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COMPARATIVE ANALYSIS OF THE RESULTS OF THE RACSMI-Uz REGISTER DEPENDING ON THE GENDER ACCESSORIES

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ABSTRACT

The article, based on the data from the "RACSMI-Uz" register, compares the clinical and anamnestic characteristics of patients with acute cardiovascular coronary disorders, depending on gender, and describes the state of patients' adherence to medical recommendations. The material of the study was 449 patients with ACS / AMI hospitalized in the corresponding health facilities of the experimental district of Tashkent. Depending on gender were identified 2 groups of patients: 1g. - 243 male patients and 2g. - 206 female patients. In the course of the register, it was found that ACS / AMI was more frequent in men in 54.1% of cases, and in women - in 45.9%. Men were younger than women by age (p <0.05). Among women, prevalence of risk factors (RF) were obesity of varying severity (48.0% - in women and 29.6% - in men, p <0.05). In ACS / AMI, hypertension and hypercholesterolemia were found independent of the sex of the RF, and smoking-related (for men) and disorders of carbohydrate metabolism and obesity (for women) were related to gender. Transferred to the history of cardiovascular events were the prerogative of the male sex, and the age is debatable point in the development of an injury. Compliance was higher for women than for men, although there were no significant differences between men and women in the groups of medicines that were taken. However, a direct correlation was found between age and the number of respondents received daily medication.

KEYWORDS: Register, acute myocardial infarction (AMI), acute coronary syndrome (ACS), men, women.

Relevance

It has recently become apparent that the registers of the disease - this is the most reliable way to obtain data on the clinical practice.[1,2] Mainly, it concerns diseases that are characterized, on the one hand, by an unfavorable prognosis of life, on the other hand, for which there are concrete evidentiary possibilities for improving the prognosis of life. Acute myocardial infarction (AMI) just refers to such diseases.

The use of groups of drugs (β-blockers (BB), inhibitors of angiotensin-converting enzyme (ACE inhibitors), aspirin, statins, etc., and the creation of unified recommendations for use in CHD significantly improved the prognosis of such patients (this is indicated by the results of controlled randomized trials). However, there is interest in the question of how often and how consistently these drugs are used in real clinical practice, how they affect the further course of the disease and the condition of patients.[7] Proceeding from these positions, we evaluated the real therapy received by patients with acute coronary disorders in conditions of practical public health in one of the districts of Tashkent. On the territory of Uzbekistan, such registers have not been previously

conducted, so this study is not only practically-interesting and relevant, but also in demand.

Among practical doctors, was extended the mistaken belief, that ischemic heart disease (IHD) rarely infects women and flows in them more benignly. However, in the 90s of the last century it was shown that with age, women are more likely to develop IHD and MI. It has been proven that in the industrialized countries, cardiovascular diseases (CVD) are the leading cause of death in women over the age of 55.[8] According to the literature, among the CVD, 55% of deaths occur in women and 43% in men. According to the American Heart Association in the United States, 32 million women suffer from coronary artery disease (compared with 30 million men). Due to various reasons, the mortality rate among women is higher than that of men. In the USA, more than 0.5 million women die annually from ischemic heart disease.[10]

Most of the recognized risk factors (RF) for developing CVD are common to men and women, but the scientific evidence that has accumulated to date shows that there are certain features of the manifestation of RF in the female population. The effect of RF in the development

of IHD is more aggressive on women than on men. There is a different frequency of occurrence and significance of these RF than in men.[11,12] Nevertheless, in the conditions of our Republic this analysis is carried out for the first time, which once again proves the relevance of our register.

One of the most challenging tasks now is to preservation and maintain a high adherence of the patient with IHD to therapy.[13-15] Despite the gradual realization of the importance of adherence to the regimen and the intake of medications, the problem on adherence of patients to therapy remains unresolved. Therefore, assessing the quality of the actual drug therapy, its compliance with modern clinical guidelines and adherence to it in patients with IHD is an extremely topical task.

