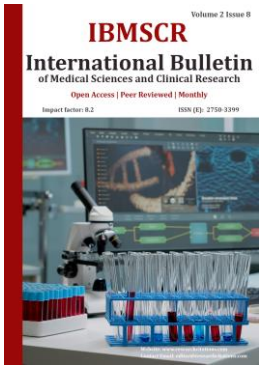

HEMORRHAGIC DISORDERS IN THE EARLY STAGES OF ARTERIAL HYPERTENSION

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Abstract

Aim of the study: Early diagnosis of blood rheology disorders in patients with the first stage of arterial hypertension in the arid region of Uzbekistan.

Material and methods: As an object of study, a total of 204 patients aged 35 to 55 years with a diagnosis of first-stage hypertension with no additional disease were screened. Of these, 122 formed the main group and 82 formed the patient control group. All patients underwent Komplex clinical trials and examination of hemoreological parameters.

Results: The results observed in the main group of patients showed a significant difference in the rheological parameters at the rotational speed of M (1) 5 and M (1) 10 seconds in patients with grade 2 arterial hypertension compared with those in the control group. ($p < 0.05$).

When assessing the aggregation properties of erythrocytes, the same thing was determined, changes in the dynamic index of aggregation were observed only in the group where there is an arterial hypertension 2 degrees. In patients with arterial hypertension 1 degrees of the control group, however, this indicator was significantly lower ($p<0.05$).

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In comparison with the patients of the control group, the indicators of patients with the arterial hypertension 2 degrees of the main group were observed that the aggregation potential was observed after $M(1)_5$ and $M(1)_{10}$ seconds at the rate of rotation 3 C^{-1} 5 and 10 seconds at the rate of rotation and $M(1)_5$ and $M(1)_{10}$ seconds at the the decrease in percentage was intangible in the form of an increase in the level of aggregation($p<0,05$).

Keywords: risk factors, hypertension, blood rheology disorders, arid region, disease in hot climates.

Introduction.

Arterial hypertension is a common occurrence in diseases of the cardiovascular system. Complications such as myocardial infarction, stroke, chronic heart failure, and chronic renal failure occur as a result of this disease. These complications are leading to an increase in disability and mortality among the population.

According to the World Health Organization (WHO), there are 1 billion people on Earth. More than a dozen people suffer from hypertension. And 7.5 million deaths a year from complications of the disease have been reported. This represents 12.8 percent of all deaths. To date, the effects of meteorological factors on cardiovascular disease, particularly arterial hypertension and disease progression, are widely recognized and confirmed by a number of

studies. In the first stage of hypertension, the activity of the sympathetic-adrenal system increases, and the amount of norepinephrine and adrenaline in the blood of patients increases by 30-40%.

For clinical characterization, rheologists -the chemical properties of blood are used to show bodies of blood and plasma viscosity at different shear rates, strain indices,the peace and aggregation of erythrocytes. Plasma viscosity is determined by the content it and the properties of its protein components: at a concentration of large molecular weight plasma protein viscosity increases. Changes in blood rheology and dyslipidemia in patients with additional disease in the second and third stages of hypertension have been studied in many studies. Such studies have been poorly studied in patients with early-stage hypertension.

The initial stages of hypertension have been poorly studied, and literature devoted to exactly the hemoreological and dyslipidemic changes have been insufficient, they have been performed mainly in foreign countries, emphasizing the development of more pathogenetic strains.

Numerous observations show that a number of diseases, especially hypertension, in the cardiological and neurological manifestations lead to further aggravation of the course of the disease and a decrease in the body's flexibility reserves. Comparisons of the results of hemorrhagic changes in the study of meteorologically sensitive patients revealed changes in all microreological parameters of erythrocytes, hematocrit was observed to be 2-3 times higher than normal. Uzbekistan is no exception, in 2016, 9.4% of men aged 20-30, -35% of men over 40, and -50% after 60-65 developed hypertension. In women, the figure was 3.3% under the age of 30 and 60% between the ages of 40 and 60. Despite the fact that a number of studies in the country have modern drugs that effectively lower blood pressure and prevent the development of its complications, the responsibility for the treatment of patients remains low (Gadaev A.G. et al. 2018).

