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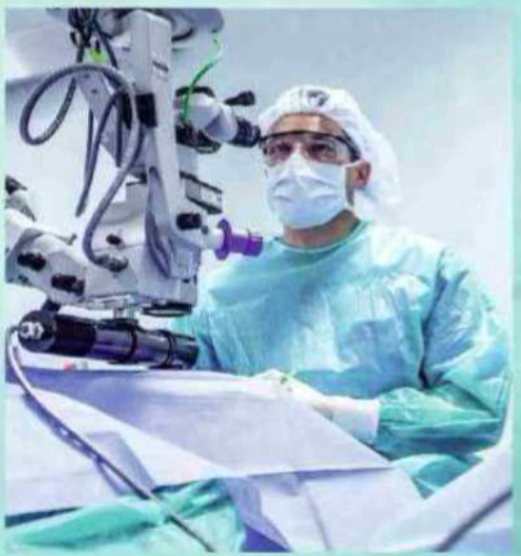

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MIOKARD INFARKTI BILAN OG'RIGAN BEMORLARDA BUYRAK DISFUNKSIYASINI KLINIK-PROGNOSTIK AHAMIYATI

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✓ ***Rezyume***

So'nggi yillarda kardiorenal munosabatlar zamonaviy tibbiyotning ilmiy va klinik sohalarida tobora ko'proq muhokama mavzusiga aylanmoqda. Bu nafaqat yurak-qon tomir patologiyasining (gipertoniya, surunkali yurak etishmovchiligi, multifokal ateroskleroz, uglevod va lipid almashinuvining buzilishi), buyrakning birlamchi patologiyasi bilan emas, balki buyrak disfunksiyasini aniqlash chastotasining ortishi bilan bog'liq. O'z navbatida, surunkali buyrak kasalligining turli yurak kasalliklarida prognozni yomonlashishdagi roli keng muhokama qilinib, o'z ahamiyatini yo'qotmaydi. Yurak-qon tomir tizimi va buyraklardagi patologik jarayonlarning o'zaro bog'liqligi, an'anaviy (gipertoniya, diabet, semizlik, dislipidemiya, giperglikemiya) va "buyrak" (gipergidratsiya, kamqonlik, tizimli yallig'lanish, giperkoagulyatsiya) xavf omillarining ikki tomonlama ta'siri va bunday munosabatlarda bashorat qilingan salbiy natijalar bu tizimlarning o'zaro ta'sirini kardiorenal kontinuum sifatida ko'rib chiqishga imkon beradi.

Kalit so'zlar: buyrak disfunktsiyasi, yurak-qon tomir kasalligi, yurakning ishemik kasalligi, miokard infarkti.

ХРОНИЧЕСКАЯ БОЛЕЗНЬ ПОЧЕК - ОПРЕДЕЛЕНИЕ ПОНЯТИЙ, РАСПРОСТРАНЕННОСТЬ, КЛИНИЧЕСКОЕ И ПРОГНОСТИЧЕСКОЕ ЗНАЧЕНИЕ У ПАЦИЕНТОВ С ИНФАРКТОМ МИОКАРДА

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✓ ***Резюме***

В последние годы кардиоренальные взаимоотношения все чаще становятся предметом обсуждения, как в научной, так и в клинической сферах современной медицины. Это связано с устойчивым ростом распространенности не только сердечно-сосудистой патологии (гипертоническая болезнь, хроническая сердечная недостаточность, мультифокальный атеросклероз), но и нарушениями углеводного и липидного обмена, увеличением частоты выявления почечной дисфункции, а не первичной почечной патологии. В свою очередь, роль хронической болезни почек в ухудшении прогноза у различных групп кардиологических больных не теряет своей актуальности, продолжая широко обсуждаться. Взаимозависимость патологических процессов в сердечно-сосудистой системе и почках, двунаправленное действие факторов риска, как традиционных (гипертоническая болезнь, сахарный диабет, ожирение, дислипидемия, гипергликемия), так и «почечных» (гипергидратация, анемия, системное воспаление, гиперкоагуляция) и прогнозируемых неблагоприятных исходов при такой взаимосвязи, позволяют рассматривать взаимодействие этих систем как кардиоренальный континуум.

