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Distribution of Acute Heart Failure during Myocardial Infarction

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Abstract: Early detection of predictors of acute heart failure (ACF), the fact of myocardial necrosis, high diagnostic accuracy in the first hours of the disease in patients with acute coronary syndrome is the most important task of emergency cardiology. Solving this problem, creating new models for stratification of the risk of the occurrence and course of ACF depending on various factors will allow developing new algorithms of intensive care, determining individual prognostic parameters, and, therefore, will allow the timely start of the necessary therapeutic measures, which will have a positive effect on the prognosis and will contribute to improving the quality of life of patients, reducing mortality, economic costs, reducing the clinical and social consequences of coronary heart disease.

Key words: decompensation, hospitalization, quality of life, heart failure, mortality.

Acuteness. Acute heart failure (ACF) is a clinical syndrome characterized by the rapid onset of symptoms and complaints characteristic of cardiac dysfunction with decreased cardiac output, pulmonary and/or systemic congestion. ACD often develops without association with the presence of cardiac pathology in the past. Cardiac dysfunction can be characterized by systolic or diastolic dysfunction, cardiac arrhythmias, preload disorders and afterload. These disorders are often life-threatening and require emergency measures.

ARDF can develop as an acute de novo disease (that is, in a patient without pre-existing cardiac dysfunction) or as an acute decompensation of chronic CHF. With the rapid development of ARD, in comparison with the gradual development of symptoms in CHF decompensation, there are often no signs of fluid retention in the body. Thus, ALD should not be considered as a disease, but rather as a syndrome caused by different mechanisms. An increase in the proportion of elderly people in the population, an increase in survival after acute MI led to a significant increase in the number of patients with CHF and a significant number of hospitalizations due to HF decompensation.

CHD is the etiological cause of ARDD in 60–70% of cases, especially in elderly patients. In younger people, ALD develops due to DCM, arrhythmias, congenital and acquired heart defects, and myocarditis. Each year in the United States, at discharge from the hospital, the diagnosis of ALD is the main one in about 1 million cases, concomitant - in another 2 million. The average duration of stay in the hospital is 10 days. It should also be noted that over the past two decades, the 30-day mortality rate for STS has remained unchanged at >10%. Given this, hospitalization for acute respiratory disease should be considered as a serious emergency condition, since in-hospital mortality is 8%, and 25-30% for 6 months. Mortality is especially high in acute MI, which results in HF. Thus, the 12-month mortality rate is 30%. With the development of pulmonary edema, in-hospital mortality is 12%, annual mortality is 40%. These data are confirmed by large registries such as the Acute Decompensated Heart Failure National Registry (ADHERE) (2005), the Euro Heart Survey Programme (2006), etc. The cost of treating patients with HF accounts for 1–2% of total health care costs, with approximately 75% of the costs related to inpatient care.

According to the EVEREST study, the following causes of death were found in patients hospitalized

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due to acute acute myocardial infarction (AMI) – 2.6%, sudden cardiac death – 26%, chronic heart failure (CHF) – 41%, and acute cerebral circulation disorder – 2.2% [8]. The results of a study by Follats et al., 2011 demonstrated that in-hospital mortality was about 2% if ARS developed against the background of arterial hypertension (AH) or drug intake disorders, increased to 4% in myocardial ischemia, up to 6% in pneumonia, and reached 8% in case of increasing renal dysfunction [9].

Severe HF and acute decompensation are the most costly emergencies in cardiology. Acute heart failure (ARD) is a clinical syndrome that complicates the course of many; numerical cardiovascular diseases that occur suddenly or are characterized by a rapid or steadily progressive increase in heart failure (HF) symptoms requiring immediate hospitalization and specialized care [1, 2, 3, 4]. Despite the large contribution of healthcare and the financial costs associated with HF, there are still a large number of questions in the field of drug and non-drug management of patients with acute decompensated heart failure (ACF) [5], since the prognosis remains unfavorable, with in-hospital mortality of 4.0–6.9%, within 1–17.2 months after discharge – 6.6–17.3%.