For the first time in the European recommendation of the diagnosis and treatment of hypertension, it was noted that seasonal changes in arterial blood pressure are important, this condition is often associated with climate change. This leads to the occurrence of many diseases of the cardiovascular system, including hypertension and deepening of pathogenetics, in dry and hot weather conditions of the climate of Uzbekistan. This leads to the occurrence of many diseases of the cardiovascular system, including hypertension and deepening of pathogenetics in dry and hot weather conditions of Uzbekistan. Dry and hot climatic conditions naturally lead to deterioration of blood rheology, an increase in the level of blood viscosity and aggregation of shaped elements. This increases the risk of micro and macroreological disorders and aggregates formation and thromboembolism.

Aim of the study: Early diagnosis of hemoreological disorders in the initial stages of hypertensive disease in hot climates.

Materials and methods.

Design and object of study

As an object of the study, a total of 204 patients aged 35 to 55 years of age in the early stages of hypertension whose lesions were not detected in the target organs were examined. Of these, 122 patients in the main group and 82 patients in the control group. All patients underwent Komplex clinical trials and examination of hemoreological parameters.

Results:

A total of 122 patients who were on the dispensary list with the diagnosis of hypertension I-stage among the population living in the Polyclinic under the supervision of the Gazli City Hospital in the Romitan District of Bukhara region, located in the Kyzylkum steppe zone of the soft arid zone of the territory of Uzbekistan, were examined on the basis of their consent Of these, 57% are male and 43% are female. The age of the surveyors was from 35 to 55 years of age, the average age was 49.

For the control group, a total of 82 patients who were on the dispensary list with the diagnosis of hypertension I-stage from among the population of Samarkand City № 10 family polyclinic region, which belongs to the temperate climate in the mountainous regions of Uzbekistan and is 4-5 degrees lower than in other regions of the Republic in the summer months, were Of these, 40% are male and 60% are female. The age of the surveyors was from 30 to 55 years of age and the average age was 50,68.

All investigators were further divided into 2 subgroups according to the degree of arterial hypertension: arterial hypertension 1-degree systolic arterial pressure 147±7 mm Hg; mean distolic arterial pressure 92±5 mm Hg (main g. n=40; Control g. n=20). 2-degree AG average systolic arterial pressure 165±5 mm Hg; mean dystolic arterial pressure 104±5 mm Hg (main g. n=30; control g. n=12).

Blood and plasma viscosity were determined by the "cone-cone" method using the ACR-2 branded rotational viscometer at a constant temperature of 37,0±0,1 C at 10, 20, 50, 150, and 200 C^{-1} rotational speed. In assessing the effectiveness of oxygen delivery to tissues, the index according to the formula was used:

$T O_2 = Ht / V200$,

$T O_2$-the effectiveness of oxygen delivery to tissues;

V200 is the viscosity of the blood at which the speed of rotation is $\gamma=200\ C^{-1}$.

The specific viscosity of the blood was determined using hematocrit detection at different rotational speeds, and aggregation properties of erythrocytes was performed using optical and automatic methods. The degree of spontaneous accumulation of erythrocytes was determined using a TVO 6/50 light microscope. Goryaeva's chamber was used in the detection of free (non-aggregate) erythrocytes as well as erythrocytes in the aggregate state. The counting process was carried out in 2 large (32 small) squares. with the help of automatic erythrocyte aggregation, blood aggregometry was performed. The blood sample was collected at a speed of 600 C^{-1}, and complete dezagregation was observed in the laboratory. As soon as the rotation stopped, the aggregation rate was automatically determined in the time interval of 2 different -5 and 10 s (M_5 and M_{10}). 3 C^{-1} $M(1)_5$ and $M(1)_{10}$ in low-speed rotation, the same degree of aggregation was determined to assess the effect of additional forces approaching each other on the aggregation process of erythrocytes when the rotation stopped. In the calculation of the value of the aggregate level, an average arithmetic 3 measurements were used.

Significant differences in blood viscosity high and average rotational speed (150, 100,50 C^{-1}) were found in patients with arterial hypertension 2 degrees of the main group compared with the control group.