In connection with the above, the purpose of our study was: to conduct a comparative analysis of clinical and anamnestic data in patients with acute cardiovascular coronary disorders, depending on gender, as well as determining patients' adherence to medical recommendations.

MATERIAL AND METHODS OF INVESTIGATION

The material of the study was the database of questionnaire data of patients diagnosed with ACS / MI. The data was analyzed according to the developed protocol of the register. The information was collected at the time of hospitalization of patients in the clinical hospitals of the corresponding district of the city of Tashkent. The study included only patients with ACS / MI for 1 calendar (2015) year. The file of the electronic database included patients who were referred to the experimental area of the city of Tashkent.

For the formation of the search and reference device, an alphabetic card index system was used, containing numbered "Register Cards" for each examinee, with passport and objective data.

While conducting the register, we adhered to the following rules
• Patients must meet the inclusion criteria;
• Participation of the patient should not influence the approaches to his therapy;
• Inclusion of the patient in the register should be accompanied by its registration in the register database with the filling in of the "Register card" for each patient.

Inclusion criteria
The register included patients aged 18 to 70 years who applied to the ambulance (Amb), hospitalized in the relevant hospitals with a diagnosis of ACS / MI.

• ACS and AMI were diagnosed on the basis of generally accepted criteria
a) typical pain syndrome;

b) the appearance of a new Q wave on the ECG;
c) dynamics of the ST segment and the T wave on the ECG;
d) the dynamics of markers of myocardial damage (as laboratory analyzes are carried out).

Exclusion criteria
• The age is under 18 and over 70 years old.

Patient adherence assessment
Assessment of compliance or adherence of patients to medical recommendations was carried out with the help of the Moriska-Green Compliance Scale, a clinical and psychological test technique designed to assess the compliance and screening of under-qualified patients in routine medical practice.

The scale was created by Morisky D.E., Green L.W., Levine D.M. in 1985 and published in 1986.

Compliance, or adherence to treatment, is the degree to which a patient follows a doctor's recommendations, such as behavioral change or medication taking. At the same time, compliance is a consequence of contact between the doctor and the patient, since the role of the doctor is not limited to unilateral statement of recommendations, but the role of the patient is their one-sided perception. In a narrow sense, compliance is understood as the percentage of drugs prescribed for long-term (including lifelong) intake taken at the right time and in the right dosage. It is for this purpose that we used this scale.

This article presents the results of a study of 449 patients with ACS / MI hospitalized in the corresponding hospitals in the experimental district of Tashkent. Depending on gender, 2 groups were singled out: 1gr. - 243 men and 2gr. - 206 women.

Statistical analysis of the results
Statistical processing of the results was carried out on a personal computer Pentium-IV using the "STATISTICA 6" software package. The arithmetic mean (M), standard deviation (SD), standard error of the arithmetic mean (m) were calculated.

As you know, the existing methods of statistical analysis can be divided into two groups - parametric and nonparametric. An important condition that determines the possibility of using parametric methods is the subordination of the analyzed data to the law of the normal (Gaussian) distribution, which has a characteristic dome-like appearance. At the same time, nonparametric methods for fulfilling this condition do not require. In this regard, in our study, in order to avoid statistical inaccuracy, the analysis was accompanied by a test of the normal distribution of clinical signs.

To compare the arithmetic means of the two groups (control and experimental), we used the t-test of the Student.

To assess the existence of relationships between the indicators, a correlation analysis was performed to calculate the Pearson correlation coefficient. Correlation analysis allows us to conclude not only what is the relationship between the two characteristics in the direction (direct or inverse), but, what is very important, express it quantitatively with the help of a correlation coefficient-a variable ranging from -1 to +1. The sign of the coefficient indicates the direction of the dependence.

To analyze the reliability of the differences between the qualitative characteristics, the χ2 criterion was used.

In cases where the number of data in the compared groups was less than 30 and at least in one group was less than 5, the results were checked by the exact method of Fisher.

All values are represented as the arithmetic mean ± standard deviation (M ± SO). Differences were considered significant for p <0.05.

