# COMPARATIVE ASSESSMENT OF LABORATORY DATA OF PATIENTS WITH CHRONIC HEART FAILURE IN THE OLDER AGE

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***Abstract.*** *Over the past four decades, significant progress has been made in the detection, diagnosis, and treatment of heart failure. This led to the statistics itself, now there are problems in proving that laboratory indicators are a process related to heart failure. This article is devoted to the determination of premorbidity in the elderly and elderly with chronic heart failure, clinical and laboratory description.*
***Keywords.*** *heart failure, old age, premorbidity, increased pressure.*

# КЕКСА ЁШДА СУРУНКАЛИ ЮРАК ЕТИШМОВЧИЛИГИ МАВЖУД БЕМОРЛАРНИНГ ЛАБОРАТОР МАЪЛУМОТЛАРИНИ ҚИЁСИЙ БАҲОЛАШ

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***Аннотация.*** *Сўнгги тўрт ўн йилликда юрак етишмовчилигини аниқлаш, ташҳислаш ва даволашда сезиларли ютуқларга эришилди. Бу статистиканинг ўзишига олиб келди, ҳозирда лаборатор кўрсаткичларни аниқ юрак етишмовчилиги билан боғлиқ жараён эканлигини исботлашда муаммолар мавжуд. Ушбу мақолада сурункали юрак этишмовчилиги бор кекса ва қари ёшдагиларда преморбидликни аниқлаш, клиник-лаборатор тавсифини беришга бағишланади.*
***Калит сўзлар:*** *юрак етишмовчилиги, қари, ёш, преморбидлик, босим ошиши.*

# СРАВНИТЕЛЬНАЯ ОЦЕНКА ЛАБОРАТОРНЫХ ДАННЫХ ПАЦИЕНТОВ С ХРОНИЧЕСКОЙ СЕРДЕЧНОЙ НЕДОСТАТОЧНОСТЬЮ В ПОЖИЛОМ ВОЗРАСТЕ

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***Аннотация****. За последние четыре десятилетия достигнут значительный прогресс в выявлении, диагностике и лечении сердечной недостаточности. Это привело к самой статистике, сейчас возникают проблемы с доказательством того, что лабораторные показатели – это процесс, связанный с сердечной недостаточностью. Статья посвящена определению преморбидности у лиц пожилого и старческого возраста с хронической сердечной недостаточностью, клинико-лабораторному описанию.*
***Ключевые слова.*** *сердечная недостаточность, пожилой возраст, преморбидность, повышение давления.*

It is known that chronic heart failure (CHF) is caused by heart muscle dysfunction, in which blood accumulates in the lungs and makes breathing difficult. This disease is widespread among the population, and it is also characteristic of mentality, especially SYuE occurs more often in the elderly and the elderly, causing various complications, reducing the quality of life of patients, sometimes leading to death [1, 3].

From a clinical point of view, CHF is manifested as a syndrome, which consists of the following typical symptoms: shortness of breath, swelling, fatigue, decreased physical activity. At the same time, the typical clinical signs are also different, which include increased pressure in the jugular vein, wheezing in the lungs, and peripheral edema. These conditions are manifested when the heart function and/or structure is disturbed, in which the pressure inside the heart increases both at rest and during physical exertion [2, 4].

CHF is complicated in most cases when premorbidity is detected, but CHF in the premorbid state has not been fully revealed in elderly and elderly patients, clinical and laboratory characteristics have not been clearly shown, and the level of influ-

ence of this background on SYuE has not been determined.[5]

**The purpose of** the research work was to determine premorbidity in the elderly and elderly, to provide a clinical and laboratory description.