When assessing the aggregation properties of erythrocytes, it was found that oxygen delivery to tissues was observed that the effective index gradually decreased. The control group included arterial hypertension 1 degrees patients-8,2±0,3 and arterial hypertension 2 degrees patients-8,1±0,3; the main group included arterial hypertension 1 degrees - level

patients-7,9±0,4 and arterial hypertension 2 degrees patients-7,8±0,4. Significant differences were observed in patients with arterial hypertension 1 degrees of the control group and in patients with arterial hypertension 2 degrees-level of the main group ($p<0.05$).

When assessing the aggregation properties of erythrocytes, the same thing was determined, changes in the dynamic index of aggregation were observed only in the group where there is an arterial hypertension 2 degrees. In patients with arterial hypertension 1 degrees of the control group, however, this indicator was significantly lower ($p<0.05$).

In comparison with the patients of the control group, the indicators of patients with the arterial hypertension 2 degrees of the main group were observed that the aggregation potential was observed after $M(1)_5$ and $M(1)_{10}$ seconds at the rate of rotation 3 C^{-1} 5 and 10 seconds at the rate of rotation and $M(1)_5$ and $M(1)_{10}$ seconds at the the decrease in percentage was intangible in the form of an increase in the level of aggregation($p<0,05$).

Conclusion

At the initial stage of hypertension, in which no lesions were detected in the target organs, such as those present in hot climates, hemoreological disorders were observed in accordance with the level of arterial hypertension. There was a decrease in erythrocyte aggregation, a decrease in erythrocyte deformation, a deterioration in erythrocyte cytoarchitectonics and deformation. In patients in hot climates, there was a decrease in erythrocyte aggregation and an increase in plasma viscosity compared to the control group, which led to a deterioration in blood flow in large and microcirculatory vessels. In patients in the arid zone, reversible deformable erythrocytes were found to be 14%, a decrease of 4 times compared to the control group, and the amount of irreversibly deformable erythrocytes increased 2 times compared to the control group.

References:

1. De la Sierra A., González-Segura D. (2011) on behalf of the Investigators of the SINERGIA study (study of the distribution and management of cardiovascular risk in arterial hypertension)Risk factors in hypertensive patients without previous cardiovascular events [Article in Spanish] 136 (13), 559-64.
2. Amelina I.V., Medvedev I.N. (2009) Bulletin of Experimental Biology and Medicine: The relationship between the activity of nucleolar-forming regions of chromosomes and somatometric parameters in humans. 147 (1), 82-85.
4. Нарзуллаева, У. Р., Самиева, Г. У., & Пардаева, З. С. (2020). Pathogenetic aspects of verified risk factors such as arterial hypertension and dyslipidemia in the development of chronic heart failure. American Journal of Medicine and Medical Sciences, 10(10), 776-779.
Medvedev I.N., Skoryatina I.A. (2015) Clinical medicine: Aggregation ability of neutrophils in patients with arterial hypertension with dyslipidemia while taking fluvastatin. 93 (1), 66-70.
5. Kalinina A. M., Chazova L. V. (2003) a guide for doctors: Multifactorial approach to the prevention of coronary heart disease among the population M.,153
6. Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J (2005). The Lancet: Global burden of hypertension: Analysis of worldwide data. 365 (9455), 217-223.
7. Egan BM, Zhao Y, Axon RN. (2010) Journal of the American Medical Association: US trends in prevalence, awareness, treatment, and control of hypertension. 303 (20), 2043–2050.

