and the analysed age

groups, dislipidemy and mitral insufficiency, the ejection fraction and the mitral insufficiency, the statute of diabetic and the ejection fraction etc. In the studied population no statistically significant correlations were found related to AF apparition with certain predictive factors described in literature as the feminine or masculine gender, the presence of arterial hypertension and of hyperglycemia in medical history, high plasma level of cholesterol and triglycerides, apparition of atrioventricular blocks, of branch blocks or hemiblocks on ECG or previous localisation, inferior or subendocardial of the infarcted territory, although it was noticed a preponderance of previous localisation of STEMI complicated with AF. This fact suggests that the prediction force of these factors is endemic to each population studied in part. The contribution of mitral insufficiency at the apparition of AF is demonstrated through the significant association between them, with a very strong association ($P < 0.0001$) between MI of moderate or severe degree and the apparition of AF. The study also demonstrated a significant correlation between the left ventricle ejection fraction and MI; thus mild MI constituted a predictive factor of AF apparition only at patients with reduced ejection fraction ($< 45\%$). The mechanism of producing AF specifically incriminated is the volumetric overcharge of left atrium due to transmitral regurgitation of blood during ventricular systole, accompanied by a possible atrial ischemic mechanism. The limits of the study were due to retrospective analyse of medical records that didn't allow the analyse of certain parameters that didn't appear as symptoms of cardiac insufficiency, as well as the lack of data in the records. More than that, the diagnosis of AF newly issued was based upon ECG periodically recorded during admission in hospital, investigation that could not find out arrhythmic transitory episodes, limitation that can generate the underestimation of real incidence of AF.

Conclusions – Atrial fibrillation is a quite frequent complication of ST segment elevation myocardial infarction, appearing in 11.5 % of the patients in the studied group.

- Predictive factors for the apparition of AF as a complication of STEMI in the studied population are: advanced age, decrease of left ventricle ejection fraction, the presence of mitral insufficiency, especially in moderate or severe degrees.

- It is noticed the preponderant implication of left coronary artery affectation (anterior descendente artery and circumflex artery) compared to the right one in association with the apparition of post myocardial infarction atrial fibrillation.

- The apparition of atrioventricular blocks of different degree is visibly avoided by TTFL administration, and similarly for every degree of block.

Key words: AF – atrial fibrillation, AMI – acute myocardial infarction, STEMI – ST segment elevation myocardial infarction, TTFL – thrombus fibrinolytic treatment.

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