Ключевые слова: почечная дисфункция, ишемическая болезнь сердца, ишемический болезнь сердца, инфаркт миокард.

CHRONIC KIDNEY DISEASE - DEFINITION OF CONCEPTS, PREVALENCE, CLINICAL AND PROGNOSTIC SIGNIFICANCE IN PATIENTS WITH MYOCARDIAL INFARCTION

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✓ ***Resume***

In recent years, cardiorenal relationships have increasingly become a subject of discussion, both in the scientific and clinical spheres of modern medicine. This is due to the steady increase in the prevalence of not only cardiovascular pathology (hypertension, chronic heart failure, multifocal atherosclerosis, but also carbohydrate and lipid metabolism disorders, an increase in the frequency of detection of renal dysfunction and not primary renal pathology. In turn, the role of chronic kidney disease in worsening the prognosis in various groups of cardiac patients does not lose its relevance, continuing to be widely discussed. The interdependence of pathological processes in the cardiovascular system and kidneys, the bidirectional action of risk factors, both traditional (hypertension, diabetes, obesity, dyslipidemia, hyperglycemia) and "renal" (hyperhydration, anemia, systemic inflammation, hypercoagulation) and predicted adverse outcomes in such a relationship, allow us to consider the interaction of these systems as a cardiorenal continuum.

Key words: renal dysfunction, coronary heart disease, ischemic heart disease, myocardial infarction.

Relevance

In 2008, at the ADQI (the Acute Dialysis Quality Initiative) conference, Ronco C. et al. presented five types of cardiorenal syndrome (CRS), a condition characterized by common pathophysiological disorders of the cardiovascular system (CVS) and kidneys, in which acute or chronic dysfunction of one system inevitably leads to acute or chronic impairment of the other [12]. In turn, chronic kidney disease is a heterogeneous pathology that includes signs of kidney damage at the level of anatomical and morphological changes (confirmed by instrumental methods - ultrasound examination (US), computed tomography (CT), magnetic resonance imaging (MRI), biopsy), or of a functional nature (albuminuria / proteinuria, changes in urine sediment), regardless of the level of SCF and nosological diagnosis, or isolated renal dysfunction (a decrease in SCF to less than 60 ml / min / 1.73 m2). An important criterion for the diagnosis of CKD is that the presence of any of these changes must be present for at least three months [12,13]. The concept of CKD (chronic kidney disease) and stage classification have been used in modern nephrology since 2002 on the initiative of NKF-KDOQI (The National Kidney Foundation Kidney Disease Outcomes Quality Initiative) – the National Kidney Foundation of the USA, with the publication of all diagnostic criteria and recommendations for classification, detection and risk stratification in the American Journal of Kidney Diseases (AJKD). And in 2005, the KDIGO (Kidney Diseases: Improving Global Outcomes) organization confirmed this initiative [8,11]. Since 2007, in the international classification of diseases (ICD-10), the stages of chronic kidney disease have been assigned codes N18.1–N18.5, the unspecified stage of CKD corresponds to code N18.9. Thus, the term "chronic renal failure" (CRF) was replaced by the concept of "chronic kidney disease" with its stage classification [1,10]. The concept of CKD implies the inclusion of renal pathology with different organ function: from optimal (stage I - SCF 90 ml / min / 1.73 m2) to reduced so much that it requires the use of the term renal failure (stage V - SCF 15 ml / min / 1.73 m2) [4]. While the concept of CRF is more associated with irreversible processes in the kidneys (nephrosclerosis) and persistent loss of renal function. The incidence of CKD is steadily increasing worldwide. Thus, according to the results of studies (World Health Report 2000 and Global Burden Disease (GBD) project), the prevalence in this population increases annually in m as renal function worsens [5]. The presence of CKD is recorded in patients with CHF with a frequency of 45-60% and is associated with a high risk of death [10]. The tendency of increasing cardiovascular morbidity and mortality in patients with CKD is explained by the so-called chronic renocardial syndrome (CRS type 4), in which primary chronic kidney pathology inevitably leads to deterioration of the functional state of the CVS and,