8. Barquera S, Campos-Nonato I, Hernández-Barrera L, et al. (2006) Salud Pública de México: Hypertension in Mexican adults: results from the national health and nutrition survey. 2, supplement 1: S63 – S71.
9. Diagnostics and correction of lipid metabolism disorders for the prevention and treatment of atherosclerosis: Russian recommendations, V revision. Atherosclerosis and dyslipidemia. 2012; 4: 5-52.
10. Fight against arterial hypertension. // Report of the WHO Expert Committee, M.2007. -20
11. Narzulaeva, U. (2023). PATHOGENETIC MECHANISMS OF MICROCIRCULATION DISORDERS. International Bulletin of Medical Sciences and Clinical Research, 3(10), 60–65. Retrieved from https://researchcitations.com/index.php/ibmscr/article/view/2811
12. Rakhmatulloevna, N. U., & Abdurasulovna, B. M. (2022). GEMOREOLOGIK BUZILISHLAR VA ERITROTSITLAR AGREGATSION XOSSALARI O'ZGARISHINING PATOGENETIK MEXANIZMLARI. JOURNAL OF BIOMEDICINE AND PRACTICE, 7(6).
13. Rasulov, Z. I. (2023). COMPARATIVE STUDY OF LINGUISTIC PHENOMENA OF A NATIONAL-CULTURAL NATURE, REPRESENTING MYTHOLOGICAL LINGUISTIC UNITS IN ENGLISH AND UZBEK LANGUAGES. FORMATION OF PSYCHOLOGY AND PEDAGOGY AS INTERDISCIPLINARY SCIENCES, 2(20), 19-24.
14.Rasulov, Z. I. (2023). THE NOTION OF NON-EQUIVALENT WORDS AND REALIAS IN ENGLISH AND UZBEK LANGUAGES. Finland International Scientific Journal of Education, Social Science & Humanities, 11(6), 35-40.
15.Rasulov, Z. (2023). LISONIY TEJAMKORLIKNING AXBOROT IFODASIDAGI ORTIQCHALIKKA MUNOSABATI. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz), 42(42).
16.Rasulov, Z., & Artikov, A. (2023, May). THE PRINCIPLE OF REDUNDANCY IN COMPOUND SENTENCES. In Integration Conference on Integration of Pragmalinguistics, Functional Translation Studies and Language Teaching Processes (pp. 1-4).
17.Rasulov, Z. (2023). The principle of cognitive economy as an important factor in information transmission. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz), 42(42).
18.Rasulov, Z. (2023). ПРИНЦИПЫ ЭКОНОМИИ ФОНАЦИОННОЙ ЭНЕРГИИ. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz), 42(42).
19.Rasulov, Z. (2023). PEDAGOGIKA VA PSIXOLOGIYADA MANIPULYATSIYA TUSHUNCHASI. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz), 39(39).
20.Rasulov, Z. (2023). LISONIY TEJAMKORLIK VA TILNING TIZIMLI QURILISHI. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz), 42(42).
21.Джалилова, З. (2023). The notion of illocution in the theory of speech acts by John Austin. Современные тенденции при обучении иностранному языку в XXI веке, 1(1).
22.Obidovna, D. Z. (2023). ADAPTING TEACHING METHODS TO MODERN EDUCATIONAL TRENDS: PEDAGOGICAL ASPECT. International Journal of Pedagogics, 3(10), 72-77.
23.Djalilova, Z. (2023). LANGUAGE LEARNING STRATEGIES AND THEIR IMPLICATION FOR TEACHING ENGLISH. Центральноазиатский журнал образования и инноваций, 2(11), 18-22.
24.Obidovna, D. Z., & Sulaimonovich, D. S. (2023). Influence of the Mode of Work and Recreation of the Student's Health. INTERNATIONAL JOURNAL OF HEALTH SYSTEMS AND MEDICAL SCIENCES, 2(3), 3-5.