Diseases of the cardiovascular system, along with chronic respiratory and oncological diseases, are the leading cause of mortality of the adult population from non-communicable diseases in economically developed countries. According to a report by the World Health Organization published in 2011, 7.3 million people died from coronary heart disease, which accounted for 13% of all deaths in the world [7].

In the Russian Federation, morbidity and mortality rates due to pathology of the cardiovascular system are alarming - 57% of all deaths. At working age (from 25 to 64 years), 38% of deaths are due to diseases of the circulatory system, while the contribution to the total mortality of men and women is almost the same [5].

One of the most severe manifestations of coronary heart disease is acute coronary circulation disorders - myocardial infarction (MI) and unstable angina pectoris (UA) - they are associated with most of the deaths in coronary artery disease. According to official data, the incidence of cardiovascular pathology, including MI, in the population over the age of 18 continues to grow. In 2000, it was 17,432.5, and by 2004 it was already 21,841.6 cases per 100,000 population [8].

The immediate cause of death in such a situation is most often acute heart failure (ARD). According to the registries of several clinical trials, clinically significant HF resulting from MI develops in 22-48% of cases [11, 39]. In addition, about 40% of MI is accompanied by left ventricular (LV) systolic dysfunction [11].

The development of ALD increases the risk of death by at least 3-4 times compared to patients without heart failure and LV systolic dysfunction in MI [24].

A retrospective study based on previous studies (GUSTO-I, GUSTO IIb, GUSTO-III, and AS-SENT-II) showed that even moderate HF in MI patients was associated with a 1.55 times higher risk of death within 30 days (95% CI 1.38-1.74) and a 2.15 times higher risk of death/recurrent MI (95% CI 1.96-2.36) compared with patients without signs of HF [26].

The in-hospital mortality rate of patients with HF included in the Worcester Heart Attack study was 18% [46], in the NRMI-2 and NRMI-3 studies it was 20.9% [47], in patients with ST-segment elevation (STI) and HF at admission included in the GRACE registry - 16.5% [48]. Mortality (1 and 6 months) in patients with HF at the time of admission is 8% and 12%, respectively, and in the development of HF after hospitalization - 26% and 33%, while in patients without signs of HF - 1.1% and 2.2% [44].

The incidence of cardiogenic shock (CABG), an extreme manifestation of ARD, in patients with ACS is difficult to determine precisely, since different authors use different definitions and criteria for diagnosing shock. According to rough estimates from ten years ago [50], CABG developed in 7-10% of patients with acute coronary syndrome (ACS). Over the past 10 years, the incidence of cardiogenic shock in patients with ACS has decreased. This was due to a decrease in the risk of developing

CABG during inpatient treatment (from 10.6 to 2.7%, p <0.001). The frequency of registration of already developed CABG at the time of admission to the hospital did not change significantly - about 2-2.3%. Although CABG was twice as common in patients with ST-elevation ACS on electrocardiogram (ECG) than in non-ST-elevation patients, the reduction in the risk of CABG over the past decade was approximately the same in both cohorts of patients. In-hospital mortality in CABG also decreased from 62.8% to 47.7% (p = 0.01), and this was true for both patients admitted with CABG (from 73.8 to 46.6%, p = 0.009) and those who developed CABG after hospitalization (from 60.9 to 48.9%, p = 0.094), although, as can be seen, in the latter subgroup of patients, the differences did not reach statistical significance [30, 48,49,50].

In some of these studies, reducing the risk of CABG was clearly associated with the implementation of modern evidence-based recommendations for the management of patients with ACS [13,48,49,50]. ARD is one of the most common and formidable complications of myocardial infarction (MI), which has an adverse effect on the course of the acute period and long-term outcomes of the disease. Therefore, special attention is paid to improving approaches to the prevention and treatment of ARI in MI. At present, the pathogenesis of the development of CAD and CABG in this category of patients is being actively discussed, the ideas about which have deepened and gone beyond the simplified dependence on a decrease in myocardial contractility. But until now, classifications that were created almost 40 years ago are used all over the world to determine the severity of HF, and the most famous GRACE scale for assessing the risk in patients with ACS includes the presence or absence of HF as a criterion, without taking into account the factors leading to its development.