accordingly, increases the risk of adverse cardiovascular events [7,11]. The presence of cardiorenal syndrome type 2, in which chronic CVS pathology leads to the progression of CKD, can explain the high prevalence of CKD among patients with CSD [9,12]. According to some data, CKD is an independent predictor of the development of multifocal atherosclerosis [11], the prevalence of which at an optimal level of SCF in patients with CKD is about 7% [8], increasing as renal function (RF) deteriorates to 17-48% in patients with stage V of the disease [7]. Therefore, the high prevalence of CKD among patients with MI is not unexpected, and the incidence of MI in patients with CKD is inversely proportional to the level of SCF. Thus, according to the results of the Rotterdam study [11], among 4484 relatively healthy elderly people, the incidence of MI increased as PF worsened: by 1.64; 1.94 and 3.06 times, respectively, at stages II, III and IV of kidney disease. That is, a decrease in SCF, on average, by every 10 ml/min/1.73 m2, increased the risk of MI by 32%. According to the MONICA Augsburg Surveys, in men and women with a history of CKD and SCF in the range of 15–59 ml/min/1.73 m2, the risk of MI increased by 1.5 and 1.7 times, respectively [10]. In-hospital mortality in patients with MI and CKD can reach 21%, exceeding the value of this indicator in the general population of infarction patients, where it is from 6 to 8% [9], and in the terminal stage of CKD it can increase to almost 40% [12].

Treatment of patients with myocardial infarction with ST-segment elevation at the prehospital and in-hospital stages.

Electrocardiography ECG was recorded in 16 leads using a Siemens Megacart-400 (Germany) upon patient admission, then daily until the subacute period of MI developed, then once every three to five days and one day before hospital discharge. Echocardiography ECHO-CG was performed once upon admission to the hospital using a Sonos 2500 (Hewlett Packard - USA) using two-dimensional echocardiography, pulsed Doppler echocardiography and continuous wave color Doppler scanning. Geometric, structural-geometric and functional characteristics of the heart chambers were measured. With assessment of LV diastolic function. The functional state of the LV was assessed in M-, B- and Doppler modes. The study was performed using the standard technique from parasternal, apical approaches in two-, four- and five-chamber sections using an anular sensor with a frequency of 2.5 MHz.