**Material and methods.** A total of 219 patients were included in this study, of which 199 were elderly and elderly aged 60-80 years, and they were combined into the main group, and 20 patients under 60 years of age were included in the comparison group. The diagnosis of SYuE was verified in all patients. 99 (45.2±3.36%) of the participants were men and 120 (54.79±3.36%) were women. 106 of these patients were rural residents (48.40±3.38%) and 113 were urban residents (51.60±3.38%). Patients were divided by age as follows: 20 patients under 60 years old (9.13±1.95%), 134 patients aged 60-70 years (61.19±3.29%), 61 patients aged 71-80 years (27.85±3 ,03%), 4 people were 81 years old and older (1.83±0.90).

It was found that among the patients there were 194 pensioners (88.58±2.15%), 13 temporary unemployed (5.94±1.60%), 4 teachers and medical workers (1.82±0.90%), workers, farmers and housewives made up 8 people (3.65±1.27%). There were 12 (5.48±1.54%) disabled people of the II group among the total studied (n= 219).

All studies were conducted in the emergency cardiology department of the Bukhara branch of the Republican Emergency Medical Center in 2021-2023. The final clinical diagnosis of patients was based on the International Classification of Diseases (ICD-11). Their involvement in research was carried out on the basis of the Declaration of Helsinki adopted by the World Medical Association on the inclusion of human subjects in medical research (Helsinki, 1964, last updated in Fortaleza (Brazil), 2013). Modern, clinical, instrumental (electrocardiography, dopplerography, densitometry, color duplex scanning of brachycephalic arteries extracranial sections, selective coronagraphy) methods were used during the research.

Statistical processing of the obtained material was carried out using traditional variational statistics methods. For this purpose, arithmetic mean size (M), arithmetic mean error of size (m), reliability of differences was determined according to the Fisher-Student test (R). Statistical analysis " Pentium IV " was carried out using a software package for medical-biological research on a processor-based personal computer.

**Obtained results and their discussion.** Premorbidity is derived from the Latin words "prae" - before, "morbus" - disease, and is considered as a condition that causes or enables the formation and development of a disease. In this case, the body's protective and compensatory-adaptive factors are strained or sharply weakened, this condition is also defined as a pre-disease condition. Factors leading to premorbidity can be congenital and acquired during life, these factors later affect the formation and development of the disease. Taking into account the importance of the factors acquired during life in SYuE, the SYuE that are mainly influenced by these factors were studied.

Today, studying complaints of patients in any pathology has not lost its clinical importance. Based on this, the level of complaints of patients diagnosed with SUE belonging to the general group was studied. 24 different complaints were presented by the patients, and the intensity of their occurrence was different (Table 1).

***Table 1.***

**Level of complaints of patients diagnosed with chronic heart failure, M±m**

| Complaints | Level of encounter | |
|---|---|---|
| | An absolute number | Relative number (%) |
| General weakness | 191 | 87.21±2.26 |
| Panting | 168 | 76.71 ± 2, 86 |
| Dizziness | 154 | 70.32±3.09 |
| Lack of air | 150 | 68.49±3.14 |
| Headache | 149 | 6.40±3.19 |
| Dizziness | 141 | 64.38±3.24 |
| Pain in the chest area | 140 | 63.93±3.24 |
| Limited movement | 109 | 49.77±3.38 |

When studying the complaints of all the patients (n=219) studied in the course of this research work, one of the complaints indicated by them was not emphasized by the patients in 100% of cases. 7 of the total complaints were found in more than 50% of cases, of the remaining complaints, limitation of movement was found in 49.77±3.38% (n=109) cases, and the main part was 0.91±0.64% (n=2) 19, Up to 63±2.68% (n=43) was determined. This was shown to be due to premorbidity and/or comorbidity in a wide spectrum of patient complaints, not all of which were related to SYuE alone.

listed in Table 1, there are 16 more complaints, including cough (15.53±2.45%, n=34), cold sweats (15.53±2.45%, n=34), ear noise (19.18±2.66%, n=42), dry mouth (12.33±2.22%, n=27), shortness of breath (11.87±2.19%, n=26), pain behind the chest and heart palpitations (9.13±1.95%, n=20) were included, as the other indicated complaints were found in a small percentage

(0.91 - 10.05%), we did not think it necessary to dwell on them in detail.

