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Реферати

ЗАПОБІГАННЯ ВЕГЕТАТИВНОЇ ДЕЗАДАПТАЦІЇ ВІЙСЬКОВИХ

Кириченко А.Г., Корнацкий В.М., Сердюк В.Н.,
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Вегетативна нервова система (ВНС) є головним регулятором підтримки гомеостазу та пристосування організму до змін зовнішнього середовища. Найбільш часто вегетативна дисфункція виникає в умовах хронічного психо-емоційного стресу. Для запобігання виникнення дизрегуляції та стрес-асоційованих розладів у військових було проведено оцінку стану вегетативної нервової системи шляхом обстеження 145 військових з урахуванням вихідного вегетативного тону, вегетативної реактивності та вегетативного забезпечення діяльності особи. У більшості досліджуваних осіб відзначалися напруженість і дисфункція ВНС, що дозволяє рекомендувати більш ретельне дослідження трьох її основних складових з метою виявлення вегетативних порушень і виділення цих осіб в групу ризику по виникненню психосоматичної патології.

Ключові слова: вегетативна нервова система, військовослужбовець, тонус, стрес-асоційовані розлади.
Стаття надійшла 30.06.2019 р.

ПРОФИЛАКТИКА ВЕГЕТАТИВНОЙ ДЕЗАДАПТАЦИИ ВОЕННЫХ

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Вегетативная нервная система (ВНС) является главным регулятором поддержания гомеостаза и приспособления организма к изменениям внешней среды. Наиболее часто вегетативная дисфункции возникает в условиях хронического психо-эмоционального стресса. Для предотвращения возникновения дизрегуляции и стресс-ассоциированных расстройств у военных была проведена оценка состояния вегетативной нервной системы путем обследования 145 военных с учетом исходного вегетативного тону, вегетативной реактивности и вегетативного обеспечения деятельности человека. В большинстве исследуемых лиц отмечались напряженность и дисфункции ВНС, что позволяет рекомендовать более тщательное исследование трех ее основных составляющих с целью выявления вегетативных нарушений и выделению этих лиц в группу риска по возникновению психосоматической патологии.

Ключевые слова: вегетативная нервная система, военнослужащий, тонус, стресс-ассоциированные расстройства.
Рецензент Дельва М.Ю.

DOI 10.26724/2079-8334-2020-2-72-74-79

UDC 340.6+343

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POSSIBILITY OF USING DERMATOGLYPHIC PARAMETERS OF THE MIDDLE AND PROXIMAL FINGER FALANGES OF THE HANDS WITHIN THE REQUIREMENTS OF DVI-INTERPOL

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The study material was the dermatological parameters of the middle and proximal phalanges of the fingers that were obtained from 460 representatives of different ethno-territorial groups of the Carpathian region with the use of Futronic's FS80 USB 2.0 optical scanner, that were subjected to quantitative and qualitative study and processing by one- and multidimensional statistical analysis. The morphological structure peculiarities of the dermatoglyphic parameters of the middle and proximal finger [h] [l] [n] [g] [s] h [v] [b] [n] stud [d]; [t] [s] sugg [st] [d] t [u] [s] " [m] [l] [m] [n] [t] [r] [f] classification of skin patterns of middle and proximal phalanges of fingers" (Author's certificate of scientific work No. 74560); [t] [s] sugg [st] [d] t [u] [s] [s] [f] [t] [h] [d] [r] [m] [t] [g] [l] [h] [f] [t] [h] [m] [d] [l] and proximal phalanges of the fingers by the complexity of the morphological structure. Based on the performed research, a separate self-sufficient system of dermatoglyphic identification features was developed, which is able to increase and confirm the reliability of the complex identification examination results according to DVI Interpol criteria.

Key words: forensic medicine, identification of the person, dermatological parameters.

The work is a fragment of the research project "Forecasting of external recognizable human features based on a comprehensive study of dermatological features of hands and feet", state registration No. 0117U00477.

In international practice, the set of all integrative professional properties related to the identification of persons and the organization of forensic medical examinations, is conditioned and controlled by the international organization ICPO-Interpol, which combined not only intellectual human resources, but also a set of earned identification algorithms adapted to multifaceted catastrophes [1]. It is not superfluous to say that to the methodological approach Disaster Victim Identification (DVI), developed by Interpol, the

method of dermatoglyphic identification is included, due to its material ease, high informativeness, as well as the ability to get results within short time limits.

