THE USA JOURNALS
THE AMERICAN JOURNAL OF MEDICAL SCIENCES AND PHARMACEUTICAL RESEARCH
(ISSN – 2689-1026)
VOLUME 06 ISSUE02

PUBLISHED DATE: - 29-02-2024
DOI: - https://doi.org/10.37547/TAJMSPR/Volume06Issue02-12 **PAGE NO.: - 88-91**

RESEARCH ARTICLE **Open Access**

TIMING OF ONSET AND CHARACTERISTICS OF ATRIAL FIBRILLATION ATTACKS IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION OF VARIOUS LOCALIZATIONS

Asror Olimkulovich Lakhanov
Interventionalist physician of Samarkand regional branch of the Republican specialized Scientific and Practical Medical Center of Cardiology
Samarkand, Uzbekistan

Tashkenbaeva Eleonora Negmatovna
Head of the Department of Internal Diseases No. 2 and Cardiology at Samarkand State Medical University Samarkand, Uzbekistan

Abstract
Atrial fibrillation is not uncommon in the general population and is associated with a significant deterioration in quality of life and increased cardiovascular morbidity and mortality. Atrial fibrillation and coronary heart disease can coexist: 17-47% of patients with atrial fibrillation also have coronary heart disease, and 1-5% of patients with coronary heart disease also have atrial fibrillation.

Keywords Atrial fibrillation, myocardial infarction, arrhythmia, antithrombotic therapy.

INTRODUCTION

Atrial fibrillation is not uncommon in the general population and is associated with a significant deterioration in quality of life and increased cardiovascular morbidity and mortality. Atrial fibrillation and coronary heart disease can coexist: 17-47% of patients with atrial fibrillation also have ischemic heart disease, and 1-5% of patients with ischemic heart disease also have atrial fibrillation [2,5,12,20]. Atrial fibrillation occurring first time or earlier is associated with unfavorable prognosis and increased mortality in patients with acute myocardial infarction. Atrial fibrillation is closely associated with acute myocardial infarction because they share similar risk factors that increase the frequency of their coexistence. In addition, the combination of both conditions requires triple antithrombotic therapy, which increases the risk of bleeding in these patients. This article summarizes the possible pathophysiological interactions between these conditions [7,11,19].

Acute myocardial infarction is commonly associated with atrial fibrillation: between 6 and 21% of patients with acute myocardial infarction also have atrial fibrillation [1,3,9]. Atrial fibrillation frequently occurs in patients with ST-segment

elevation myocardial infarction and is associated with increased rates of repeat infarction, cardiogenic shock, and pulmonary edema[6,8,13,15]. It is also an independent predictor of both short-term and long-term mortality in patients with acute myocardial infarction. The specific mechanism of increased mortality in patients with both atrial fibrillation and acute myocardial infarction is still unclear, but it has been suggested that atrial fibrillation often occurs in the elderly with a large number of comorbidities that may carry an additional mortality risk[4,10,14,21].

Purpose of the study: to investigate the timing of occurrence and characteristics of atrial fibrillation attacks in patients with acute myocardial infarction of different localization.

MATERIALS AND METHODS OF THE STUDY

124 patients with acute myocardial infarction (AMI) and atrial fibrillation (AF) who were treated in the intensive care unit of Samarkand regional branch of the Republican Specialized Scientific and Practical Medical Center of Cardiology were studied.

The study evaluated the time of onset of atrial fibrillation attacks, their duration, and termination conditions. The patients underwent 24-hour electrocardiogram (ECG) monitoring. Heart rate (HR) at sinus rhythm was analyzed before and after control of FP paroxysm, the frequency of ventricular responses during arrhythmia. In case of sustained arrhythmia attacks, drug or electrical cardioversion was performed. Echocardiographic study (echocardiography) was performed on the first day after restoration of sinus rhythm, as well as on the 3rd, 7th and 15th days.

RESULTS

In our study we studied the timing of atrial fibrillation (AF) onset in patients with myocardial infarction of different localization, where we revealed about early onset of atrial fibrillation attacks in patients with myocardial infarction of lower localization. In 58 (90,6%) people in the first group (n=64) FP developed during the first 24 hours of IM. Only in 6 (9.4%) people the appearance of arrhythmia on the second day of the disease was observed. In later periods no cases of FP development on the background of IM of lower localization were registered.