The condition that characterizes these parameters is the degree of occurrence of these complaints in each patient. It was found that 219 studied patients had 6.72 complaints, of which 12.57% were related to premorbidity and/or comorbidity. This means that SYuE occurred in 1 out of every 8 patients observed. This case shows the importance of correct analysis of complaints in the diagnosis of SYuE, as well as identifying complaints related to premorbidity.

In the interpretation and analysis of any pathology, the duration of the disease is also important, because this condition determines the tactics of treating the disease. It was found that the majority of patients diagnosed with SYuE have been experiencing the pathological condition for more than 15 years (65.75±3.21%, n=144), followed by those who have been ill for 10-15 years (29.22±3.07%, n=64), those who have been patients for 3-5 years (1.37±0.79%, n=3) and 5-10 years (3.65±1.27%, n=8) were a minority.

It is noteworthy that all complaints related to premorbidity (12.75%) were observed in patients with SYuE lasting more than 15 years in total, which indicates the influence of the premorbid condition on the duration of the disease and determines the tactics of treatment of the disease.

The patients' complaints were studied along with their level of illness and their general condition was described. It was found that the general condition of 130 patients was moderate (59.36±3.32%) and 89 were severe (40.64±3.32%). For this reason, it was considered that they need constant treatment. During the study of the patients, it was found that most of them were conscious (91.32±1.90%, n=200), in 13 cases (5.94±1.60%) they were in a state of unconsciousness, 2 patients (0.91±0.64%) was comatose, 1 case (0.91±0.64%) was in stupor, 3 patients (1.37±0.79%) had signs of encephalopathy.

When the lungs of the patients were auscultated, it was found that there were various changes in the lungs. In the main part of them, humid wheezing was heard in the lower part of the lungs - 68.49±3.14% (n=150), and during auscultation, slow vesicular breath was also detected from other clinical signs (47.03±3.37%, n= 103), cryptic breath (2.74±1.10%, n=6) and dry wheezing (1.83±0.90%, n=4) were detected.

It is noteworthy that, firstly, the incidence of auscultatory changes was related to the complaints of the patients, and they were proportional to each other, and secondly, the incidence of lung changes corresponded to an average of 1.20 per patient. = 1.20. These auscultatory changes have been recognized as complications of SYuE.

In these patients, together with the lungs, the heart was also auscultated, it was shown that the changes in the lungs depend on the pathological signs detected in the heart. In the heart, mainly muffled heart sounds were detected (89.04±2.11%, n=195), as well as a small number of peak systolic murmurs (13.70±2.32%, n=30) and arrhythmic heart sounds (2 ,28±1.01%, n=5) was determined. The number of heart tone disorders detected during auscultation corresponded to 1.05 per patient (230:219=1.05). There were no patients without changes in heart tones.

It was shown that the majority of patients had symptoms of hypertension - 84.93±2.42% (n=186), the rest of the patients had blood pressure below the norm (4.57±1.41%, n=10) or within the norm (10.50± 2.07%, n=23). The percentage of those with high blood pressure was significantly higher than normal and low blood pressure by 8.09 and 18.58 times, respectively (R <0.0 01). 16 patients (7.31±1.76%) had blood pressure higher than 200/110, and the remaining patients had blood pressure between 130 and 190. In addition, the pulse of these patients was studied, the results showed that the average pulse of patients was 90.37±1.56, 191 patients (87.21±2.26%) had unchanged average fullness and tension, while 28 patients (12.79±2.26%) had an arrhythmic pulse.

Also, clinical signs determined by palpation and percussion were observed in patients. It was found that mainly 6 main characters prevailed (Table 2). The most common symptom was dry and rough tongue - 67.12±3.17% (n=147). In the next place according to the degree of encounter, the enlarged liver was cited - 43.84±3.35% (n=96).