Among the problems of identifying an unknown person, along with improving the organization and technology of identification, one of the most important tasks is the development of new identification criteria and techniques that would help to bring the results closer to the most accurate, since none of the DVI Interpol method is 100 % reliable [2].

A great deal of scientific works in recent years has been devoted to the development and supplementation of existing identification dermatoglyphic criteria of the palms, feet and distal phalanges of the fingers and toes [7, 9].

Insufficient theoretical properties and applied methodological recommendations regarding to the use of dermatoglyphic parameters of the middle and proximal phalanges of the fingers for identification purposes, attracts attention and opens new prospects for study. In particular, scientific researches of Shpak L.Yu. [4], devoted to the study of the dermatoglyphic parameters of the middle and proximal phalanges of the fingers, which partially elucidate the interrelationships of the dermatoglyphic parameters of the distal, middle and proximal phalanges of the fingers, their sexual dimorphism, bilateral and digital variability, the symmetry of skin relief, as well as regularity of inheritance of patterns of middle and proximal phalanges. Author demonstrated the ability to use the dermatoglyphic parameters of the middle and proximal phalanges of the hand at the level with the parameters of the distal phalanges to identify a person for establishing kinship, as well as systematized and improved classification of patterns of comb pattern of the proximal and middle phalanges of the hand. Chistikina T.A, Zoroastrov O.M, Kolomys V.E [3] developed dermatoglyphic diagnostic complexes, studying the prevalence of finger patterns of distal, middle and proximal phalanges of fingers of the population of Tyumen region.

However, existing data do not provide a holistic view of the structure and significance of the interrelationships between the dermatoglyphs of the middle and proximal phalanges of the hands and with the human external recognition parameters, nor do they reveal the full identification potential of these connections.

The purpose of the study was to supplement the forensic identification criteria of DVI Interpol within the dermatoglyphic method by examining the morphological features of the dermatoglyphic parameters of the middle and proximal phalanges of the fingers; to form multifaceted classification schemes that will further facilitate the work of experts during the quantitative and qualitative study of the dermatoglyphs of the middle and proximal phalanges of the fingers and increase the competence of the forensic expert in conducting identification examinations.

Materials and methods. The dermatoglyphic parameters of the middle and proximal phalanges of the fingers were obtained from 260 male and female aged from 18 to 59, who identified themselves as representatives of the Hutsul, Boiko, Lemko, Opil, Pokut ethno-territorial groups, and control groups of persons, living at the territory of the Carpathian region. The criterion for inclusion in the study groups were voluntary consent of the individual, absence of genetic pathology, pathology of the endocrine system and musculoskeletal system, age 18-59 years. The exclusion criteria from study were the refusal from the study at any stage, the presence of genetic pathology, pathology of the endocrine system and the musculoskeletal system, age younger than 18 and over 59 years.

The scope and methods of work research do not contradict the basic principles of the Helsinki Declaration on Biometric Research (1974), adapted at the 41st Hong Kong International Assembly (1989), in which a person acts as their object. The basic principles such as respect for the individual, the awareness of the individual, the risk assessment of harm and benefit were adhered during the study.

The dermatoglyphs of the middle and proximal phalanges of the fingers were obtained by scanning them with a Futronic's FS80 scanner and improved by converting bitmaps to vector graphic objects, using the algorithm VeriFinger 6.6/MegaMatcher 4.4 Identification Technology Algorithm. The data obtained by quantitative and qualitative study of the morphological elements that form the dermatoglyphic parameters of the middle and proximal phalanges of the fingers of hands (type of papillary pattern, complexity of the morphological structure, directionality of the papillary lines), were subjected to one- and multidimensional statistical analysis.

Results of the study and their discussion. The palmar surface of the human hands is covered with different combinations of parallel, fan-shaped or diagonally arranged papillary lines, which form unique dermatoglyphic patterns for each person, which, in turn, are used as constant identification criteria for conducting forensic identification of an unknown person.