RESULTS

The study found that the age of men with ACS / MI was younger than that of women. This was due to the fact that in a group of men, patients under the age of 50 predominated. Namely, the age group under 40 in the group of men was 8 people (3.3%), and in the group of women - 1 (0.5%); the number of men aged 41-50 years was 50 (20.6%), and in women - 25 (12.1%), both p <0.001. In contrast, the age categories of 51-60 years and 61+ turned out to be a priority for females. In particular, the number of men aged 51-60 years was 88 (36.2%), and the number of women - 83 (40.3%); the number of men in the 60+ category turned 97 (39.9%) men, and for women - 97 (47.1%), p <0.05. This was confirmed by the correlation analysis (Fig. 1A).

Table 1: Anthropometric characteristics of compared groups of patients.

| Indicator	Men (n=243)	Women (n=206)	p	χ2
Age, years	57,3±8,6	59,8±7,3	**0,001**	
Weight, kg	83,5±11,2	79,2±14,2	**0,012**	
Height, cm	171,7±5,2	162,9±6,1	**0,000**	
BMI, kg / m2	28,4±3,7	29,7±4,6	**0,020**	
BMI measurement was performed, n (%)	**125** (51,4%)	**100** (48,5%)		
Normal weight, n (%)	22 (17,6% from 125)	15 (15,0% from 100)	0,732	0,117
Overweight (BMI = 25.1-30.0 kg / m2), n (%)	66 (52,8% from 125)	37 (37,0% from 100)	**0,026**	4,969
Obesity 1 degrees, (BMI = 30.1-35.0kg / m2), n (%)	33 (26,4% from 125)	35 (35,0% from 100)	0,211	1,562
Obesity 2 degrees, (BMI = 35.1-40.0 kg / m2), n (%)	3 (2,4% from 125)	10 (10,0% from 100)	**0,032**	4,581
Obesity 3 degrees, (BMI≥40.1 kg / m2), n (%)	1 (0,8% from 125)	3 (3,0% from 100)	0,458	0,550
Notes: n - number of patients; p and χ2 - reliability of differences between groups; BMI is the body mass index.				

The calculation of BMI was carried out, in total, in 225 (50.1%) patients, 125 of them men and 100 women. Analysis of BMI based on gender found that the normal weight in men was 17.6%, and in women - 15.0%. However, the presence of excess weight, i.e. BMI values from 25 to 30 kg / m2 were more common in men than in women (52.8% versus 37.0%, respectively men and women, p <0.05). Obesity of varying severity, on the contrary, was more frequent in women than in men (Table 1). This was confirmed by the correlation analysis (Fig. 1B).
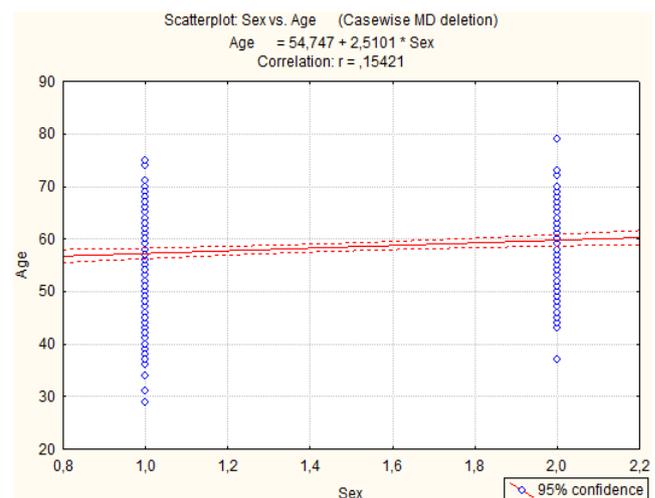