Inference. Early detection of predictors of ANN, the fact of myocardial necrosis, high diagnostic accuracy in the first hours of the disease in patients with ACS is the most important task of emergency cardiology. Solving this problem, creating new models of stratification of the risk of the occurrence and course of ARI depending on various factors will make it possible to develop new algorithms of intensive care, determine individual prognostic parameters, and, therefore, will allow the timely start of the necessary therapeutic measures, which will have a positive impact on the prognosis and will contribute to improving the quality of life of patients, reducing mortality, economic costs, reducing the clinical and social consequences of coronary heart disease.

Bibliography

1. Aminov A.A., Mamutov R.Sh. Main directions of population research in the Republic of Uzbekistan // Cardiology of Uzbekistan -2019 - No3(53). - P. 61-63.
2. Baksheev V.I., Kolomoets N.M., Shklovsky B.L. Hypertension and coronary heart disease - the problem of the doctor and the patient - Moscow-2015-P.445-446.
3. Valieva M.Yu., Salokhiddinov Z.S. Assessment of risk factors of cardiovascular diseases in order to prevent and prevent them. Prakt. Conf. "Prophylactic mediums: today and tomorrow. Collection of Theses-2019-P.39.
4. ВОЗ Сердечно-сосудистые заболевания (2017). www. who. int/ru/newsroom/fact-Shuta/detaie/cardiovascular-diseases-(cvds).
5. Garganeeva A.A., Kuzheleva E.A., Borel K.N., Parshin E.A. Atypical course of acute myocardial infarction: clinic – anamnestic characteristics of management and outcomes (according to the "Register of acute myocardial infarction") // Cardiovascular therapy and prevention P.10-15.
6. Gordeev A.V. On the implementation of the regional interdepartmental project "Alive for a Long Time" in 2018-2020 // Voronezh. - 2017. P.2.
7. Janashiya P.Kh., Shevchenko N.M., Olishenko S.V. Emergency cardiology. A Guide for Doctors – Moscow – 2015. - P.1.
8. Cardiology // National Leadership edited by E.V. Shlyakhto. Moscow-2019-P.424.

9. Kotova O.V., Akarachkova E.S. Combination of cardiovascular diseases and anxiety/depression in elderly patients: how to improve the effectiveness of treatment and quality of life // Cardiology - 2018. No1 (11)-P.95-96.
10. Kokov A.N., Brel N.K., Gruzdeva O., Karetnikova V.N., et al. Multispiral computed tomography in the assessment of obesity of patients with coronary heart disease. - P.99-103.
11. Kurbanov R.D., Zakirov N.U., Kuchkarov Kh.Sh., Irisov Dzh.B. Preliminary results of 6-month use of the domestic antiarrhythmic drug axarrhythmia. -2020-No1(55).-P.27-32.
12. Kurlyanskaya E.K., Denisevia T.L. Prognosis of unfavorable cardiac events in severe chronic heart failure // Cardiology-2014. - No10-P.39-44.
13. Lazebnik L.B., Vertkin A.L., Konev Yu.V., Lee E.D., et al. Aging. Professional medical approach. - Moscow -2014-P.13.
14. Martsevia S.Yu., Ginzburg M.L., Kutishenko N.P. Lyubertsy study of mortality of patients who have suffered acute myocardial infarction (LIS): analysis of anamnestic factors determining death in hospital // Cardiovascular therapy and prevention: -2020;1:46-47.
15. Mamasoliev N.S., Tuychiev A. Screening for sudden death. Message 1-4 // Materials of science. Prakt. Conf. "Preventive Medicine: Today and Tomorrow" Collection of Theses. - 218-219.
16. Mamutov R.Zh., Nagaeva G.A., Aminov A.A. Structure of acute myocardial infarction and features of certain characteristics (according to the register) // Cardiology of Uzbekistan-2020. No1 (55)-P.33-35.
17. Martynovich T.V., Akimova N.S., Fedetov E.A., et al. Polymorphism of genes associated with increased cardiovascular risk and cognitive functions of patients with chronic heart failure and healthy individuals // Heart Failure - 2015. - №2. - pp. 12-13.
18. Medical and demographic indicators of the Russian Federation, 2006 // Statistical materials – Moscow: Rosstana, 2017. - P.188.
19. Muromtseva G.A., Deev A.D., Konstantinov V.V., Shalnova S.A. Prevalence of electrocardiographic changes in men and women of old age in the Russian Federation // rational pharmacotherapy in cardiology - 2016. - №6. - P.711-717.
20. Nikulina N.N., Boytsov S.A., Yakushin S.S., et al. Survival in acute forms of coronary artery disease in different age groups of men and women // Cardiovascular therapy and prevention No6 - P. 235-236.
21. Otsenkova E.V., Efremova Yu.E., Karnov Yu.A. Morbidity and mortality from myocardial infarction in the Russian Federation in 2000-2011. Therapeutic archive. - 2013. - №4. - P.4-10.
22. Assessment of the organization of medical care for patients with acute coronary syndrome with the rise of the nuclear fuel segment in dynamics for 2019 and 2010 in the subjects of the Russian Federation, implementing a vascular program (according to the data of the Russian ACS register) // Ter.arch.-2012-No1. - P.24-27.
23. Protasov V.N., Skvortsov A.A., Koshkina D.E., Narusov O.Yu., Peretsenkov S.N. Use of modern biomarkers in risk certification of patients with heart failure // Cardiological Bulletin -2014. - №4. - P.100-103.
24. Ryazhova T.A. Features of the course of myocardial infarction in women of the elderly and senile age. Cand. honey. Sci. – Kemerova -2013-P.26.
25. Sinanskaya M.A., Kurochkina O.N. Risk factors of lethal outcome of acute myocardial infarction taking into account gender features. - 2017. - No3-P.19-27.