On the palmar surface of all fingers except the first finger, at the location of the metacarpophalangeal and phalangeal joints, there are three bending folds that delineate the papillary fields

of the dermatoglyphic parameters of the phalanges corresponding to the proximal, middle and distal phalanges. On the 1st finger of both hands are two bending folds, and, accordingly, they distinguish only two papillary fields, corresponding to the proximal and distal phalanx. It should be noted that the papillary field of the proximal phalanx on all fingers is limited by the metacarpo-phalangeal bending fold (plica flexoris metacarpo-phalangeale) and bending fold of proximal phalanx (plica flexoris proximal-phalangeale). The papillary field of the middle phalanx on all fingers except the 1st finger is limited by the proximal and flexural fold of the middle phalanx (plica flexoris media-phalangeale). The papillary field of the distal phalanx is limited by the distal edge of the phalanx and the bending fold of the middle phalanx. In the fields described above there is a papillary pattern, which is a complex relief pattern formed by alternation with a certain periodicity of ridge-like elevations (height 0.1-0.4 mm, width 0.2-0.7 mm), separated by shallow furrows – depressions (width 0.1-0.3 mm).

Dermatoglyphic relief on the middle and proximal phalanges is formed by papillary patterns without delta (fig. 1), in contrast to the dermatoglyphic parameters located on the distal phalanges (fig. 2).



Fig. 1. Without delta dermatoglyphs of the middle phalanges of the fingers.



Fig. 2. Delta dermatoglyphs of the distal phalanges of the fingers.

The image of the papillary pattern on the scan should be read in the distal-proximal direction along the axis of the finger phalanx. The lettering of the specific type of pattern is made by using the abbreviation of English marking with indication of papillary lines direction in the form of the index after the lettering in the side of I or V fingers (radial, ulnar), as well as considering the topography of the pattern with regard to the phalanx bending folds (proximal, distal). For example: radial wave (Vr), distal arc (Ad).

The lettering of the combined patterns is also made by using the abbreviation in English and is written through the oblique line. For example: double arc/with tilt (Da/L), double arc/with tilt (Da/L), distal arc/with tilt (L/Ad) with corresponding designation of papillary lines orientation.

For ease of use, we decided all known to us papillary images of middle and proximal phalanges of the fingers to group by the complexity of the morphological structure into 2 groups: simple and combined (Tab. 1).

Table 1

Types of dermatoglyphic parameters depending on the complexity of the dermatoglyphic structure

No.	Simple patterns	Combined patterns
1	Direct (S)	Distal arc/ with tilt (L/Ad)
2	With tilt (L)	Double arc (Da)
3	Distal sickles (Hd)	Proximal arc/with tilt (Ap/L)
4	Proximal sickles (Hp)	Double arc /with tilt (Da/L)
5	Distal arc (Ad)	Double sickle (Dh)
6	Proximal arc (Ap)	Featherlike (F)
7	Sickle-shaped arc (Ah)	Closed pattern (Cl)
8	Wave (V)	Distal angle (Nd)
9		Proximal angle (Np)
10		Double angle (Dn)
11		Distal arc/angle (Nd/Ad)
12		Proximal arc/angle (Ap/Np).
13		Combined linear (L/S)
14		Wave/ direct (V/S)
15		Distal arc/direct (Ad/S)
16		Proximal arch/direct (Ap/S)

To systematize all known dermatoglyphic parameters of the middle and proximal phalanges of the fingers, we have developed the "Supplemented classification of skin patterns of the middle and proximal phalanges of the fingers" (Copyright Certificate No. 74560. Graphic image. Date of registration 07.11.2017) (fig. 3).