During the examination, the global contractility of the myocardium, the valve apparatus, the condition of the papillary muscles, the size of the walls and cavity of the LV, the presence and degree of contractility impairment of the necrosis zone, and cicatricial changes were studied. The presence and morphology of aneurysms, myocardial rupture zones were determined using the standard technique in two-dimensional and one-dimensional modes, and in pulsed and continuous-wave echocardiography modes. Myocardial systolic function was assessed in the form of LV ejection fraction (LVEF) using the formula: EF = (EDV - ESV/EDV) 100%, calculated using the ratio of the LV end-diastolic volume (EDV) and LV end-systolic volume (LSV). Color duplex scanning of peripheral arteries In 782 patients from the total sample, peripheral arteries were examined for the severity of atherosclerotic lesions. The study was conducted with the patient in the supine position, using the CDS method on days 3-10 of the hospital period, using the Vivid 7 Dimension ultrasound diagnostic device from General Electric (USA), using linear sensors with a frequency of 5-7 MHz (for visualization of the BCA) and a convex sensor with a frequency of 2.5-3 MHz (for arteries of the lower extremities). The study methodology is described in detail in the manual by V.P. Kulikov [5]. Scanning of the BCA was performed (starting with the overview transverse) in the transverse, longitudinal anterior and posterolateral planes. During the examination, the anatomy, hemodynamic characteristics, vessel course, presence and nature of atherosclerotic lesions of the common carotid artery (CCA) and its bifurcation, external and internal carotid arteries (ECA and ICA), subclavian and vertebral arteries at the level of the orifice and in the bone canal were assessed. The intima-media thickness (IMT) was assessed on the common carotid artery (CCA) at three standard points (according to international standards) with subsequent calculation of the average value. A value of up to 1 mm was taken as the norm. Stenotic changes were assessed in B-mode, using Doppler ultrasonography - the degree of local hemodynamic impairment in the stenosis zone. The degree of stenosis was calculated using the following formulas: SD = (D1 - D2) / D1 100% and SA = A1 - A2 / A1 100%, where D1 was the true diameter of the vessel, determined by the inner border of the adventitia; D2 is the free diameter of the vessel lumen. A1 is the true cross-sectional area of the vessel (along the inner border of the adventitia), A2 is the area of the free lumen.

The ratios of the peak systolic blood flow velocity in the ICA stenosis zone to the peak systolic blood flow velocity of the CCA and the ratio of the end diastolic velocity in the ICA stenosis zone to the end diastolic blood flow velocity of the CCA were used as criteria for ICA stenosis.

Lesions of the lower extremity arteries were verified in B-mode with longitudinal and transverse scanning. The structure of the vessel wall, the type of blood flow (main or collateral), the value of IMC in the common femoral artery and superficial femoral artery were assessed, with the determination of the degree of stenosis and its relation to the diameter and area of the vessel.

The following were accepted as the norm in B-mode: identical lumen diameter of paired vessels with a maximum asymmetry of up to 20%; visualization of the intima-media layer along the length as a uniform structure with a thickness of 1 mm; in Doppler mode, a three-phase blood flow spectrum without local acceleration; peak blood flow velocity of 150 cm/s and maximum asymmetry of up to 20%.

Coronary angiography and percutaneous coronary intervention Coronary angiography was performed on an INNOVA 3100 angiographic system (USA). Under local infiltration anesthesia, the common femoral artery was punctured (according to Seldinger) with the installation of an introducer 6-7 Fr. For catheterization of the left coronary artery (LCA) system, a standard Judkins left 4.0 catheter was used, for the right coronary artery (RCA) - Judkins right 4.0.

Clinical and anamnestic characteristics of patients with myocardial infarction with ST segment elevation depending on the presence of chronic kidney disease

The analysis of the outcomes of the hospital stage of treatment in the groups of patients with STEMI depending on the presence of CKD revealed the following differences. Thus, in the number of repeated coronary interventions, detected thromboses, previously implanted stents, the groups did not differ (p 0.05). In the frequency of development of CT, such as fatal outcomes at the hospital stage, no differences were found either - 34 (10.1%) cases among patients with CKD, versus 78 (12.7%) in the group without a history of CKD. Significant differences were noted when comparing non-fatal complications of MI and cases of stroke. The number of non-fatal complications in group II was 1.5 times higher than their number in group I (p 0.001). During the hospital period, 7 (1.1%) of the entire sample developed a stroke, these patients were part of the first group. When comparing other endpoints depending on the presence of CKD, no significant differences were recorded. However, the number of total CT (fatal outcome + non-fatal complications) was the highest in the group with CKD (p = 0.003).

