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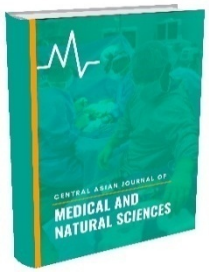

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DEFINITIONS OF METABOLIC SYNDROME AND TOTAL CORONARY RISK IN IGNITION

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ABSTRACT: *We examined 80 patients (mean age - 52.6 ± 6.5 years, duration of the disease - 5.4 ± 2.6 years) with male gout. The total coronary risk (TFR) was determined in all patients with gout. Low TFR less than 5% was observed only in 9 10% patients, and the average 5-20% was observed in 35.6% patients. As expected, there was a statistically significant correlation between the number of main RF and TFR values (r = 0.25, p> 0.05, in all cases). Patients with low TFR significantly differed from patients with high TFR in terms of the main clinical characteristics reflecting the severity of gout. In gout, the TFR value correlates with the number and severity of the main risk factors and indicators reflecting the severity of the disease.*

Keywords: gout, kidney damage, metabolic syndrome, lipid spectrum, glomerular filtration rate

Relevance: Gout is currently caused by a steady increase in the prevalence of the disease among people of working age and cases of disability among them [4,8,10]. It was found that almost 70% of patients with gout have more than two RFs for the development of cardiovascular diseases [2], for example, such as dyslipidemia, hypertension, type 2 diabetes mellitus, insulin resistance, obesity [7,11]. The value of daily monitoring of blood pressure in the diagnosis of hypertension in patients with gout [3,5,6,9]. At the same time, the combination of several, even moderately pronounced, cardiovascular RF is prognostically more unfavorable than a significant increase in one cardiovascular factor [1].

The problem of the relationship of gout with diseases of the cardiovascular system, structural changes in the myocardium with its functional characteristics is still relevant, as well as the question of the influence of the nature of the course of the disease on the structure and function of the myocardium.

Purpose of work. In patients with gout, to assess the indicators of metabolic syndrome and total coronary risk in order to carry out timely preventive measures and prevent the development of cardiovascular accidents.

Material and methods. We examined 80 patients (all men) aged 28-65 years (on average 50.5 ± 1.6 years) with a disease duration from 6 months to 18 years (on average 9.4 ± 1.7 years). All patients had signs of joint inflammation: 42.8% - acute, 22.3% - protracted, 37.5% - chronic variant of gouty arthritis. Every fourth patient had subcutaneous tophuses (26.5%). The most frequently detected

arthritis of the metatarsophalangeal joint of the big toe (51.0%), the joints of the foot, ankle and knee had a lesser degree of damage 28.6%, 24.5%, respectively. The defeat of one joint was diagnosed in 30.6%, up to three joints - in 37.4%, more than three joints - in 32.0% of patients. All patients were with the first (63.2%) and the second (36.7%) the degree of insufficiency of the function of the joints.

The examination included the determination of indicators of articular syndrome, body weight, body mass index (BMI) and waist circumference. From laboratory parameters, the determination in the lipid spectrum of blood, uric acid (MK) was carried out.

To determine the total coronary risk (TFR), the algorithm recommended by the State Research Center for Preventive Medicine of the Ministry of Health of the Russian Federation and the HeartScore 3.1 computer program (European Society of Cardiology, 2007) were used. The components of this model are: gender, age, cholesterol, HDL-C, smoking, SBP, depending on the presence or absence of antihypertensive therapy. The TFR was determined based on the final assessment of the conventional units of the available RF, with a certain amount of units corresponding to a certain percentage of the TFR. Accordingly, TFR <20% is the low risk of coronary artery disease in the next 10 years. If the patient has additional RF (DM, serum TG level more than 2.3 mmol / L BMI ≥25 kg / m2, coronary artery disease or other atherosclerotic diseases in close relatives (men younger than 55 years old, women younger than 65 years old) TFR, according to of the used model increased by 2 times. The presence of clinical signs of coronary artery disease in the patient himself was assessed as + 20% to the total risk of acute complications of coronary artery disease.

Results and discussion.

BMI of patients with PA ranged from 19 to 38. According to WHO recommendations, in 13 (29.54%) patients, BMI corresponded to the normal indicator (18.5-24.9), in 18 (40.9%) - overweight (25- 29.9, preobesity), 8 (18.18%) - first degree obesity (30-34.9) and 5 (11.36%) - second degree obesity (35-40).