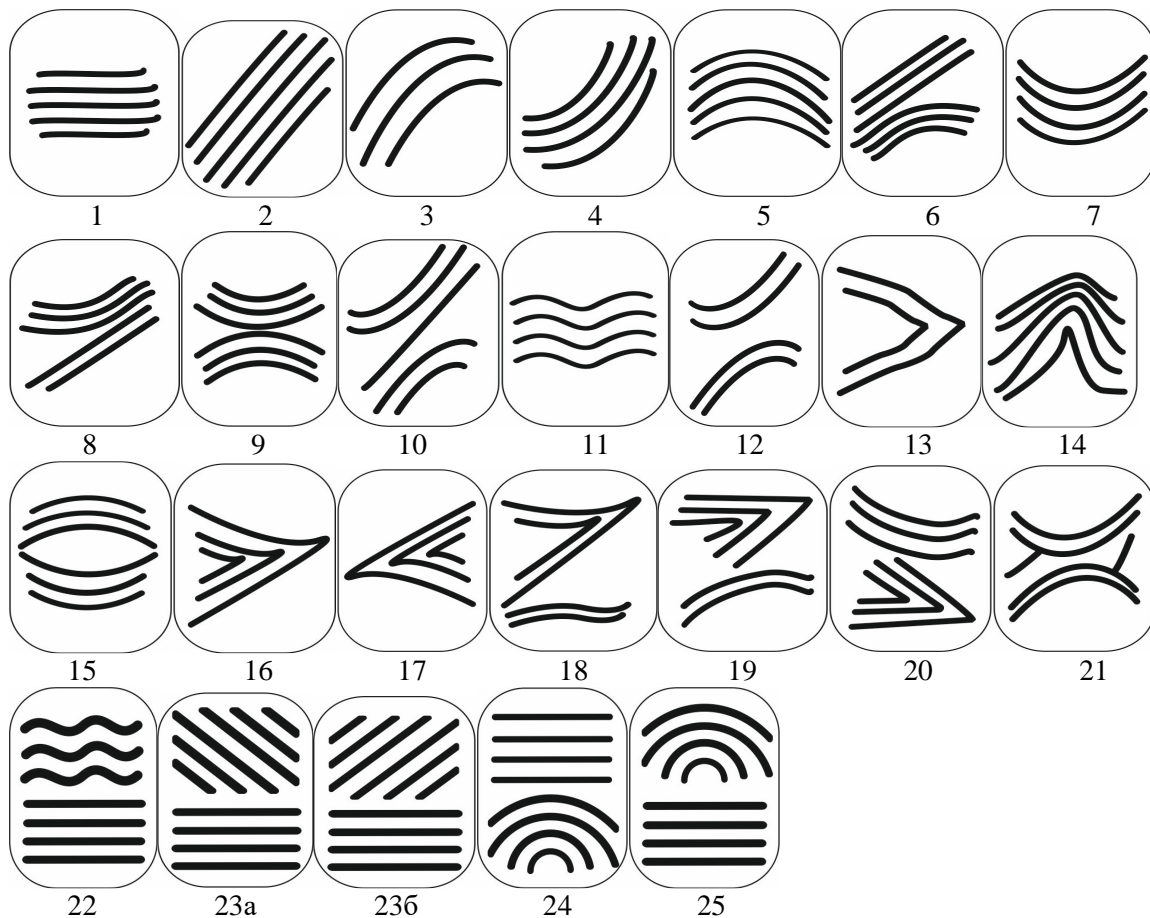


Fig. 3. Supplemented classification of skin patterns of the middle and proximal phalanges of the fingers

According to the proposed classification, among the patterns of the middle and proximal phalanges of the fingers are the following (fig. 3): 1) straight (S); 2) with a slope (L); 3) distal sickles (Hd); 4) proximal sickles (Hp); 5) distal arc (Ad); 6) distal arc/with tilt (L/Ad); 7) proximal arc (Ap); 8) proximal arc/with tilt (Ap/L); 9) double arc (Da); 10) double arc/with tilt (Da/L); 11) wave (V); 12) double sickle (Dh); 13) featherlike (F); 14) sickle shaped arc (Ah); 15) closed pattern (Cl); 16) distal angle (Nd); 17) proximal angle (Np); 18) double angle (Dn); 19) distal arc/angle (Nd/Ad); 20) proximal arc/angle (Ap/p); 21) proximal arc/angle (Ap/p); 22) wave/straight (V/S); 23) a, b combined linear (L/S); 24) distal arc/straight (Ad/S); 25) proximal arc/straight (Ap/S).