Figure 1(A): A graph of the correlation between sex and age of patients.
*Notes: on the X-axis - the number "1" - the male gender and the number "2" - the female gender; Y-axis - age of patients in years. (**p = 0.001**, r = 0.154, t = 3.277).*
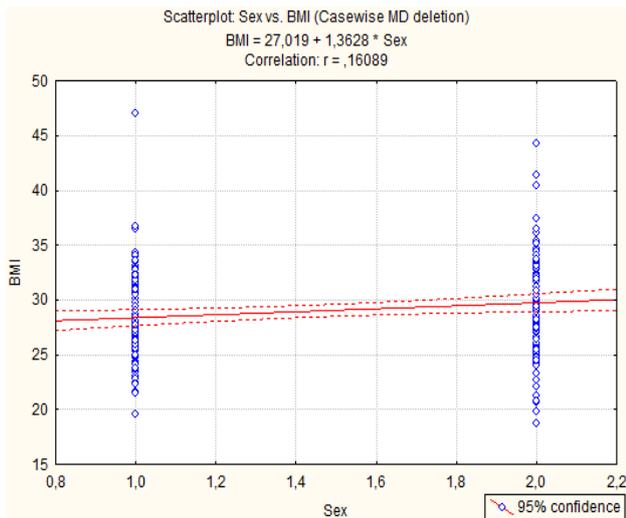
Figure 1(B): A graph of the correlation between sex and BMI of patients.

*Notes: on the X-axis - the number "1" - the male gender and the number "2" - the female gender; Y-axis - BMI - body mass index in kg / m2 (**p = 0.015**, r = 0.161, t = 2.434).*
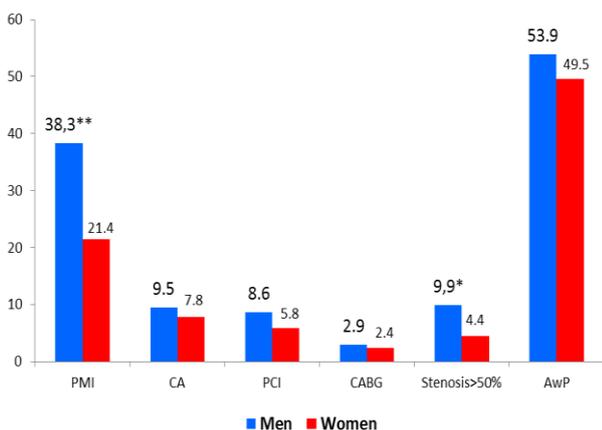
Figure 2: Anamnestic characteristics of compared groups of patients.

*Note: * - the reliability of differences between groups at p <0.05; ** - reliability of differences between groups at p <0.001;PMI – a previous myocardial infarction; CA – cerebrovascular accident; PCI - percutaneous coronary intervention; CABG - coronary artery bypass grafting; stenosis >50%; AwP - awareness of the patient about the presence of his cardiovascular pathology; the data is presented as a percentage.*

Thus, depending on gender, it was found that ACS / MI was more often recorded in men, making 54.1%, the incidence of ACS / MI among women was 45.9%. In the age aspect, men with ACS / MI were younger, than women (p <0.05), and in terms of weight characteristics, obesity was prevalent in women of varying severity (48.0% in women versus 29.6% in men, p = 0.007).

According to anamnestic data, the cardiovascular disasters suffered more often in males. Specifically, an indication of a previous myocardial infarction (PMI) in

men was 1.8 times more than in women (p <0.001); the presence of the transferred cerebrovascular accident (CA) in men was 1.7% more than in the women's group; performed PCI or CABG in men amounted to 11.5%, which is 3.3% more than in women (Fig. 2). The average age of women with PMI was 61.5 ± 7.8 years, and in men - 58.4 ± 8.4 years [p = 0.041; CI from 0.128 to 6.072]; on the contrary, the age of women with CA was 59.6 ± 9.5 years, and in men - 61.3 ± 7.1 years [p = 0.526; CI from -7,081 to 3,681].

The age of those with cardiac surgical interventions had no dependence on gender: women = 57.7 ± 7.1 years and men - 58.6 ± 5.6 years [p = 0.639; CI from -2.945 to 4.745]. Despite the fact that men with a history of PAM were younger, nevertheless, they often registered stenosis> 50% [p = 0.041; χ2 = 4,190].