***Table 2.***

**Results of palpation and percussion examination in patients with SYuE, M±m**

| Clinical signs | Level of encounter | |
|---|---|---|
| | An absolute number | Relative number (%) |
| The tongue is dry, scaly | 147 | 67.12 ±3.17 |
| The liver is enlarged | 96 | 43.84±3.35 |
| Intestinal peristalsis is slow | 80 | 36.53±3.25 |
| There is swelling in the legs | 75 | 34.25±3.21 |
| Prone to constipation | 20 | 9.13±1.95 |
| Total | 418 | Out of an average of 1.91 |

Leg edema was detected in 75 patients (34.25±3.21%), clinical signs related to the gastrointestinal tract (slow intestinal peristalsis, tendency to constipation) were respectively 36.53±3.25% (n=80) and was found in 9.13±1.95% (n=20) cases. These signs corresponded to an average of 1.91 in patients.

During the ECG, 13 of the main electrocardiological signs were analyzed, and the rest were detected only in 1-2 cases, so they were not stopped. The most common electrocardiological sign is dystrophic changes in the myocardium, which was shown in 171 (78.08±2.80%) patients (Table 3).

***Table 3.***

**Level of detection of electrocardiographic signs in patients diagnosed with SYuE, M±m**

| Electrocardiographic signs | Level of encounter | |
|---|---|---|
| | Absolutely | % |
| Dystrophic changes in the myocardium | 171 | 78.08±2.80 |
| Left ventricular hyperdystrophy | 149 | 68.04±3.15 |
| The rhythm sine is correct | 112 | 51.14±3.38 |
| Scarring change in the wall of the left ventricle | 36 | 16.44 ±2.50 |
| Sinus tachycardia | 31 | 14.16±2.36 |
| Fluctuating arrhythmia | 17 | 7.76±1.81 |
| The axis of the heart is shifted to the left | 17 | 7.76±1.81 |
| Ischemic change in the left ventricular wall | 11 | 5.02±1.48 |
| Coronary circulation disorder in the wall of the myocardium | 8 | 3.65±1.27 |
| The rhythm sine is incorrect | 6 | 2.74±1.10 |
| Compartmental fibrillation | 3 | 1.37±0.79 |
| Sharp Q on the anterior wall of the left ventricle toothpick | 3 | 1.37±0.79 |
| Supraventricular and ventricular extrasystopia | 3 | 1.37±0.79 |

A similar result was observed for left ventricular hyperdystrophy, this sign was found in a total of 149 (68.04±3.15%) patients, and a large number of patients with correct sinus rhythm (51.14±3.38%, n= 112) were observed. The remaining studied characters were found from 1.37±0.79% to 16.44±2.50%. The total number of electrocardiographic signs encountered was 567, with an average of 2.59 per patient.

In addition to ECG, these patients also underwent dopplerography. The results of this instrumental examination method were without pathological changes in most of the examined (Figure 1). No dopplerographic changes were detected in 173 (78.99±2.75%) of the total subjects. They were detected in small amounts (from 1.37±0.79% to 13.24±2.29%). This case shows that dopplerography has a clinical value in this pathology.