In the group of patients with anterior MI (n=56), on the contrary, atrial fibrillation appeared later. Only in 4(7.1%) people arrhythmia started within the first 24 hours of IM. In the majority of patients 38(67.9%), the debut of FP occurred on day 2 on the second day of IM. Between 48 and 72 hours of illness, FP developed in 14(25.0%) people. Significance of differences in the timing of FP occurrence between the first and second groups $p<0.0001$.

FP attacks against the background of lower localization of IM had more favorable course. They were less prolonged and often stopped spontaneously. Thus, in 22 (34,3%) people from the first group arrhythmia lasted less than 24 hours, and in 8 patients reversion to sinus rhythm was spontaneous within 1 hour of the disease. In the rest 42 (65,7%) patients of the first group sinus rhythm was steadily restored already on the second day of the disease. A different picture was observed in patients with MI of anterior localization. PD attacks in the second group of patients were more prolonged. Early spontaneous recovery of sinus rhythm against the background of anterior MI was not observed. In 7(12,5%) patients arrhythmia lasted more than 24 but less than 48 hours. In 49(87,5%) patients stable sinus rhythm (more than 6 hours) could be restored only on the third day of the disease. And in one patient on the fourth day after the onset of the attack. It should be noted that attempts to restore sinus rhythm were made in all patients with FP on the background of anterior MI in the first hours after the onset of the attack, but the success of drug therapy with amiodarone and electrical pulse therapy was minimal. Sinus rhythm was either not restored or appeared for a short period of time.

AF attacks against the background of lower localization of MI were more favorable. They were less prolonged and often stopped spontaneously. Thus, in 21 (32,8%) patients from the first group arrhythmia lasted less than 1 hour, and in all of

them reversion to sinus rhythm was spontaneous. In the other patients of the first group sinus rhythm was persistently restored within the first 24 hours. Drug cardioversion by intravenous injection of amiodarone interrupted the attacks in 35 (54,7%) patients. Electrical cardioversion was performed in 8 (12.5%) patients.

The attacks in the group of patients with anterior localization of myocardial infarction were more prolonged and poorly succumbed to cardioversion. There was no early spontaneous recovery of sinus rhythm in the second group. All patients required emergency cardioversion. In 43 (76.8%) patients the rhythm was restored medically against the background of amiodarone administration, in 13 (23.2%) patients electric pulse therapy was used.

Conclusions: thus, against the background of inferior myocardial infarction atrial fibrillation develops early in the disease (first day) with a short duration of attacks. In the majority of patients with lower localization of myocardial infarction sinus rhythm was restored spontaneously.

On the background of myocardial infarction of anterior localization arrhythmia appeared in later terms (2 - 3 days) often against the background of heart failure, the attacks are more stable, accompanied by deterioration of hemodynamic parameters and require cardioversion. This indicates a more unfavorable course of atrial fibrillation in patients with anterior localization infarction.

REFERENCES

1. Kadyrova F. et al. Поширеність бессимптомно гіперурикеміі серед хворих з ішемічною хворобою //Здобутки клінічної і експериментальної медицини. – 2017. – №. 2.

2. Насырова З. А., Абдуллоева М. Д., Усаров Ш. А. У. СТРАТИФИКАЦИЯ ФАКТОРОВ РИСКА ПРИ ИШЕМИЧЕСКОЙ БОЛЕЗНИ СЕРДЦА //Journal of cardiorespiratory research. – 2021. – Т. 1. – №. 3. – С. 14-17.

3. Ташкенбаева Э. Н., Насырова З. А., Тоиров А. Э. Течение нестабильных вариантов стенокардии при полиморбидных состояниях //Colloquium-journal. – Голопристанський міськрайонний центр зайнятості= Голопристанский районный центр занятости, 2019. – №. 27-3. – С. 45-49.

4. Элламонов С. Н. и др. Факторы прогрессирования артериальной гипертензии у больных в коморбидности с сахарным диабетом 2 типа //Journal of cardiorespiratory research. – 2021. – Т. 1. – №. 2. – С. 16-21.

5. Saito S, Teshima Y, Fukui A et al. Glucose fluctuations increase the incidence of atrial fibrillation in diabetic rats. Cardiovasc Res. 2014;104(1):5–14. https://doi.org/10.1093/cvr/cvu176

6. Schmitt J, Duray G, Gersh B et al. Atrial fibrillation in acute myocardial infarction: a systematic review of the incidence, clinical features and prognostic implications. Eur Heart J. 2009;30(9):1038–1045.