The analysis of risk factors (RF) is presented in Fig. 2, from which it can be seen that men have prevalent such RF as smoking, arterial hypertension (AH) and hypercholesterolemia (HCh). In women, the main RF were disturbance of both carbohydrate and lipid metabolism, AH, as well as obesity. By smoking, by the parameters of carbohydrate metabolism and by the presence of obesity, the difference reached a statistically significant level (Fig. 3). Nevertheless, the sum of the RF for the averaged value in women was lower than in men: the mean number of RF in males was 3.6 ± 1.2 and in females 2.4 ± 1.1 (p <0.001).
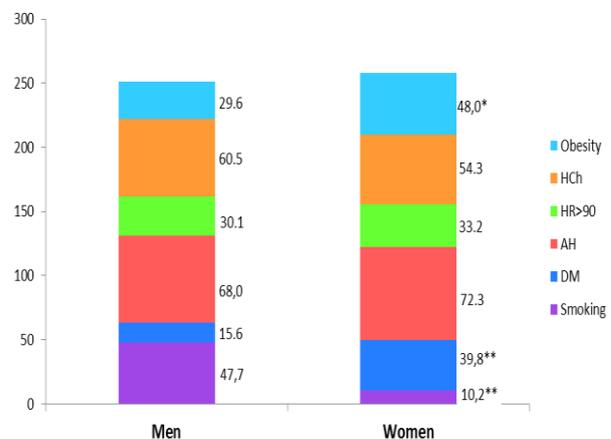

Figure 3: Risk factors depending on gender.

*Note: the data is presented as a percentage; ** - reliability of differences between groups at p <0.001 and "- the tendency to reliability of differences between groups (p = 0.057); HCh – hypercholesterolemia; HR - heart rate; AH - arterial hypertension; DM - diabetes mellitus.*

Thus, in patients with ACS / MI, such RF as AH and HCh did not depend on sex. Smoking was a RF for men, and violations of carbohydrate metabolism and obesity - for women. An indication of a history of previously deferred cardiovascular events were more frequent in men and age proved to be a controversial point in the

development of a damage (the transferred myocardial infarction was registered in young men, and the transferred disturbances of a cerebral circulation - at older men, in comparison with women).
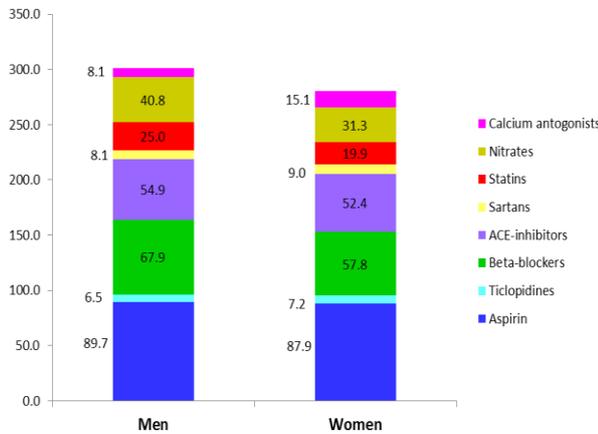

Figure 4: The main groups of medicines. taken by patients, depending on sex.
Note: the data are presented as a percentage, all p> 0.05.

The next stage of the study was the assessment of compliance, depending on gender. From these positions, there were no statistically significant differences between the groups. The average number of medications taken per day among men was 2.2 ± 1.7 per person and among women 2.2 ± 1.6, respectively (p> 0.05). A substantial aspect of conservative therapy is presented in Fig. 4, from which it can be seen that both men and women had approximately the same proportions for the main groups of medications (all p> 0.05).

However, when calculating the quantitative values, it was found that, in general, the female population was more committed to pharmacotherapy than the male population (the number of women compliant was 166 (80.6%) against men 184 (75.7%), p = 0.261 and $\chi 2 = 1.264$). At the same time, the female group prevailed over medicines taken from 1 to 3 per day, the male group - from 4 or more pharmaceuticals per day, but the difference did not reach the level of reliability (Table 2).

Table 2: Distribution of patients by the daily ration of medications taken depending on sex.