Cases of contrast-induced nephropathy were almost twice as common in patients with CKD (9.8% vs. 4.5%, p = 0.001). Table 31 - Adverse cardiovascular events of the hospital period in patients with STEMI depending on the presence of chronic kidney disease in the anamnesis (n = 954)

Analysis of the hospital stage of observation did not reveal intergroup differences in the number of cases of CIN and thrombosis of previously implanted stents, although the frequency of repeated CAG was higher in the group of patients with stage II CKD (p = 0.024). No differences were found for non-fatal in-hospital endpoints either, but the incidence of death and combined CT findings was higher in the groups with significant and severe reductions in SCF (p=0.002 and 0.004, respectively). Adverse events and hospital CT in patients with STEMI depending on the stage of chronic kidney disease, n=3 Parameters Group I patients with STEMI and CKD stage I, n(%)=31(9.3) Group II patients with STEMI and CKD stage II, n(%)=104(31.0) Group III patients with STEMI and CKD stage III, n(%)=174(51.9) Group IV patients with STEMI and CKD stage IV, n(%)=26(7.8) P

Combined endpoint, n (%) 183 (30.3) 191 (54.6) 0.001 A comparative analysis of adverse events during the hospital period was also performed in patients depending on the presence of CKD in the anamnesis and renal dysfunction, which showed that the highest percentage of CIN occurrence (p 0.001), repeated CAG (p=0.021) and thrombosis of previously implanted stents (p=0.004) was detected in the group of patients with CKD and without PD. However, the number of interventional procedures was also the highest in this group (p 0.05).

Analysis of the outcomes of the hospital observation stage showed no differences in the number of cases of RPIS and CVA (p 0.05), a higher number of MI recurrences was detected in the group of patients without CKD but with impaired renal function (p 0.001), while the lowest number of recurrences, on the contrary, was registered in patients with preserved organ function, despite the presence of CKD (p 0.001). The highest number of early non-fatal complications was noted in groups with CKD, regardless of renal function (p 0.001). The maximum number of fatal outcomes (27.9%) during the hospital observation period was noted among patients without CKD, but with PD detected upon admission, and this indicator exceeded the number of fatal outcomes in patients with CKD and PD by 12.6%. The number of total CT (non-fatal complications + fatal outcomes) prevailed in the groups with PD, regardless of the presence of CKD in the anamnesis. Table

34 - Adverse events and CT of the hospital period in patients with STEMI depending on the presence of chronic kidney disease and renal dysfunction (n = 954) indicators Patients with STEMI without CKD, n = 616 (64.6%) Patients with STEMI with CKD, n = 338 (35.4%).

The factors associated with the development of a fatal outcome during hospitalization in patients with STEMI, regardless of the presence of CKD, were identified using the logistic regression method. The factors associated with the onset of a fatal outcome in patients of the general sample in the univariate analysis were: age 60 years, female gender, PICS, class II AHF according to the Killip classification, SCF 59.9 ml/min/1.73 m2 and anemia verified upon admission, LVEF less than 40% and CIN, while endovascular myocardial revascularization (PCI) during the hospital period, on the contrary, reduced the risk of a fatal outcome at the inpatient stage by 30%. Multivariate analysis revealed that SCF 59.9 ml/min/1.73 m2 (taking into account serum creatinine concentration upon admission to hospital) increases the risk of death during the hospital period by 2.7 times, development of CIN by 3.3 times, age 60 years by 3.5 times, and AHF Killip II by 7.9 times, while PCI reduces the chances of death by 60%. The same principle was used to identify factors associated with the development of a fatal outcome during hospitalization in patients with STEMI and CKD. A significant role was revealed for age over 60 years, PICS, history of congestive HF, AHF class II according to Killip, renal dysfunction at the time of admission to hospital due to the index event, anemia, and LV systolic myocardial dysfunction (EF 40%). The multifactorial model included: a decrease in LVEF of 40%, which increases the risk of death during hospitalization by 2.1 times, age 60 years - by 3.1 times, and AHF Killip II-IV - by 5.8 times.