Among patients with PA, the main 3 clinical factors of MS (obesity, arterial hypertension, diabetes mellitus) were diagnosed in 47.77% of patients: in 30.5% - obesity of I and II degrees, in 26.54% - arterial hypertension and in 12.22 % - type 2 diabetes. In 32.61% of patients, one clinical form of MS was identified, in 12.22% - a combination of two forms (AH and II degree obesity - in 8.2%, AH and type 2 diabetes - in 4.1%), in 4, 1% - a combination of three forms (hypertension, obesity grade II and type 2 diabetes). In 23 patients (52.20%), clinical forms of MS were not identified.

With gout, there was an increase in lipid profile indicators - laboratory criteria for MS. The content of total lipids varied from 4.8 to 10.6 g / l, the average content was 8.55 ± 0.03 g / l. In 32.7% of patients, the level of total lipids was in the range of 4.8-8.4 g / L (normal level), in 67.3% - above 8.4 mmol / L (increased level). In patients with clinical signs of MS, the level of total lipids (9.60 ± 0.04 g / L) was 1.28 times higher than in patients without clinical signs of MS (7.50 ± 0.05 g / L, P <0 , 02).

The cholesterol content in gout was 5.2-10.2 mmol / l (on average - 7.2 ± 0.05 mmol / l): in 34.7% of patients - 5.2-6.5 mmol / l (borderline level), in 38.8% - 6.6-8.0 mmol / L (increased level), in 26.5% - above 8.0 mmol / L (high risk of developing MS). In patients with the main clinical factors of MS (obesity, AH and type 2 diabetes), the mean cholesterol content was 8.6 ± 0.7 mmol / L, which was significantly higher than in patients without clinical manifestations of MS (6.2 ± 0 , 4 mmol / L, P <0.05).

The increase in the content of total lipids, cholesterol was associated with the degree of increase in the level of uric acid (r = 0.70; r = 0.50), the duration of gout (r = 0.70; r = 0.60). The decrease in the glomerular filtration rate was accompanied by an increase in the content of total lipids and cholesterol (r = -0.50; r = -0.40).

Low TFR (less than 5%) occurred only in 8 (10%) patients, and the average (5-20%) was observed in 28 (35%) patients. The majority of patients (55%) had a high cardiovascular risk (TFR> 20%), despite the fact that almost 52% of patients were under 55 years of age. Of these, the value of cardiovascular risk from 20 to 30% had 14 (17.5%) patients, from 30 to 40% - 14 (17.5%), more than 40% - 16 (20.0%) patients (Figure 1) ...,

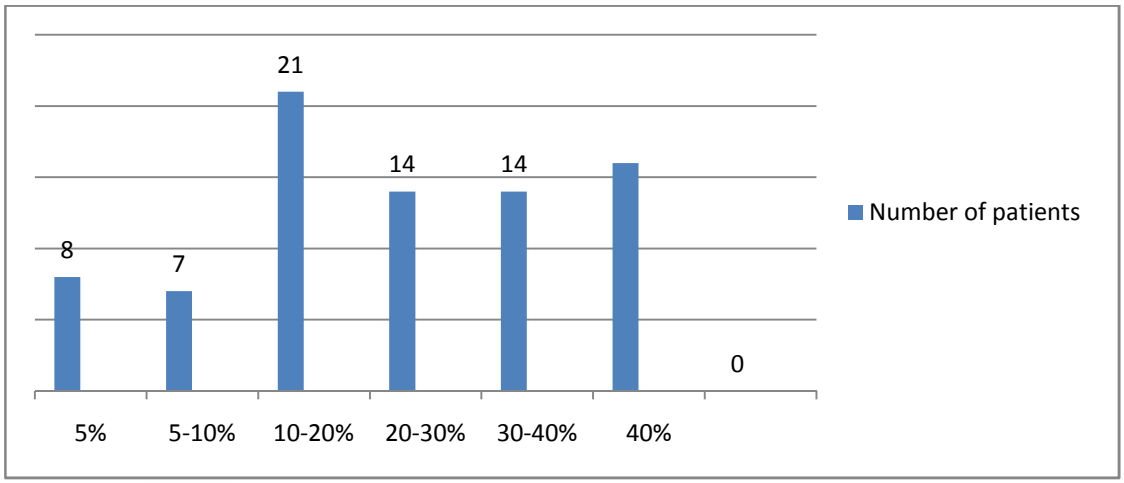

Fig. 1. Values of cardiovascular risk in patients with gout (n = 80)

