



# EPIDEMIOLOGICAL CHARACTERISTICS OF GENDER DIFFERENCES OF SENILE AORTIC STENOSIS IN FERGANA VALLEY

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Article history:	Abstract:
<b>Received:</b> June 7 <sup>th</sup> 2024 <b>Accepted:</b> July 6 <sup>th</sup> 2024	Longevity is a unique example of physiological aging, slow involuntional changes, long-term maintenance of homeostasis and high adaptive potential. In this regard, it is of undoubted interest not only in scientific but also in applied aspects to study physiological and pathological features of long-livers from various natural-geographical, social and ecological zones. Our work is based on the analysis of the results of examination of 62 long-livers aged from 90 to 101 years, the average age is $92.29 \pm 2.40$ years. The study is one-stage, selective. The analysis of the structure of morbidity of long-livers was carried out, anthropometric characteristics and clinical and laboratory data were studied.

**Keywords:** Aging, polymorbidity, longevity, method, glomerular filtration rate.

## INTRODUCTION

Population aging is a global, objective, irreversible process. The aging process is quite contradictory, as it combines not only regressive trends, consisting in a decrease in the viability of the body, but also progressive ones, caused by the formation of new adaptive mechanisms [1]. According to the United Nations, in 2018, for the first time in the world population, the number of people of working age exceeded the number of children under five [2]. According to forecasts of world demographers, it is expected that in the second half of the 21st century, every sixth person in the world will be over 65 years old, which will amount to more than 15% of the world population, compared to every 11th in 2019, which was 9% of the population [3]. However, it should be noted that against the background of increasing life expectancy, over the past half century, the natural growth of the world population has slowed down almost twice - to 10.9 people per 1000 in 2015-2020. from 20.5 in 1965-1970 [3].

## MATERIALS AND METHODS

Our work is based on the analysis of the results of examination of 62 centenarians aged 90 to 101 years, average age  $92.29 \pm 2.40$  years. The first group (I) consisted of 23 men aged 90 to 96 years, average age  $92.3 \pm 1.84$  years, the second group – 39 women aged 90 to 101 years, average age  $92.28 \pm 2.7$  years. The research program included studying patients' complaints at the time of examination, collecting anamnesis of the disease, objective clinical examination data, laboratory and instrumental research methods. All

examined patients had their Charlson comorbidity index calculated according to clinical guidelines [4].

## RESULTS AND DISCUSSION

A clinical blood test was performed on an Abacus automatic hematology analyzer (Diatron, Austria), and certain parameters of the blood biochemistry spectrum were measured on a ChemWell automatic analyzer (Awareness Technology Inc., USA). The following laboratory blood parameters were analyzed in all patients: red blood cell count, mean corpuscular volume, hemoglobin, hematocrit, white blood cell count, platelet count, erythrocyte sedimentation rate (ESR), glucose, glycated hemoglobin, creatinine, total protein, uric acid, total cholesterol, triglycerides, high-density lipoproteins (HDL), low-density lipoproteins (LDL), and thyroid-stimulating hormone. Based on the results obtained, all patients had their glomerular filtration rate (GFR) calculated using the CKD-EPI formula in accordance with the National Clinical Guidelines [5]. Physiological aging is an example of the adaptive capabilities of the body to changing conditions of the external and internal environment, and long-livers are the closest to the standard of natural population aging [1,2,4]. Despite the presence of polymorbid pathology, people who have reached extreme old age, regardless of ethnic, economic, environmental and other factors, carry a unique genetic potential that neutralizes external influences [1,4]. A feature of the pathology of elderly people and long-livers is its multiplicity and combination. The cause of poor health and subsequent helplessness in old age are chronic diseases, both acquired in young and middle age, and typical for the older age period. The Charlson comorbidity index in the