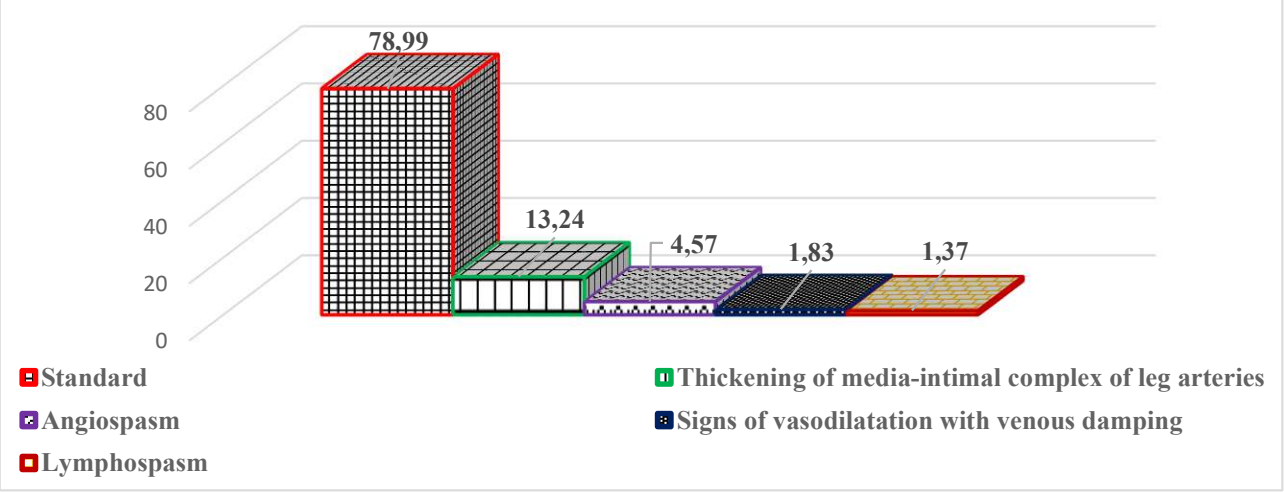



***Figure 1.*** **Results of dopplerography of patients diagnosed with SYuE, %**

Densitometric studies are also of diagnostic value for patients with SYuE. The obtained results are shown in Table 4. The total number of studied densitometric markers was 231, with an average of 1.05 per patient.

Color duplex scanning of extracranial brachycephalic arteries revealed the state of the patient's arteries, the degree of pathological changes in them, which allowed to assess the degree of complications of SYUE.

*Table 4.*

**Results of densitometric studies in patients diagnosed with SYuE, M±m**

| Densitometric markers | Level of encounter | |
|---|---|---|
| | Absolutely | % |
| Normative changes in the age range | 55 | 25.11 ±2.93 |
| Osteopenia | 53 | 24.20±2.89 |
| Fracture risk | 33 | 15.07±2.42 |
| Varicose veins | 33 | 15.07±2.42 |
| Signs of conduction disorders | 25 | 11.42±2.15 |
| Osteoporosis | 32 | 14.61±2.39 |

Changes in the arteries were detected in a small number of patients. The most frequently identified signs are increased echogenicity (12.79±2.26%, n= 28), uneven echostructure (12.79±2.26%, n= 28) and atherosclerosis of bronchocephalic arteries with thickening of the intima-media complex. meeting together (7.31±1.76%, n= 16).

Using this instrumental method, changes in the external sections of the skull of brachycephalic arteries were determined. Although various negative changes were not detected in large numbers (from 1.37±0.79% to 12.79±2.26%), it is worth noting that there is a certain amount.

Several arteries were studied using this method. The obtained results show the changes in these arteries. The indicators of the arteries differed not only from each other, but also depending on which side they were located on (left and right). Color duplex scans of the arteries of the patients studied differed in different arteries.

Based on the study, comparison and analysis of all the clinical and instrumental indicators mentioned above, the main diagnosis was given to the patients, concomitant diseases were determined, the level of meeting the main diagnoses is presented in Table 5.

*Table 5.*

**The rate of occurrence of the main diagnoses given to patients diagnosed with SYuE, M±m**

| Basic diagnoses | Level of encounter | |
|---|---|---|
| | Absolutely | % |
| Risk IV | 183 | 83 .56 ±2.50 |
| Hypertension stage III | 173 | 79 .0 ±2.75 |
| Ischemic heart disease | 169 | 77.17±2.84 |
| Angina that worsens | 97 | 44.29±3.36 |
| Arterial hypertension 3rd degree | 31 | 14.16±2.36 |
| Arterial hypertension 2nd degree | 28 | 12.79±2.26 |
| Acute coronary syndrome | 25 | 11.42±2.15 |
| Stable tension angina pectoris | 14 | 6.39±1.65 |
| Heart rhythm disorder | 14 | 6.39±1.65 |
| Fluctuating arrhythmia | 11 | 5.02±1.48 |
| Acute myocardial infarction | 8 | 3.65±1.27 |
| Post-infarction cardiosclerosis | 7 | 3.20±1.19 |
| Hypertension II stage | 6 | 2.74±1.10 |