The amount of medication taken	Men (n=184)	Women (n=166)	p	χ2
1. Medicine per day	32 (17,4%)	34 (20,5%)	0,548	0,362
2. Medicines per day	38 (20,6%)	37 (22,3%)	0,809	0,059
3. Medicines per day	48 (26,1%)	49 (29,5%)	0,551	0,356
4. Medicines per day	44 (23,9%)	33 (19,9%)	0,435	0,609
5. Medicines per day	18 (9,8%)	11 (6,6%)	0,381	0,766
6. Or more medications per day	4 (2,2%)	2 (1,2%)	0,776	0,081

When conducting a correlation analysis, it was revealed that adherence to therapy increases with age, regardless of gender (Fig. 5).
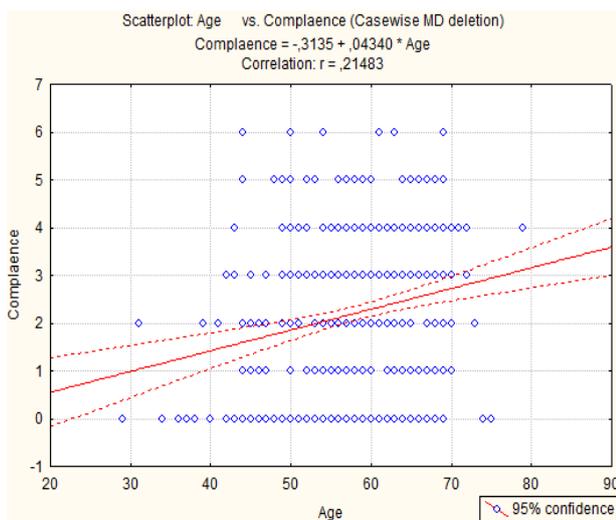
Figure 5: A graph of the correlation between age of patients and compliance.
*Note: on the X-axis - the age in years, on the Y-axis - the number of medications taken per day, **p = 0.000**; r = 0.214; t = 4,619.*

Thus, this fragment of the study showed that the compliance rate in women was slightly higher than that in men; men were prone to taking more medications, although there was no significant difference between men and women in the proportion of medications taken. Nevertheless, a direct correlation dependence was found between the age of the respondents and the number of medications taken per day.

DISCUSSION

According to statistics, CHD in women before menopause is much less common than in men of the same age.[16,17] The peak incidence in women is at the age of 65-75 years, but in recent years, there has been a "rejuvenation" of the incidence of IHD in women. The results of our register also revealed that women with ACS / AMI were older than men; in women, the development of ACS / AMI occurred in the age category over 50 years.

Most of the recognized risk factors for CVD are common to both men and women, but the scientific evidence that has accumulated to date indicates that there are certain features of the manifestation of AR in the female population.[18] According to some authors,[19,20] obesity is

more common in men under the age of 45 and in women over the age of 45, and the metabolic syndrome, determined in the presence of three or more RF, which includes obesity, is more common in women , than in men with CHD.

Diabetes mellitus (DM) and disorders of carbohydrate metabolism in women are more associated with an increase in the incidence of CHD than in men, and cause a much more severe course of the disease. The presence of diabetes dramatically reduces the protective effect of estrogens in women in the pre-menopausal period. For women with diabetes and CHD, an earlier and more pronounced decrease in left ventricular contractility is characteristic.[21,22] In our register the risk factors, independent of the sex were AH and lipid metabolism disorders, but infringement of carbohydrate metabolism and obesity were more frequent in women.

In comparative studies, including data National Heart Lung and Blood Institute (NHLBI) Dynamic Registry, J.Suwaidi and colleagues evaluated the results of treatment of patients with lesions of large coronary artery (CA 3 mm in diameter) and CA least 3 mm. Patients with a lesion of a smaller diameter of CA were mostly women with non-insulin-dependent diabetes, who had previously had CABG, and more often needed re-revascularization.[23] Despite the presence of smaller vessels, women experienced less acute coronary insufficiency associated with complete occlusion of the CA, and more likely manifestations of partial occlusion in the form of unstable angina and the presence of signs and symptoms difficult for diagnosis.[24] Probably, this can explain the fact that in our study, despite the fact that men with a history of a previous myocardial infarction were younger than women, nevertheless, stenoses $\geq$50% were more often recorded in these men.