Studying the dermatoglyphs of the middle and proximal phalanges of the fingers, we came to the conclusion that the most poorly differentiated is straight (S) (No. 1) pattern, formed by straight parallel papillary lines and has middle location, with a slope (L) (No. 2), that is also constructed from parallel papillary lines, but these lines have already trend to be radially or ulnar oriented and the wave (V) (No. 11), which may have middle, ulnar, and radial positions. The sickles (Hd, Hp) (No. 3,4), as well as the arches (Ad, Ap) (No. 5,7), according to the orientation of the pattern relative to the phalanx bending folds (proximal, distal) are divided into proximal and distal and by directionality of the papillary lines, respectively, to the ulnar and radial. Sickles in their morphological structure are similar to arches, but there is the difference that allows to differentiate these two types of patterns - if the course of the arc begins at an angle of 45 degrees or less, then as a consequence, the beginning of the arc is extended. This causes that the "straight part" of the arch can occupy 2/3 of the width of the phalanx and, thus, to form a "sickle handle", and the rounded top part sharpens and forms a "sickle top". The specificity of the of the sickle shaped arc (Ah) is manifested in the fact that it is constructed of the top acute in parallel arcuate curved papillary lines (graphical representation of the described patterns can be seen in fig. 3 under the indicated numbers).

Combined patterns are the combination of simple patterns, the morphological elements of which may have different orientations according to the interphalangeal folds, as well as the papillary lines that form the patterns, can be directed to the ulnar or radial side (fig. 3 No. 6-25).

Established in 1923, INTERPOL currently encompasses 188 countries and is an excellent example of the collaboration of practitioners and scientists working together to bring crime and crime to the latest data and technology. One of the areas of this structure is DVI [14].

The dermatoglyphic method of investigation can be a great helper method for identifying victims of disasters, given its simplicity and cheapness. More and more research is expanding not only the theoretical base but also the geography of the use of dermatoglyphics, making it possible to answer more and more police questions [8, 13].

A dermatoglyphic examination of Kanuri residents living in northeast Nigeria revealed the following distribution of finger patterns: loops – 59.10 %, whorls – 33.80 % and arches – 7.07 %. The RD ratio was 12.85 and 12.49; the TRC index is 122.64 and 115.45 for men and women, respectively. These indicators are characteristic of other ethnic groups living in the northwest and eastern Nigeria [11].

The study of dermatoglyphics in the Asante tribe revealed that the most common pattern type among them is loops followed by whorls and arches. Differences in the frequencies of different types of patterns on different fingers were found in men and women of this tribe and a difference in TRC. In addition, researchers have noted the similarity of these indicators to the representatives of tribes living in Nigeria [5].

In addition, a possible tool for identifying a person's gender may be the density of skin ridges (RD). Indian researchers found that in all areas studied greater density of skin ridges were observed in women [6]. RD indicator can also be used to determine a person's ethnicity [12].

One promising area is the use of white lines counting on fingers. A survey of Hausa representatives revealed that the best indicator for identifying a person's gender is the difference in the white lines of the second and fourth fingers of the left and right hands [15].

In recent years, appears works, that allow to establish not only the ethnic but territorial identity of a person according to the modern administrative and territorial units. The largest contribution to discrimination between representatives of southern or other parts of Ukraine is made by the type of pattern on the fingers of the right hand and the asymmetry of the ridge count of the palmar lines [10].

Conclusion

Based on the foregoing, we can conclude that the dermatoglyphic parameters of the middle and proximal phalanges of the fingers are diagnostic features that can be used at the level with the dermatoglyphic parameters of the distal phalanges of the fingers in determining the dermatoglyphic constitution of an unknown person, and complement the identification algorithm DVI Interpol.

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Реферати

**МОЖЛИВІСТЬ ВИКОРИСТАННЯ
ДЕРМАТОГЛІФІЧНИХ ПАРАМЕТРІВ
СЕРЕДНІХ ТА ПРОКСИМАЛЬНИХ ФАЛАНГ
ПАЛЬЦІВ РУК У МЕЖАХ ВИМОГ
DVI-INTERPOL**

Коцюбинська Ю.З., Козань Н.М., Зеленчук Г.М.,
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Матеріалом дослідження були цифрові дерматогліфи середніх та проксимальних фаланг пальців рук, отримані від 260 представників різних етнотериторіальних груп Прикарпаття із застосуванням оптичного сканера Futronic's FS80 USB 2.0, які піддавалися кількісному та якісному вивченню та обробці методом одно- та багатомірного статистичного аналізу. У ході дослідження вивчено особливості морфологічної будови дерматогліфічних параметрів середніх та проксимальних фаланг пальців рук; розроблено «Доповнену класифікацію шкірних візерунків середніх та проксимальних фаланг пальців рук» (Авторське свідоцтво на науковий твір № 74560); запропоновано розділяти дерматогліфи середніх та проксимальних фаланг пальців рук за складністю морфологічної будови. На основі проведеного дослідження розроблено окрему самодостатню систему дерматогліфічних ідентифікаційних ознак, яка здатна підвищити та підтвердити достовірність результатів комплексної ідентифікаційної експертизи згідно критеріїв DVI Interpol.