It was found that most of the patients included in the research (79.0±2.75%, n=173) were diagnosed with the III stage of hypertension, but only 6 (2.74±1.10%) patients were diagnosed with the II stage of this disease. .

Ischemic heart disease is one of the most frequent diagnoses - it was found in 169 patients (77.17±2.84%). One of the most common diagnoses is risk IV, which was given in 83.56±2.50% (n=183) cases. It is noteworthy that only the three main diagnoses listed above were given in large numbers (77.17±83.56%), the remaining diagnoses were given from 2.74% to 44.29%. The number of main diagnoses was 766, corresponding to 3.50 per patient (766:219=3.50).

Social diagnoses, the rate of detection of comorbidities and main diseases in patients was also studied (Table 6).

*Table 6.*

**The rate of occurrence of concomitant diseases in patients diagnosed with SYuE, M±m**

| Diseases | Level of encounter | |
|---|---|---|
| | Absolutely | % |
| Deformed gonarthrosis | 62 | 28.31±3.04 |
| Deformed arthrosis | 55 | 25.11±2.93 |
| The structure is flexible, stretchy | 44 | 20.09±2.71 |
| Diabetes (type 2) | 41 | 18.72±2.64 |
| Rheumatoid polyarthritis joint form | 35 | 15.98±2.48 |
| Pneumonia | 32 | 14.61±2.39 |
| Viral deformation | 16 | 7.31±1.76 |
| Chronic obstructive pulmonary disease | 15 | 6.85±1.71 |
| Osteochondrosis | 13 | 5.94±1.60 |
| Varicose veins disease | 11 | 5.02±1.48 |
| Obesity (various degrees) | 5 | 2.28±1.01 |
| Valgus deformity | 4 | 1.83±0.90 |
| Synovitis of both knees | 3 | 1.37±0.79 |

It is known that concomitant diseases, when accompanied by the main diseases, cause a condition of camorroidism and/or preporbidity, thereby reducing the course of the main disease, the effectiveness of its treatment, and the patient's quality of life. That's why it's important to know their dating level.

It was found that the patients with SYuE often had diseases of the locomotor system as co-morbidities. Among them, deformed gonarthrosis (28.31±3.04%, n=62), deformed arthrosis (25.11±2.93%, n=55), various contractures (20.09±2.71%, n= 44), belonging to the joint form we emphasize rheumatoid polyarthritis (18.72±2.64%, n= 35). Pneumonias (14.61±2.39%, n= 32) and diabetes (type 2) can also be cited as common comorbidities (18.72±2.64%, n= 41). Other concomitant diseases were found in patients from 1.37±0.79% (n= 3) to 7.31±1.76% (n= 16). Among the accompanying diseases, musculoskeletal system diseases are common, as well as pneumonia and diabetes mellitus were interpreted as noteworthy cases. It is noteworthy that comorbidities were recorded in a total of 336 cases, which corresponded to an average of 1.53 for each studied patient diagnosed with SYuE.

In addition to primary and concomitant diseases, complications left by the primary disease were also studied in patients with SYuE. Determining these complications not only shows the course of the patient's main disease, the low effectiveness of treatment, but also is important for determining the outlook for the end of the disease.

