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## Epidemiology, Risk Factors and Ways of Prevention Of Ischemic Heart Disease in the Population Of Fergana Valley Medical Workers

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### ABSTRACT

Studies have shown that even people between the ages of seventy and eighty who make changes in their diet and lifestyle show a significant reduction in the risk of developing diseases such as coronary heart disease. Some people live much longer than average, thanks in part to their DNA. study published in the European Heart Journal shows that this genetic code could be reproduced even for those who do not have it. The way is now open for an innovative model of therapy that can prevent and combat cardiovascular disease by truly rejuvenating the blood vessels.

### Keywords:

ischemic heart disease, longevity, centenary.

**Introduction.** Italian scientists have developed a model of innovative therapy capable of preventing cardiovascular diseases, as well as fighting them by effectively rejuvenating blood vessels.

Some people live much longer than average, partly due to their "special" DNA. A study published in the European Heart Journal shows that their genetic "gift" could be replicated even for "mere mortals"[8].

The study, conducted by specialists from the University of Salerno Medical University of Salerno with the support of the Cariplo Foundation and the Italian Ministry of Health, focused on the analysis of the gene encoding the BPIFB4 protein. In the past, the same research team identified a variant of this gene, the so-called LAV, which has been linked to longevity because it occurs mainly in people over the age of 100.

Now, thanks to the viral vector, the researchers have inserted the LAV-BPIFB4 gene into the

DNA of animals predisposed to atherosclerosis and, consequently, to cardiovascular diseases. This kind of genetic therapy worked: The functionality of the endothelium (the inner lining of blood vessels) increased, atherosclerotic plaques in the vessels decreased, and their inflammation decreased [6,8].

The same positive effect was achieved in laboratory studies, this time not by introducing genes, but by delivering the protein LAV-BPIFB4 into human blood vessels. In the near future, the authors of the method plan to reproduce these encouraging results in clinical trials involving people suffering from atherosclerotic vascular lesions. A feature of the current demographic situation in the world is an increase in the relative and absolute number of people aged 60 years and older [1,4]. While the total population of Russia increased by 25% in 1959-1997, the number of elderly people more than doubled.

According to UN forecasts, the number of elderly people will increase to 1 billion by 2025. 100 million people. In Russia, the expected proportion of people over the age of 60 will reach 20% by 2015, and one in three of the elderly will belong to the age group over 75 years old. As a result of these demographic processes, it is assumed that the proportion of the working-age population will decrease, the proportion of older age groups will increase, and the structure of morbidity will change in this regard, especially an increase in the pathology of the cardiovascular system.

The steady aging of the population increases the proportion of cardiovascular diseases in the overall morbidity structure. In Russia, as in most industrialized countries, cardiovascular diseases occupy the first place among the causes of death of the population, accounting for about 55% of total mortality. In recent years, mortality rates from cardiovascular diseases have been increasing in the world, and are currently the highest in the world [3,5]. In 2001, mortality from diseases of the circulatory system in the United States was 55.5%. At the same time, in more than 90% of cases, death from cardiovascular diseases is caused by coronary heart disease and cerebral stroke [7,8].

According to P.A. Vorobyov (2002), the frequency of clinically pronounced coronary heart disease increases with age and is 11% at the age of 65-74 years. By the age of 70-75, the incidence of coronary heart disease reaches 25-33%, thus, the elderly make up the majority of patients with coronary heart disease. The quality of life in people of any age depends on their physical status, which is an integral indicator of the functional capabilities of the body [1,4]. To improve the quality of life of people of the "third age" and prevent diseases of old age, a system of preventive measures is needed, taking into account the relationship of these diseases with indicators of physical development and the level of functional reserves of the body [2,7].

The rate of aging and the achievement of species life expectancy is determined genetically with the participation of

environmental factors: socio-hygienic, natural-geographical and environmental [9].

**The purpose of the study.** To highlight the features of clinical manifestations and course of coronary heart disease in individuals who have reached the limit of specific human life expectancy.

**Materials and methods of research.** A continuous survey of centenarians of the urban agglomeration of Andijan (90 years and older, n=198) was conducted.

**The results of the study.** Questioning centenarians is fraught with certain psychological difficulties. Despite maintaining sufficient intelligence, the deformation of mental nuances affected the formation of contact with an unfamiliar doctor. The most common complaint was the loss of former vigor and efficiency, often this complaint was presented as unmotivated fatigue (31.8% of centenarians), half of them had fatigue associated with psychological status. 13.1% of the surveyed complained of shortness of breath, 31.8% were found to have shortness of breath, only three respondents had it accompanied by a feeling of palpitation. None of the examined centenarians had the phenomenon of orthopnea, either according to complaints or according to observation data. Typical angina attacks bothered 2.0% of centenarians, but no medications were used to stop them; according to patients, short-term rest was enough. Equivalents of angina pectoris, such as delayed pain syndrome, localization of pain in places of irradiation of angina pectoris, arrhythmic equivalents of angina pectoris were in 1.0% of respondents, while some doubts remained about their truth. A decrease in the ileocostal space was noted in almost all centenarians included in the study. The ratio of anteroposterior and lateral chest sizes was reduced in all patients, the shape of the chest was approaching barrel-shaped (46.9%). The precordial area has not been visually altered. Percussive expansion of the boundaries of relative cardiac dullness was observed in 19.7% of the surveyed. The ratio of

the areas of absolute and relative cardiac dullness did not exceed the values of the physiological norm. The apical shock was detected in 64.1% of centenarians.