Ключові слова: судова медицина, ідентифікація особи, дерматогліфічні параметри.

Стаття надійшла 20.06.2019 р.

**ВОЗМОЖНОСТЬ ИСПОЛЬЗОВАНИЯ
ДЕРМАТОГЛИФИЧЕСКИХ ПАРАМЕТРОВ СРЕДНИХ
И ПРОКСИМАЛЬНЫХ ФАЛАНГ ПАЛЬЦЕВ РУК
В ПРЕДЕЛАХ ТРЕБОВАНИЙ
DVI-INTERPOL**

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Материалом исследования были цифровые дерматоглифы средних и проксимальных фаланг пальцев рук, полученные от 260 представителей различных этнотерриториальных групп Прикарпатья с применением оптического сканера Futronic's FS80 USB 2.0, которые подвергались количественному и качественному изучению и обработке методом одно- и многомерного статистического анализа. В ходе исследования изучены особенности морфологического строения дерматоглифических параметров средних и проксимальных фаланг пальцев рук; разработано «Дополненную классификацию кожных узоров средних и проксимальных фаланг пальцев рук» (Авторское свидетельство на научное произведение № 74560); предложено разделять дерматоглифы средних и проксимальных фаланг пальцев рук по сложности морфологического строения. На основе проведенного исследования разработано отдельную самодостаточную систему дерматоглифических идентификационных признаков, которая способна повысить и подтвердить достоверность результатов комплексной идентификационной экспертизы согласно критериям DVI Interpol.

Ключевые слова: судебная медицина, идентификация личности, дерматоглифические параметры.

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DOI 10.26724/2079-8334-2020-2-72-79-85

UDC 616-072.7: 616.12-008.331.1: 616.12-008.318.4

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**STRUCTURAL AND FUNCTIONAL CHANGES OF THE HEART IN PATIENTS WITH
ESSENTIAL HYPERTENSION AND CONCOMITANT FREQUENT EXTRASYSTOLES**

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The total of 156 patients (65 men and 91 women) with stage II hypertension (EH II) were examined, with an average age of 58.2 ± 0.9 years. The main clinical array consisted of 124 patients with frequent symptomatic supraventricular (SVE) (74 (59.7%) patients) or ventricular extrasystoles (VE) (50 (40.3%) pts) according to Holter monitoring of the electrocardiogram (HM ECG). The comparison group included 32 patients with EH II without cardiac arrhythmias. Echocardiographic evaluation of structural and functional changes of the heart showed that the presence of frequent extrasystoles was associated with an increase of right ventricular (RV) size and signs of its overload, more pronounced left ventricular hypertrophy (LVH), a significant decrease in LV systolic function and impaired myocardial relaxation with the prevalence of the rigid type of transmitral flow. Patients with EH II and frequent VE compared with patients with EH II and SVE had a more significant decrease in LV systolic function and more pronounced disorders of diastolic function, whereas patients with SVE had a more expressed LVH.

Key words: arterial hypertension, essential hypertension, supraventricular extrasystole, ventricular extrasystole, echocardiography, Holter ECG monitoring.

The study is a fragment of the research project "Metabolic risk factors, cardiovascular remodeling and functional status of the kidneys in patients with cardiovascular pathology. The options of pharmacological correction", state registration No. 0119U101849.

The most common cardiac arrhythmias in patients with arterial hypertension are atrial fibrillation (AF) and extrasystole. AH as an etiology of AF occurs in approximately 14% of patients due to a significant prevalence of AH in population. In the case of high BP levels, the risk of AF increases almost 5-fold [3, 7, 9]. While the circumstances of AF progression in patients with hypertension has been studied in great detail, the causes and mechanisms of extrasystoles is still studied insufficiently at the moment.

There is some controversy about the relationship of SVE and structural remodeling of the left ventricular (LV) myocardium. When some observed SVE independently of LVH in high systemic BP [12],