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CLINICAL AND DIAGNOSTIC FEATURES OF MYOCARDIAL INFARCTION IN YOUNG PATIENTS IN EMERGENCY MEDICINE

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ABSTARCT

Diseases of the circulatory system (DCS) and, first of all, acute myocardial infarction is the main cause of primary disability and mortality of the population. Every year around 70 million people die from DCS in the world, which is 29% of all deaths in the world according to the WHO, and about half of them are deaths from acute myocardial infarction (AMI).

The causes of death are diverse and include both the social determinants of health status and the high prevalence of risk factors in the population. Accordingly, it is necessary to introduce effective measures to preserve health at all levels, including the health care system. [6,7, 8].

In recent years, there has been a rejuvenation of myocardial infarction (MI) and the disease is increasingly developing in people under 45, which is associated with modern

lifestyle changes and an increased risk of early development of cardiovascular pathology. Risk factors include young men, smokers, people with a hereditary predisposition to early development of DCS and having problems with finding a job. For the prognosis of the disease, it is important to assess the risk of developing complications, in particular, heart failure, and in young people the risk of its development is the smallest.

The cause of AMI is thrombosis of the coronary vessel in the area of the existing atherosclerotic plaque. The clinical manifestations and consequences of myocardial infarction depend on the location of the obstruction, the severity and duration of myocardial ischemia. [2,3]. Despite the great progress in the diagnosis and treatment of cardiovascular pathology, cardiovascular diseases continue to be the most urgent problem in cardiology and the entire healthcare [4,5]

The aim of the study was to investigate the most reliable signs of MI among males at a young age, depending on the main risk factors and family anamnesis.

Materials and research methods. We examined 596 men, of whom 162 (27.2%) aged 35 to 45 years old were suffering from ischemic heart disease (IHD).

Each patient was interviewed in the form of a standardized survey, which included the identification of DCS, including a family anamnesis of myocardial infarction. Measurement of blood pressure (BP) was monitored. The data of electrocardiography, echocardiography, Holtor monitoring, anthropometry were studied. The concentration of cholesterol (CS), triglycerides (TG), low density lipoprotein cholesterol (LDL cholesterol) in the blood were determined. All signs of family anamnesis and risk factors were analyzed.

The results of the study showed that of 162 men with coronary artery disease, 60 (37.0%) had previously suffered MI. From the anamnesis among 160 patients with coronary artery disease were parents, namely 71 from them were fathers, and 46 were mothers, who were alive at the time of the survey. From the anamnesis among the parents of these patients, the cause of death in 24 male and 22 female parents was a heart attack, 10 male and 16 mothers died of cerebral stroke.

To study the relationship between the development of MI, RF and family anamnesis indices, one of the procedures of multivariate discriminant analysis (DA) was applied, the so-called stepwise DA (SDA), which makes it possible to determine a subset of features that best describe the dependence of the prevalence of MI on RF and the features of the standardized questionnaire "Family anamnesis".

According to the results of our study, all major RFs, with the exception of total cholesterol, LDLCS, and smoking, prevailed in the groups of men with coronary artery disease compared with men without coronary artery disease. Patients with MI were on average older than men without this disease, had a higher education level, higher concentrations of cholesterol, triglycerides, levels of systolic blood pressure and diastolic blood pressure, body mass index (BMI).

Groups of patients with MI were considered separately according to non-strict (26 men) and strict (15 men) criteria.

It was found that the prevalence of MI according to non-strict criteria is associated with such RF as age, cholesterol, LDL cholesterol, DCS in parents, diabetes mellitus in the mother or father, increased systolic blood pressure in the subject. At the same time, the prevalence of MI according to strict criteria depends on a combination of other signs, the first three of them coincide (age, concentration of cholesterol, LDL cholesterol) with informative signs that determine the likelihood of developing myocardial infarction according to non-strict criteria. The next most important is the death of the father from a stroke or heart attack. Finally, the last symptom is the concentration of TG in the patient's blood plasma.

In both cases, the signs, when analyzing the family anamnesis, play an important role among other studied signs. So, out of 6 signs that best describe the dependence of the prevalence of myocardial infarction on them according to non-strict criteria, 5 indicators from the family anamnesis, and out of 5 signs that determine the probable development of myocardial infarction according to strict criteria, 3 indicators were data from the family anamnesis.

At the next stage of the research, based on the selected features, predictive models were built. The calculated estimates of the indices indicate that the higher the RF value taken together, the higher the likelihood of developing MI. At the same time, the results of a comparative analysis of empirical (observed) and theoretical estimates of the likelihood of developing MI indicate a high reliability of the selected features. So, if in the first group, which included the surveyed with the lowest values of the selected signs, the risk of MI is 1 case in 30, then in the men who fell into the sixth group, with the highest values of the selected indicators, the risk of morbidity is almost 10 times higher.

Thus, as the research materials have shown, the structure of the hereditary predisposition to MI is extremely complex. The chosen study design was effective in

studying the role of family history in the prevalence of MI among men in the selected group and made it possible to obtain quantitative estimates of the RF studied.

Identification of features that make the main contribution to the informativeness function, calculated taking into account the size of the feature space and the sample, makes it possible to determine that for MI, according to strict criteria of features, in the order of the most informativeness are as follows: age, TG level, cholesterol, LDL cholesterol level, father's death from a stroke or heart attack.

The use of selected features to construct prognostic indices calculated on the basis of the discriminant model indicates a statistically significant contribution of the totality of features to the likelihood of developing MI. Calculations have shown that the prognostic indices of the empirical and theoretical risk of developing myocardial infarction largely coincide. If individuals according to the selected characteristics are included in the first group of 10% of the distribution, then the risk of developing MI in men 35-45 years old is 1 case in 30, while in the sixth group, every third examined person has a risk of developing MI.

Conclusions

Thus, the data from the family anamnesis questionnaire: death from a heart attack of the father or mother, death of the father from a stroke, the presence of arterial hypertension, stroke, diabetes mellitus in the mother is statistically significantly more common in men aged 35-45 years with coronary artery disease, compared with persons without this disease.

The most informative in terms of assessing the likelihood of myocardial infarction are the following signs: age, increased concentration of total cholesterol, triglycerides, low-density lipoproteins, death from stroke or heart attack.

Calculations of the prognostic indices of empirical and theoretical risks of myocardial infarction, according to the results of this study, indicate that among men aged 35-45, who have the lowest rates, according to the identified set of signs of myocardial infarction, it can develop in 1 out of 30 cases, and among the same men with the highest values of the selected traits, i.e. in the upper distribution groups in 1 out of 3 cases.

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