25.Obidovna, D. Z., & Sulaymonovich, D. S. (2023). Forming a Healthy Lifestyle for Students on the Example of the Volleyball Section in Universities. EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION, 3(3), 22-25.
26.Obidovna, D. Z., & Sulaymonovich, D. S. (2022). Physical activity and its impact on human health and longevity. Достижения науки и образования, (2 (82)), 120-126.
27.Qobilovna, A. M. (2023). COMMUNICATIVE COMPETENCE AS A FACTOR OF TEACHER'S PROFESSIONAL COMPETENCY. American Journal Of Social Sciences And Humanity Research, 3(09), 32-44.
28.Ataullayeva, M. (2023). COMMUNICATIVE COMPETENCE AS A FACTOR OF PERSONAL AND PROFESSIONAL DEVELOPMENT OF A FUTURE SPECIALIST. International Bulletin of Medical Sciences and Clinical Research, 3(10), 109-114.
29.Qobilovna, A. M. (2021). BOSHLANG 'ICH SINF O 'QITUVCHILARIDA KOMMUNIKATIV KOMPITENTLIK SHAKLLANISHINING IJTIMOIY-PSIXOLOGIK DETERMINANTLARI. Central Asian Research Journal for Interdisciplinary Studies (CARJIS), (Special Issue), 102-105.
30.Musayeva, A. (2023). MADANIYATSHUNOSLIK YONDASHUVI ASOSIDA TALABA-YOSHLARNING KOMMUNIKATIV KOMPETENSIYALARINI RIVOJLANTIRISH. Science and innovation, 2(Special Issue 9), 97-99.
31.Караматовна, М. А. (2023). ФОРМИРОВАНИЕ В ЯЗЫКОЗНАНИИ ТЕОРИИ СЕМАНТИЧЕСКОГО ПОЛЯ. Мусаева, А. (2023). РУССКИЙ ЯЗЫК В МЕЖКУЛЬТУРНОЙ СРЕДЕ. Современная наука и исследования, 2 (4), 182–186.
32.Мусаева, А (2023). РУССКИЙ ЯЗЫК В МЕЖКУЛЬТУРНОЙ СРЕДЕ. Современная наука и исследования,2(4), 182-186 https://inlibrary.uz/index.php/science-research/article/view/19208
33.Ахмедова, М. (2020). НАРУШЕНИЯ ЭНДОТЕЛИАЛЬНОЙ ФУНКЦИИ ПРИ РАЗВИТИИ АФТОЗНОГО СТОМАТИТА. Достижения науки и образования, (18 (72)), 65-69.
34.Ахмедова, М. (2023). ИСПОЛЬЗОВАНИЕ КОМПЬЮТЕРНЫХ ТЕХНОЛОГИЙ НА ЭТАПАХ ДИАГНОСТИКИ И ПЛАНИРОВАНИЯ ОРТОПЕДИЧЕСКОГО ЛЕЧЕНИЯ НА ОСНОВЕ ЭНДОССАЛЬНЫХ ИМПЛАНТАТОВ. Центральноазиатский журнал образования и инноваций, 2(11 Part 2), 167-173.
35.Axmedova, M. (2023). USE OF COMPUTER TECHNOLOGY AT THE STAGES OF DIAGNOSIS AND PLANNING ORTHOPEDIC TREATMENT BASED ON ENDOSSEAL IMPLANTS. International Bulletin of Medical Sciences and Clinical Research, 3(11), 54-58.
36.Axmedova, M. (2023). THE IMPACT OF SOCIOCULTURAL FACTORS ON THE PERVASIVENESS OF DENTAL CARIES AS A COMPLEX HEALTH CONDITION IN CONTEMPORARY SOCIETY. International Bulletin of Medical Sciences and Clinical Research, 3(9), 24-28.
37.Halimova, Y. S. (2023). Morphological Aspects of Rat Ovaries When Exposed to Caffeine Containing Drink. BEST JOURNAL OF INNOVATION IN SCIENCE, RESEARCH AND DEVELOPMENT, 2(6), 294-300.
38.Халимова, Ю. С. (2022). МОРФОФУНКЦИОНАЛЬНЫЕ ОСОБЕННОСТИ ЯИЧНИКОВ КРЫС ПРИ ВОЗДЕЙСТВИИ КОФЕИН СОДЕРЖАЩИХ НАПИТОК. Gospodarka i Innowacje., 23, 368-374.
39.Халимова, Ю. С., & Шокиров, Б. С. (2022). МОРФОФУНКЦИОНАЛЬНЫЕ ООБЕННОСТИ ВНУТРЕННИХ ОРГАНОВ ПРИ ХРОНИЧЕСКОМ АЛКОГОЛИЗМЕ. Scientific progress, 3(2), 782-789.

40.Halimova, Y. S. (2023). Morphofunctional Aspects of Internal Organs in Chronic Alcoholism. AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI, 2(5), 83-87.
41.Salokhiddinovna, X. Y. (2023). INFLUENCE OF EXTERNAL FACTORS ON THE MALE REPRODUCTIVE SYSTEM. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 3(10), 6-13.
42.Yu S, H., & BS, S. (2023). Morphological changes of internal organs in chronic alcoholism.