In the paper, Wang W. et al.[25] in the analysis of 382 elderly patients from 6 medical centers in Macao, China, a better adherence to therapy was observed in people over 65 years of age. A similar trend took place in our register. As for the predominance of women in the group of committed patients that we received during the work, this fact is confirmed by other researchers who show that women are more committed to treatment than men.[26-28]

Thus, the "RACSMI-Uz" register conducted by the staff of the Department of Prevention of CVD in the conditions of the clinic of the Republican Specialized Center of Cardiology allowed to obtain objective data on the demographic, anamnestic and clinical characteristics of patients with acute coronary pathology only in one of the districts of Tashkent. The findings revealed both positive points in terms of treatment for this category of patients, and identified a number of issues that require further study.

CONCLUSIONS

ACS / MI was more often recorded in men, making 54.1%, the incidence of ACS / MI among women was 45.9%. In the age aspect, men with ACS / MI were younger than women (p <0.05). Women had prevalent obesity of varying severity (48.0% in women versus 29.6% in men, p <0.05).

In ACS / AMI, regardless of gender risk factors were hypertension and hypercholesterolemia and related to gender identity - smoking (for men) and carbohydrate metabolism and obesity (for women). The cardiovascular disasters that were transferred in the anamnesis, turned out to be the prerogative of males, while the age seemed a controversial moment in the development of this or that lesion.

Compliance in women was slightly higher than that of men; men were prone to taking more medications, although there was no significant difference between men and women in the proportion of medications taken. However, a direct correlation was found between age of respondents and the amount of drugs taken per day.

Conflict of interest
During the investigation, there was no conflict of interest.

BIBLIOGRAPHY

1. Alpert, J.S. Are data from clinical registries of any value? / J. S. Alpert // Eur Hear. J., 2000; 21(17): 1399–1401 c.
2. O'Shea, J.C. Inter-regional differences in acute coronary syndrome trials / J. C. O'Shea, R. M. Calif // Eur Hear. J, 2000; 21(17): 1397 – 1399.
3. Gafarov V.V. WHO program "Register of acute myocardial infarction": a 25-year epidemiological study of myocardial infarction in Russia / VV Gafarov, AV Gafarova, M. Yu. Blaginina // Cardiology, 2005; 8: 48-50.
4. Kosmacheva E.D. The first results of the register of acute coronary syndromes in the Krasnodar Territory. / ED Kosmacheva, OA Pozdnyakova, LK Kruberg, and others. // Atherothrombosis, 2010; 1: 109-114.
5. Oschepkova E.V. Mortality of the population from cardiovascular diseases in the Russian Federation and ways to reduce it. / E. V. Oschepkova // Cardiology, 2009; 2: 267-272.
6. Erlich A.D. Acute coronary syndrome without ST elevations in the real practice of Russian hospitals. Comparative data of the registers "RECORD-2" and "RECORD" / AD Erlich, NA Gratsiansky // Cardiology, 2012; 10: 9-16.
7. Fox, K.A. 5-year outcome of an interventional strategy in non-ST-elevation acute coronary syndrome: the British Heart Foundation RITA 3 randomised trial / K. A. Fox, P. Poole-Wilson, T. C. Clayton, R. A. Henderson, T. R. Shaw, D. J.

Wheatley, R. Knight, S. J. Pocock // Lancet, 2005; 366(9489): 914–920.

8. Grady D. et al. // Ann. Intern. Med, 1992; 117: 1016–1037.

9. Peterson S, Peto V, Rayner M et al. European Cardiovascular Disease Statistics, 2nd edn. London: British Heart Foundation, 2005.

10. Heart diseases and stroke statistics–2008 update. A report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Circulation, 2008; 117: 25–146.