26. Sadikova D.T. Clinical and Economic Features of Acute Coronary Syndrome. "Preventive Medicine: Today and Tomorrow" Collection of Theses. -2019.P39.
27. Salohiddinov Z.S., Abdusattarov A.A. Age-gender and clinical-anamnestic features of atypical clinical forms of acute myocardial infarction. Prakt. Conf. "Preventive Medicine: Today and Tomorrow" Collection of Theses-2019. - P.138.
28. Tukmin O.V., Okrugin S.A., Yunusova E.Yu., Efimova E.V., Garganeeva A.A. Acute myocardial infarction in elderly and senile persons: an epidemiological study under the WHO program "Register of acute myocardial infarction"]. - 2016-T.29. - №1. - P.123-12.
29. Tulaboeva G.M., Nurasheva DM., Otamirzaev N.R. Role of cytokines in the pathogenesis of coronary heart disease // Journal of Biomedicine and Practice -2020-P.29-32.
30. Yuldashev N.P. Clinical and angiographic comparative efficacy of biosoluble ABSORB CD scaffolds with drug-coated stents of the second generation. (DSc) dissertation. -Tashkent -2018.-P.34-37.
31. Yakushin S.S., Nikulina N.N., Seleznev S.V. Myocardial infarction - 2nd edition, revised and supplemented. -Moscow. - 2018, pp. 13-26.
32. An-Ra Choi, Myung Ho Jeong, Younag Joon Hong et al. Clinical characteristics and outcomes in acute myocardial infarction patients with versus without any cardiovascular risk factors // Korean J intern Med,34(5). 1040-1049, Sep 2019 doi: 10.3904.
33. Barreico M. Management and risk factors for mortalityin very eldery patients with acute myocardial infarction // Geriatric Gerontollent, ISSN: 1447-0594. -2013 Jan; Vol.13(1), PP.146-51.
34. Ben – Shoshan J., Segman – Rosentveig Y., Arbel V. et al. Comparison of Triggering and Nontriggering Factors in ST – Segment Elevation Myocardial infarction and Extent of coronary Arterial Narrowing // Am. J. Card. – 2016; 117(8): 1219-1223.
35. Shalnova S.A., Deev A.D., Kapustin A.V. et al. Coronary heart disease in individuals 55 years and older. Prevalence and prognosis // kardiovaskula Terapiya I Profilaktika . -2014; 13(4) : 21-8.
36. Shibata T., Kawakaamis., Naguchi T. et al. Prevalence, Clinical Features, and prognosis of Acute Myocardial infarction Attriutable to coronary Artery Ctantolism // Circulation. -2015; 32:241-25.
37. Dazhi Deng S.I, King hiu, Guangma Xu, Jianting Gan et al. Epidemiology and Serum Metabolic Characteristics of Acute Myocardial Infarction Patients in Chest Pain Centres // Iran J Public Health. – 2018, jul; 47(7) : 1017-1029.
38. ESC / EACTS Guidelines on Myocardial Revascularisation. European Heart Journal (2014) 35, 2544. – 2018; ESC Guidelines for the Acute Myocardial infarction in patients presenting with ST – segment elevation (Management of) 2017 // European Heart Journal. -2018; 39, IS.2, 119-171.
39. Kristian L., Ingebiorg S., Erik B., Peder M. et al. Serum Fatty Acids, Traditional Risk Factors, and Comorbidity as Related to Myocardial injury in an Elderly Population with Acute Myocardial infarction // J lipids, 2016; Vol.2016;PP. 4945720.
40. Laatikainen T., Ctichley I., Vartianen E. et al. Explaining the decline in corari heart disease mortality in Finland between 1982 and 1997 // Am J Epidemiol 20; 766-772.
41. Linchak R.M., Popov V.S., Kim K.F. Comparactive laboratory effectiveness of low molecular weight heparins in patients with acute coronary syndrome and no St segment elevation // Cardiovascular Therapy and prevention. 2011.-V10.- N1: 53-56.
42. Li L., Ma Y., Shang XM, Hong Y. et al. Hyperuricemia is associated with short-term outcomes in elderly patients with acute myocardial infarction // Aging Clinical and Experimental Research volume 30.06 February pages 1211-1215 (2018).