The incidence rate of the main disease complications showed that most patients had cardiac asthma as a complication (38.36±3.29%, n= 84). It can be seen that KAE II B (35.16±3.23%, n= 77) and KAE II A (19.63±2.68%, n= 43) were sufficiently frequent, as well as acute heart failure. 2nd, 3rd, 4th classes according to Killip are also found in 32 patients (14.61±2.39%), which means that it occurs frequently as a complication. Complications such as hypertensive crisis (12.33±2.22%, n= 27) and shortness of breath (11.42±2.15%, n= 25) were interpreted as a noteworthy situation in practically one out of every 10 patients.

An average of 1.43 (314:219=1.43) complications for each patient diagnosed with SYuE shows how serious this disease is, the addition of permorbidity not only aggravates the course of the disease or worsens the quality of life of patients, but also allows the increase of complications of the main disease.

**Conclusions.**

1. Patients diagnosed with SYuE had 24 different complaints, 7 of them (general weakness, shortness of breath, dizziness, lack of air, headache, nausea, chest pain) occurred in more than 50% of cases, and each of the patients had 6.72 the complaint was correct. 12.57% of them were associated with premorbidity and/or comorbidity.

2. The majority of patients with SYuE (65.75%) have had the disease for more than 15 years, 29.12% have been patients for 10-15 years, a smaller percentage has been 5-10 years (3.65%) and 3 Those who were patients for 5 years (1.37%) met. It is noteworthy that all the clinical signs defining premorbidity were present in those observed for more than 15 years. The reasons for this were, firstly, the age of the patients (60-75 years old), and secondly, the insufficient effect of the treatment of the disease, the addition of premorbid background to the main disease.

3. The general condition of 59.36% of the patients diagnosed with this pathology was found to be moderate, and 40.64% had a severe condition. Auscultatory signs such as humid wheezing (68.49%), slow vesicular breath (47.03%), crepitating breath (2.74%) and dry whistling (1.83%) were found in the lower part of the lung. As a result of this investigation, the following peculiarities were revealed: firstly, the auscultatory changes were correctly proportional to the corresponding complaints of the patients; second, the auscultatory changes in the lungs

corresponded to an average of 1.20 per patient. In the heart, mainly muffled heart sounds (89.04%), systolic noise at the peak (13.70%), and arrhythmic heart sounds (2.28%) were detected. Hypertensive symptoms were found in 84.93% of them, the percentage of those with high blood pressure was significantly higher by 8.09 and 18.58 times compared to those with normal and low blood pressure, respectively (R<0.0 01).

4. A total of 418 clinical signs were identified in patients diagnosed with SYuE, which corresponded to an average of 1.91. It was found that 67.12% of the patients had a dry and crusty tongue, 43.84% had an enlarged liver, and 34.25% had swelling of the legs. Slowness of intestinal peristalsis and tendency to constipation were found in 36.53% and 3.13% of cases. The presence of premorbidity in these patients was interpreted as an aggravating factor.

5. When the studied pathology was diagnosed, 13 types of electrocardiographic signs were found to be more frequent, among which dystrophic changes in the myocardium (78.08%), left ventricular hyperdystrophy (68.04%), correct sinus rhythm (51.14%), scars on the left ventricular wall were the leading ones. change (16.44%), sinus tachycardia (14.16%), other signs were found in 1.37 - 7.76% of cases, 2.59 per patient. Dopplerography results showed no pathological changes in 78.99% of patients. Thickening of the media-intima complex of leg arteries was found in 13.24% of patients, while other dopplerographic signs were rare in 1.37-4.57% of cases. As densitometry results, it is reported that patients have symptoms such as osteopenia (24.20%), osteoporosis (11.42%) and the risk of bone fractures (15.07%).

6. Patients diagnosed with SYuE (n= 219) had a total of 706 main diagnoses, corresponding to 3.50 per patient, the most frequent diagnoses were IV risk (83.56%), ischemic heart disease (77.17%), hypertension stage III (79.0±2.75%), worsening angina pectoris (44.29%), arterial hypertension of the 3rd and 2nd degree (14.16%) and acute coronary syndrome (11.42%) included, other principal diagnoses were found in 2.74% to 6.39%.

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