Adverse outcomes of a three-year follow-up period in patients with previous ST-segment elevation myocardial infarction depending on the implementation of radiocontrast interventions

When studying laboratory parameters, no significant differences were found in the number of cases of anemia verified upon admission, or lipidogram parameters assessed during the hospital period. Comparative analysis revealed significant differences in the groups in the number of individuals with significant proteinuria (urine protein excretion over 150 mg per day, based on the results of daily urine analysis), determined at the inpatient stage; this indicator was higher in the CIN group (p=0.021). In terms of glycemia levels upon admission, despite the higher number of cases of diabetes among patients with CIN, the comparison groups also did not differ. Patients were comparable in terms of serum creatinine levels upon admission. However, in terms of SCF levels calculated from creatinine, significant differences were noted in favor of a lower SCF level in the CIN group (0.025). These characteristics changed significantly already on days 2-3 after endovascular interventions. Thus, in patients with developed nephropathy, a significant increase in serum creatinine and a decrease in SCF were noted already 48-72 hours after RCA (p 0.05), which reflects the course of CIN.

It should be noted that after 10-14 days after the X-ray contrast procedure, the picture did not change significantly: significant differences in the comparison groups remained, both in the level of serum creatinine, SCF and the number of people with PD (p 0.05).

In 679 (97.6%) cases, non-ionic monomeric low-osmolar radiocontrast agents (RCA): Ultravist, Xenetix were used to perform coronary interventions. The groups were comparable both in the volume of RCA used (p = 0.89) and in the radiation dose received during RCA (p = 0.87). Types of radiocontrast agents and radiation doses during radiocontrast interventions in patients with STEMI depending on the presence of contrast-induced nephropathy, n=6 Indicators Patients with STEMI with CIN n=61 (8.8%) Patients with STEMI without CIN n=635 (91.2%). Undergone coronary angiography only, n (%) 18 (29.5) 144 (22.7) 0.292 Undergone coronary angiography and endovascular revascularization, n (%) 43 (70.5) 491 (77.3) 0.295 Type of radiocontrast agent: Ionic dimeric low-osmolar (Hexabrix), n (%) 1 (1.6) 8 (1.3) 0.753 Non-ionic monomeric low-osmolar (Ultravist, Xenetix), n (%) 59 (96.7) 620 (97.6) 0.931 Non-ionic dimeric isoosmolar (Vizipaque), n (%) 1 (1.6) 3 (0.5) 0.175 Paramagnetic isoosmolar gadolinium-containing (Gadovist), n(%) 0 4 (0.6) 0.624 Radiation dose, Gray, Me [LQ-UQ] 1835 [1260-2950] 2012 [1225-3000] 0.876 Volume of radiocontrast agent, ml, Me [LQ-UQ] 200 [100-250] 200 [100-300] 0.891 No differences were found in the frequency of endovascular reperfusion interventions depending on the presence of CIN.

To determine potential predictors of CIN, the logistic regression method was used to identify factors that have a significant impact on the risk of nephropathy. According to the results of a univariate analysis, a patient's history of CKD increased the risk of nephropathy by 1.9 times; PD diagnosed upon admission - by 1.8 times, and the implementation of endovascular revascularization along with CAG - almost twice. However, the set of predictors that significantly affect the possible development of CIN, according to the results of a multivariate model, included only CKD and SCF 60 ml / min / 1.73 m2 upon admission, increasing the likelihood of nephropathy by more than 2 times.