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ISSN: 2995-5483

43. Lioyd-Jonneas D., Adams R.I., Brown T.M. et al. On behalf of the American Heart Association Statistics Committee and Stroke Statistics Subcommitee. Heart disease and stroke statistics -2010 update: a report from the American Heart Association // Circulation 2010; 221; e46-e21.
44. Levi F., Licchini F., Negzi E., Lo Vecchia C. et al. Trends in mortality from cardiovascular diseases in Europe and other areas of the world // heart 2002; 88; 121-23.
45. Mazos I., Caraba A. Electrocardiographic Predictors of Cardiovascular Mortality. Review Article Hindan Publishing Corporation. Disease Markers. -2015; 2015: 727400.
46. Rautahazju P.M., Zhang Zh.M., Vitolins M. et al. Electrocardiographic Repolazixation Related variables as Predictors of coronary Heart Disease Depth in the Women's Health initiative study // J Am Heart Assos – 2014; 3: .e001005.
47. Renilla A., barreiro M., Vicante B., Torres F. et al. Management and risk factors for mortality on very elderly patients with acute myocardial infarction // Geriatr Gerontollent. ISSN:1447-0594,2013 Jan; Vol.13(1), PP.146-51.
48. Bahriddinovna R. D., Khasanbaevich T. K., Khalimovich M. N. Features of the Frequency of Acute Myocardial Infarction among the Inorganized Population of the Elderly and Old Age //International Journal of Modern Agriculture. – 2021. – T. 10. – №. 1. – C. 995-1004.
49. Mamasaliev Nematjon Salievich, Mavlonov Namoz Halimovich, Tairov Maksud Sharifovich, Rakhmatova Dilbar Bahritdinovna. (2021). Gerontological and Geriatric Aspects of Prevention of Non-Communicable Diseases: Current Problems from the Data of Epidemiological Situations in the World. *Annals of the Romanian Society for Cell Biology*, 5162–5171.
50. Rakhmatova D. B. Scientific and practical significance of acute myocardial infarction among the population of elderly and old age //Globalization, the State and the Individual. – 2022. – T. 29. – №. 1. – C. 84-89.