As expected, there was a statistically significant correlation between the number of major risk factors and TFR values (r = 0.25, p20%). So, for example, in the presence of one main risk factor, TFR was 11%) (2-29%), with two - 22% (2-50%), with three or more - 31% (10-50%). In patients who did not have increased indices for any of the main risk factors, the TFR level was 5% (2-16%). Depending on the TFR values, the patients were divided into 2 groups: the first group consisted of patients with a low TFR (20%). Patients suffering from coronary artery disease and / or type 2 diabetes were included in the second group. Table 1 shows the indicators of the main and additional risk factors in the compared groups of patients.

Table 1 Risk factors in patients with gout, depending on the value of TFR

Risk factors for CC <20%	(n = 36)	KX≥20% (n=44)	p
Basic RF			
Smoking, n (%)	GARDEN, mm Hg	58,2±8,8	<0.001
CS, mmol/l	CSHDL, mol/l	10 (22.7%)	nd
Additional RF	BMI, kg/m^2	158,2±15,6	<0.001
TG, mol/L	DM type 2, n (%)	6,6 (3,7; 9,0)	nd
Family history of coronary artery disease, n (%)		1,3 (0,7; 2,5)	nd
Risk factors for CC <20%			
Basic RF	Age, year	29.9±4.3	nd
Smoking, n (%)	GARDEN, mm Hg	2,71(1,31; 6,0)	nd
CS, mmol/l	CSHDL, mol/l	11 (25%)	nd
Additional RF	BMI, kg/m^2	20 (45,45%)	nd

As can be seen from Table 1, the patients of the second group were older in age and had significantly high levels of SBP and BMI.

The serum MC level in the group of patients with low TFR was 594.6 ± 110.3, and in the group of patients with high TFR - 572.9 ± 114.8 μmol / L (p = 0.08).

Considering the large contribution of the age of patients to TFR, a special analysis of the distribution of TFR in different age groups was carried out (Table 2, Fig. 2 and 3). The patients were divided into age groups by decades. Group I included patients aged 32 to 41 years (n = 3), in II - from 42 to 51 years (n = 28), in III - 52 to 61 years (n = 35), in IV - from 62 up to 71 years old (n = 10) and in V - patients aged 72 years and older (n = 4).

Table 2 Clinical and biochemical characteristics of patients with gout of different age groups

Indicators	I (n=3)	II (n=28)	III (n=35)	IV (n=10)	V (n=4)
BMI, kg/m^2	25,8±2,16	26,7±1,96	27,7±2,9	27,9±2	30,6±1,4
GARDEN mm Hg	150,0±21,6	148,5±21,5	152,2±22,2	163,3±16,0	147,0±22,2
CS, mol/l	7,3[6.9; 7,6]	7,0[6.8; 7,5]	7,54[7; 8]	6.74[5.9; 7,8]	7,17[7; 7,43]
CSHDL, mol/l	2,12[1.95;2.3]	1,99[1.88; 2,2]	1,99[1.86; 2,2]	1,88[1.76; 2,0]	1,98[1.94; 2,02]
Glucose mmol/l	6,0[5.8; 7,4]	5,7[4.9; 7]	6,9[6.3; 7,6]	6,8[5.8; 8]	7[6.2; 8]
TG, mmol/l	3,6[2.9; 4,4]	3,1[3; 3,4]	3.4[3; 3,4]	3,2[3; 3,4]	3,2[2.6; 5]
MK, mkmol/l	628±74	595±54	605±71	549±81	620±56