11. Bermudez EA, Rifai N, Buring J et al. Interrelation–ships among circulating inter–leukin–6, C– reactive protein, and traditional cardiovascular risk factors in women. Arterioscler Thromb Vase Biol, 2002; 22(10): 1668–1673.

12. Tereshchenko SN, Uskach TM, Kositsyna IV and others. Features of cardiovascular diseases and their treatment in women // Cardiology, 2005; 45(1): 98-104.

13. Cortés-Beringola A., Fitzsimons D., Pelliccia A., Moreno G., Martín-Asenjo R., Bueno H. Planning secondary prevention: Room for improvement // Eur J Prev Cardiol, 2017; 24: 22–28. DOI: 10.1177/2047487317704954.

14. Kovacic J. C., Castellano J. M., Fuster V. The links between complex coronary disease, cerebrovascular disease, and degenerative brain disease // Ann N Y Acad Sci, 2012; 1254: 99–105. DOI: 10.1111/j.1749–6632.2012.06482.x.

15. Trubnikova OA, Kagan ES, Kupriyanova TV, Maleva OV, Argunova Yu. A., Kukhareva I.N. Neuropsychological status of patients with stable coronary heart disease and factors affecting it / Complex problems of cardiovascular diseases, 2017; 1: 112-121.

16. Skibitsky VV, Medvedeva Yu.N., Shukhardina E.L. and others. Risk factors and structure of cardiovascular pathology in women in menopause of different genesis. Problems of women's health, 2007; 3(2): 21-8.

17. Heart diseases and stroke statistics–2008 update. A report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Circulation, 2008; 117: 25–146.

18. Dvoretsky LI, Gibradze NT, Cherkasova NA Ischemic heart disease in women. "Russian Medical Journal" №2 from 09.02.2011; 79-86. https://www.rmj.ru/articles/kardiologiya/Ishemiches kaya_bolezny_serdca_u_ghenschin/#ixzz55l0cbLL G.

19. Seeman T., Mendes de Leon C., Berkman L. et al. Risk factors for coronary heart disease among older men and women: prospective study of community – dwelling elderly // Am J Epidemiol, 1993; 138: 1037-1049.

20. Mokdad A.H., Ford E.S., Bowman B.A. et al. Prevalence of obesity, diabetes, and obesity-related health risk factors, 2001 // JAMA, 2003; 289: 76-79.

21. Mosca L. Epidemiology and prevention of heart disease. In: Douglas P.S, ed. Cardiovascular Health and Disease in Women. 2nd ed. New York: WB Saunders, 2002; 23-28.

22. Seeman T., Mendes de Leon C., Berkman L. et al. Risk factors for coronary heart disease among older men and women: prospective study of community – dwelling elderly // Am J Epidemiol, 1993; 138: 1037-1049.

23. Suwaidi J., Wanlin Y., Williams D. et al. Comparison of immediate and one–year outcome after coronary angioplasty of narrowing < 3 mm with those > 3 mm (the National Heart, Lung, and Blood Institute Dynamic Registry) // Am J Cardiol, 2001; 8: 680–686.

24. Elsaesser A., Hamm C. Acute coronary syndrome: the risk of being female // Circulation, 2004; 109: 565–567.

25. Wang W., Lau Y., Loo A.et al. Medication adherence and its associated factors among Chinese community-dwelling older adults with hypertension. Heart Lung, 2014; 43(4): 278-283.

26. Fodor GJ, Kotrec M, Bacskai K et al. Is interview a reliable method to verify the compliance with antihypertensive therapy? An international Central-European study. J Hypertens, 2005; 23: 1261–1266.

27. Rao CR, Veena KG, Shetty A. et al. Treatment Compliance among patients with hypertension and type 2 diabetes mellitus in a coastal population of Southern India. Int J Prev Med., 2014; 5(8): 992–998.

28. Raymundo NAC, Pierin AMG. Adherence to anti-hypertensive treatment within a chronic disease management program: A longitudinal, retrospective study. Rev Esc Enferm USP, 2014; 48(5): 809-817.