7. Schnabel RB, Yin X, Gona P et al. 50 year trends in atrial fibrillation prevalence, incidence, risk factors, and mortality in the Framingham Heart Study: a cohort study. Lancet. 2015;386(9989):154–162. https://doi.org/10.1016/S0140-6736(14)61774-8

8. Shanmugasundaram M, Paul T, Hashemzadeh M et al. Outcomes of percutaneous coronary intervention in atrial fibrillation patients presenting with acute myocardial infarction: analysis of nationwide inpatient sample database. Cardiovasc Revasc Med. 2020;21(7):851–854.

9. Shiga T, Wajima Z, Inoue T, et al. Magnesium prophylaxis for arrhythmias after cardiac surgery: a meta-analysis of randomized controlled trials. Am J Med. 2004;117:325–333.

10. Simmers MB, Cole BK, Ogletree ML et al.

Hemodynamics associated with atrial fibrillation directly alters thrombotic potential of endothelial cells. Thromb Res. 2016;143:34–39.

11. Soliman EZ, Lopez F, O'Neal WT et al. Atrial fibrillation and risk of ST-segment–elevation versus non–ST-segment–elevation myocardial infarction: the Atherosclerosis Risk in Communities (ARIC) Study. Circulation. 2015;131(21):1843–1850.

12. Steinberg JS, Zelenkofske S, Wong SC, et al. Value of P-wave signal-averaged ECG for predicting atrial fibrillation after cardiac surgery. Circulation. 2017;88:2618–2622

13. Tanigawa M, Fukatani M, Konoe A, et al. Prolonged and fractionated right atrial electrograms during sinus rhythm in patients with paroxysmal atrial fibrilla-tion and sinus sick node syndrome. J Am Coll Cardiol. 2018;17:403–408.

14. Tereshchenko LG, Rizzi P, Mewton N et al. Infiltrated atrial fat characterizes underlying atrial fibrillation substrate in patients at risk as defined by the ARIC atrial fibrillation risk score. Int J Cardiol. 2014;172(1):196–201.

15. Toh N, Kanzaki H, Nakatani S et al. Left atrial volume combined with atrial pump function identifies hypertensive patients with a history of paroxysmal atrial fibrillation. Hypertension. 2020;55:1150– 1156. https://doi.org/10.1161/HYPERTENSIONAHA.109.137760

16. van Diepen S, Siha H, Fu Y et al. Do baseline atrial electrocardiographic and infarction patterns predict new-onset atrial fibrillation after ST-elevation myocardial infarction? Insights from the Assessment of Pexelizumab in Acute Myocardial Infarction Trial. J Electrocardiol. 2021;43(4):351–358. https://doi.org/10.1016/j.jelectrocard.2010.04.001

17. Vilani GQ, Piepoli M, Cripps T, et al. Atrial late potentials in patients with paroxysmal atrial fibrillation detected using a high gain, signal-averaged esophageal lead. PACE. 2016;17:1118–1123.

18. Villareal R, Hariharan R, Liu B, et al. Postoperative atrial fibrillation and mortality after coronary artery bypass surgery. J Am Coll Cardiol. 2004;43:742–748.

19. Violi F, Soliman EZ, Pignatelli P et al. Atrial fibrillation and myocardial infarction: a systematic review and appraisal of pathophysiologic mechanisms. J Am Heart Assoc. 2016;5(5):e003347. https://doi.org/10.1161/JAHA.116.003347

20. Wang J, Yang YM, Zhu J. Mechanisms of new-onset atrial fibrillation complicating acute coronary syndrome. Herz. 2015;40(S1):18–26. https://doi.org/10.1007/s00059-014-4149-3

21. Wong CX, Sullivan T, Sun MT et al. Obesity and the risk of incident, post-operative, and post-ablation atrial fibrillation: a meta-analysis of 626,603 individuals in 51 studies. JACC Clin Electrophysiol. 2015;1(3):139–152. https://doi.org/10.1016/j.jacep.2015.04.004

22. Yamada T, Fukunami M, Shimonagata T, et al. Dispersion of signal-averaged P wave duration on precordial body surface in patients with paroxysmal atrial fibrillation. Eur Heart J.2018;20:211–220.