There was no increase in the area of the apical shock, its localization coincided with the left border of relative cardiac dullness. To objectify the auscultative picture, the sonority of heart tones was ranked: 0 points corresponded to the absence of a tone, 5 points corresponded to a loud sound. In the general sample, the heart tones had a sonority of 2.4 (1.8; 3.9) points. The correct tone ratio was maintained in 48.5% of centenarians. 9.1% showed splitting of the first tone at the top.

Heart murmurs were heard in 40% of cases. At the same time, 31.8% of centenarians had systolic noise with an epicenter above the projection of the aortic valve, conducted to the vessels of the neck, in 24.2% it was combined with mild systolic noise at the apex and at the Botkin–Erb point. When analyzing the ECG, centenarians had a sinus rhythm in 77.8% of cases, and migration of the rhythm driver along the atria was noted in 5.8%. In the same number of patients, the AV connection took over the function of the rhythm driver. Atrial fibrillation was diagnosed in 10.6% of the examined patients.

Violation of avconductivity was recorded in 7.6% of cases, while 2.0% of the examined individuals reached the degree of AV blockade of the first degree. Violation of intraventricular conduction was more common — in 39.9% of cases. Blockade of one of the branches of the left leg of the His bundle was recorded in 26.3% of cases, complete blockade of the left leg of the His bundle was recorded in 8.9% of the examined patients. Blockade of the right leg of the His bundle was in 9.1% of cases. Ventricular and ventricular ectopia was observed in 28.3%. The most common forms were infrequent polytopic supraventricular and ventricular extrasystole. In 19.2% of cases, ECG signs of left ventricular myocardial hypertrophy were detected. ECG analysis revealed signs of scarring in 17.7% of centenarians. Scars of the anterior wall of the myocardium of the left ventricle were most common. Myocardial infarction was documented only in 9.6% of the

examined persons according to the discharge certificates and the attached ECG results.

At the time of the examination, everyone maintained their usual physical activity, and some of them were striking in its severity. Signs of focal lesion in the form of hypokinesia and akinesia during echocardiography were observed in 20.9% of centenarians.

Thus, attention is drawn to the discrepancy between the frequency of detection of focal changes in the myocardium on ECG and during echocardiography and documented myocardial infarction in the anamnesis, which raises the question of the true prevalence of this form of pathology among centenarians. On the one hand, such a discrepancy in the frequency of detection of scars by instrumental methods and proven ACS may indicate clinically mute forms of myocardial infarction.

On the other hand, it cannot be excluded that the formation of the senile heart is accompanied not only by diffuse, but also by segmental fibrosis. The continuing increase in the degree of morphological and electrophysiological heterogeneity of the myocardium with age in our study is evidenced by a significant age-dependent increase in the frequency of cardiac arrhythmias, among which supraventricular and ventricular ectopias come out in the first place. Holter monitoring was performed in 49.9% of centenarians. No pain-free form of myocardial ischemia was detected in any of the examined patients. Clinically significant ST-segment depression was noted in 1.5% of centenarians, and it coincided with normal physical activity.

The conducted research raises questions about the mechanisms of formation of the cardiovascular continuum. In the group of examined centenarians, indications were found that their relatives often suffered from cardiovascular diseases (the "sudden death" of their father at a young age, apoplexy in the family). Moreover, in some cases they themselves suffered a myocardial infarction, but not all had the formation of CHF, a shortening of the survival period and a decrease in the quality of life, which is consistent with the data. Successful aging despite coronary heart disease demonstrates

the possibility of rupture of the cardiovascular continuum, especially since the discovered fact is consistent with the hypothesis of a decrease in age-dependent forms of pathology at the final stage of human life. The concept of J. Evert and colleagues (2003) on the presence of "survivors", "delayed" and "escaped" centenarians, including those over 100 years old, receives support and new coverage in the form of a peculiar clinical phenomenon of "dissolution" of certain forms of cardiovascular pathology. The interest in the study of age-related features of the cardiovascular system is due not only to its physiological significance, but also to the fact that human aging as a physiological process proceeds unevenly: against the background of the extinction and weakening of some mechanisms and the activation of others; the most important factor of the body's reserve capabilities is included — adaptation to new conditions associated with aging, changes in functional body systems. Recently, the problem of the "female heart" has attracted increasing attention from cardiologists. The established gender differences in electrophysiological processes in the myocardium in persons who have crossed the 90-year mark, i.e. persons with a long period after the extinction of sexual functions, once again show the complexity of the formation of late-age heart pathology and the relevance of a separate study of the formation of the senile heart in women and men. Among the few hundred-year-old studies, NECS can be called the most complete, in which, as in our study, the majority were women. Centenarian New Englanders demonstrated a different distribution of the well-being parameter among men and women. The authors explain this fact by the fact that men must have more pronounced adaptive abilities in order to reach the age limit for a person. In general, women have a longer average life expectancy. To explain the exceptional life expectancy of women, it is proposed to use the antioxidant effect of estrogens, which helps to reduce cardiovascular pathology. A number of studies have attempted to link genetically determined metabolic features with the risk of

myocardial infarction and longevity, but they raised more questions than they answered.

**Conclusion.** All of the above makes it possible to consider the phenomenon of longevity as a state of maximum possible protection against the formation and progression of coronary heart disease, and centenarians as a promising category for villages to identify anti-atherogenic factors and mechanisms.

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