Conclusion

The conducted analysis of the hospital stage of observation revealed a significant increase in the number of deaths and non-fatal complications, including RPIS in patients who did not undergo endovascular interventions, compared with the group in which RVC was performed. In order to clarify the influence of CIN on the in-hospital prognosis of patients with STEMI who underwent endovascular interventions, a comparative analysis was performed, which revealed a significant increase in the number of adverse outcomes, both fatal (p 0.001) and non-fatal (p 0.001), including RPIS and recurrent MI (p 0.05), as well as combined CT (p 0.001) among patients with CIN. In order to identify factors that independently affect the risk of death at the hospital stage in patients with STEMI who underwent endovascular interventions (n=725), a Cox regression analysis with stepwise selection was performed (Table 60). The analysis included clinical and anamnestic characteristics (patient age over 60 years, gender, history of MI, stroke, presence of CKD, diabetes, hypertension, Killip class of acute heart failure, decrease in EF less than 40%, anterior localization of MI, fact of decrease in SCF level less than 60 ml/min/1.73 m2 upon admission to hospital and upon discharge, nature and prevalence of atherosclerotic lesions), CIN and fact of PCI in hospital. The analysis showed that hospital mortality in patients with STEMI who underwent PCI was associated with age over 60 years, which increased the risk of death by more than 2 times, with decrease in EF less than 40% upon admission and CIN developed at the hospital stage - by 1.9 times.

LIST OF REFERENCES:

1. Sahin B. Risk factors of deaths related to cardiovascular diseases in World Health Organization (WHO) member countries / B. Sahin, G. Ilgun // Health & Social Care in the Community. 2022;30(1):73-80.
2. Балабанова Ю.А., Драпкина О.М., Куценко В.А. [и др.] Артериальная гипертония в российской популяции в период пандемии COVID-19: гендерные различия в распространённости, лечении и его эффективности. Данные исследования ЭССЕ-РФ3 / // Кардиоваскулярная терапия и профилактика. 2023;22(8):3785.
3. Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: a pooled analysis of 1201 population-representative studies with 104 million participants / B. Zhou, R. M. Carrillo-Larco, G. Danaei [и др.] //The Lancet. 2021;398(10304):957-980.
4. Аксенова А.В. Лечение больных артериальной гипертонией в реальной клинической практике в 2010-2020 гг. (по данным национального регистра артериальной гипертонии) /А.В. Аксенова, Е.В. Ощепкова, И.Е. Чазова //Терапевтический архив. 2022;94(1):9-17.
5. Российское кардиологическое общество. Проект клинических рекомендаций «Артериальная гипертензия у взрослых» 2022 URL:https: //scardio .ru/content/Guidelines/proj ect/KR_AG.pdf (дата обращения 01.05.2024).
6. 2018 ESC/ESH Guidelines for the management of arterial hypertension / B. Williams, G. Mancia, W. Spiering [и др.] // European Heart Journal. 2018;39(33):3021-3104.
7. Чазова И.Е. Клинические рекомендации. Диагностика и лечение артериальной гипертонии. / И.Е. Чазова, Ю.В. Жернакова //Системные гипертензии. 2019;16(1):6-31.
8. Крюков Е.В., Фурсов А.Н., Потехин Н.П. [и др.] Гипертонический криз - клиническая трактовка термина //Клиническая медицина. 2021;99(2):146-149.
9. Колос И.П., Чазова И.Е., Терещенко С.Н. Риск развития сердечно-сосудистых осложнений у пациентов с частыми гипертоническими кризами. Предварительные результаты многоцентрового ретроспективного исследования случай-контроль ОСАДА. //Терапевтический архив. 2009;9т.
10. Choudhry N.K., Kronish I.M., Vongpatanasin W. [et al.] Medication adherence and blood pressure control: a scientific statement from the American Heart //Hypertension. 2022;79(1):1-14.
11. Stanaway J.D., Afshin A., Gakidou E. [et al.] Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Stu // The Lancet. 2018;392(10159):1923-1994.
12. Wright J. Effect of Blood Pressure Lowering and Antihypertensive Drug Class on Progression of Hypertensive Kidney Disease Results From the AASK Trial /J. Wright, T. Jackson //JAMA. 2002;288(19):2421.
13. Stamler J. et al. Blood pressure, systolic and diastolic, and cardiovascular risks. US population data /J. Stamler, R. Stamler, J. D. Neaton //Archives of Internal Medicine. 1993;153(5):598-615.

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