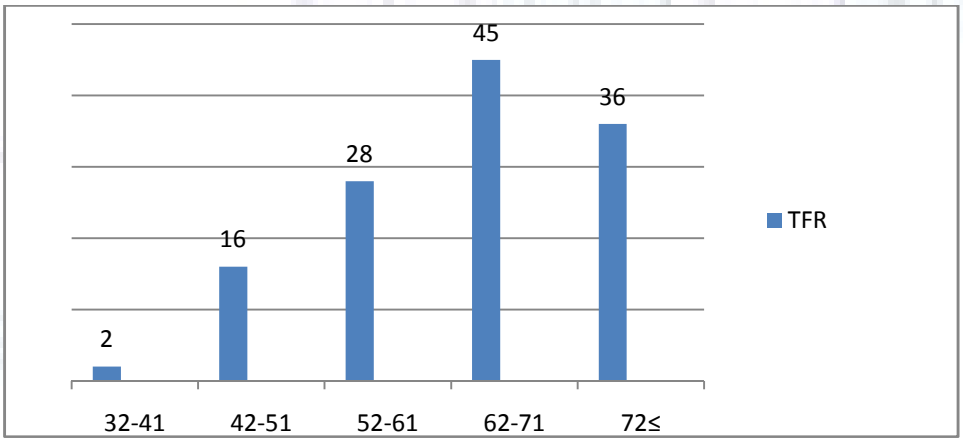

Fig. 2. The relationship between the level of TFR and the age of patients with gout

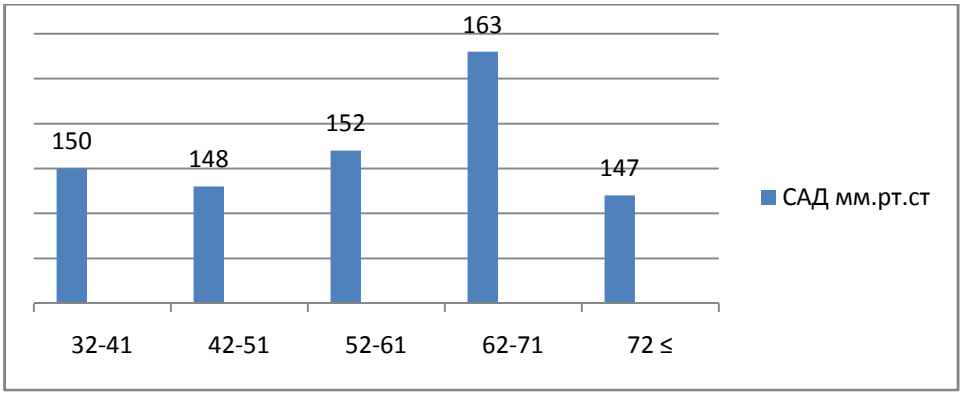

Fig. 3. The relationship between the level of SBP and the age of patients with gout

It was found that with each decade the TFR value increases significantly, especially starting from the fifth decade of life (p0.05, in all cases). With age, there was a slight decrease in the level of TG in the blood serum of patients with gout. These data indicate that the risk of developing cardiovascular pathology is characteristic of not only elderly patients, but also young patients.

Of particular interest is the study of the relationship between the TFR value and the main clinical characteristics of gout (Table 3).

As can be seen from Table 23, patients with low TFR significantly differed from patients with high TFR in terms of the main clinical characteristics reflecting the severity of gout. A direct correlation was found between the TFR level and the duration of gout (r = 0.33, p <0.05).

Table 3 Clinical characteristics of patients with gout, depending on the value of TFR

Indicators	KX>20% (n=36)	KX≥20% (n=44)	P
Duration of illness, year	4,6 [1,1; 6,2]	10,2 [4.2; 15,4]	<0,001
The patient's age at the onset of the disease	45,7±8.2	47,7±10,0	<0,001
The number of affected joints for the entire duration of the disease, n	6,6 [4,1; 8,0]	7,0 [4,0; 10,0]	<0,05
Number of arthritis attacks in the last year of illness, n	2,0 [1,0; 4,0]	3,0 [2,0; 6,0]	<0,05

Conclusions:

1. In patients with gout, the most common main risk factors for CVD are hypertension, a decrease in HDL-C levels, an increase in cholesterol levels, and additional factors are an increase in BMI and hypertriglyceridemia, which are associated with a variant of the clinical course of the disease.
2. Patients with low TFR significantly differed from patients with high TFR in terms of the main clinical characteristics reflecting the severity of gout. A direct correlation was found between the TFR level, the duration of gout (r = 0.33, p <0.001) and the number of affected joints (r = 0.40, p <0.001)
3. In gout, the TFR value correlates with the number and severity of the main risk factors and indicators reflecting the severity of the disease.

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