general population of long-livers was  $8.37 \pm 2.55$  points, taking into account the gender indicator in men it was  $8.3 \pm 1.79$  points, in women -  $8.41 \pm 2.93$  points, which did not have statistically significant intergroup differences. When analyzing the structure of polymorbidity, cardiovascular pathology is most common among long-livers of both sexes: arterial hypertension is diagnosed in 80.65% of long-livers, coronary heart disease, stable angina in 59.68% of cases, chronic heart failure - in 66.13% of patients, atrial fibrillation - in 12.90%, aortic stenosis was detected in 1.61% of patients, non-stenotic atherosclerosis of the carotid arteries is determined in 38.71% of long-livers. Chronic anemia of various etiologies occurs in 16.13% of patients, deep vein thrombosis - in 9.68% of cases, pulmonary embolism in the anamnesis was found in 3.23% of people. Diseases

of the musculoskeletal system are detected by the following nosologies: osteoarthritis of various localizations - in 43.55% of patients, knee or hip arthroplasty was undergone by 1.61% of people, rheumatoid arthritis is detected in 14.52% of long-livers, osteoporosis of varying severity is diagnosed in 16.13% of patients, gout - in 11.29%. Alzheimer's disease is determined in 8.06% of cases, Parkinson's disease - in 4.84%. Oncological diseases in the anamnesis are detected in 14.52% of patients. Trophic ulcers or bedsores occur in 6.45% of long-livers.

Significant gender differences in morbidity include a higher prevalence of osteoporosis in women and Alzheimer's disease in men. The nosological characteristics of polymorbidity depending on gender are presented in Table 1.

*Table 1*

**Nosological characteristics of polymorbidity (in %)**

<i>Name of the disease</i>	<i>First group (n=23)</i>	<i>Second group (n=39)</i>
Arterial hypertension	86,96%	76,92%
Stable angina	65,22%	56,41%
Chronic heart	73,91%	61,54%
failure	21,74%	7,69%
Atrial fibrillation	4,35%	0,00%
Aortic stenosis	39,13%	38,46%
Carotid artery atherosclerosis	13,04%	17,95%
Chronic anemia	13,04%	15,38%
History of cancer	8,70%	10,26%
Deep vein thrombosis	4,35%	2,56%
History of pulmonary embolism	39,13%	46,15%
Osteoarthritis	0,00%	2,56%
Knee or hip replacement	13,04%	15,38%
Rheumatoid arthritis	4,35%	23,08%
Osteoporosis	8,70%	12,82%
Gout	17,39%	2,56%



Alzheimer's disease	4,35%	5,13%
Parkinson's disease or syndrome	30,43%	-
Prostate diseases in men	4,35%	7,69%

An analysis of anthropometric data of centenarians in the Fergana Valley showed a predominance of individuals with normosthenic body type, BMI for centenarians of both sexes was  $25.90 \pm 4.20$  kg/m<sup>2</sup>, waist circumference was  $82.82 \pm 12.81$  cm. In the first group, BMI was  $26.02 \pm 3.75$  kg/m<sup>2</sup>, in the second -  $25.83 \pm 4.48$  kg/m<sup>2</sup>, while the waist circumference of men was on average  $86.04 \pm 12.57$  cm, for women -  $80.92 \pm 12.73$  cm, without demonstrating reliable statistical differences between the groups.

### CONCLUSION

The study of laboratory parameters revealed a tendency for a dynamic increase in the population of centenarians in the Fergana Valley of total cholesterol and triglycerides against the background of an increase in HDL and a decrease in LDL, which may be an indicator of a good adaptation reserve of centenarians. At the same time, special attention should be paid to the indicators of kidney function. In the absence of sharp deviations in the creatinine level in centenarians from the reference values, a significant decrease in SCF to  $64.38 \pm 18.15$  ml / min / 1.73 m<sup>2</sup> was found in men, and to  $44.82 \pm 14.56$  ml / min / 1.73 m<sup>2</sup> in women, which must be taken into account when dynamically monitoring centenarians and prescribing drug therapy.

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