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**POSSIBILITY OF THE COMBINATION OF ANXIETY-DEPRESSIVE SYNDROME ATB ARTERIAL
HYPERTENSION IN THE POPULATION OF THE NORTHWEST OF RUSSIA**

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Prevalence of arterial hypertension, anxiety and depression was investigated in course of the selective study performed in the population of 2 areas of the Northwest of Russia. Calculation of the relation of chances of possibility of combination of clinical forms of anxiety and depression in patients with arterial hypertension of different degree was done. High risk and strong correlation between subclinical and clinical forms of anxiety and depression in patients with arterial hypertension was shown.

Keywords: *selective study, prevalence of arterial hypertension, anxiety and depression, the relation of chances, correlation dependence*

В результате выборочного исследования среди населения 2-х областей Северо-Запада России проведен расчет отношения шансов возможности сочетания клинических форм тревоги и депрессии у больных артериальной гипертензией различных степеней. Доказано наличие высокого риска и сильной корреляционной связи между субклинической и клинической форм тревоги и депрессии у больных артериальной гипертензией.

Ключевые слова: *выборочное исследование, распространенность артериальной гипертензии, тревоги и депрессии, отношение шансов, корреляционная зависимость*

Introduction

Social-and-psychological situation, which had developed in Russia during the Post-Soviet period, has led to the destruction of public consciousness and vital orientation of tens million people. Psychoemotional overstrain and psychic disadaptation developing as a result are in essence a collective trauma [1].

The majority of epidemiological studies in patients with depression showed the increased risk of arterial hypertension development during the next 5-16 years [4,7,12]. For example, in 10 yearlong study of 12270 persons who initially had no increased BP, in persons with depression the risk of arterial hypertension was 60% higher [8]. Among patients with marked depression fre-

quency of arterial hypertension was almost 3 times as high [9].

Association of depression and hypertension seems to be indirect and is mediated by the general risk factors and hyperactivity of the sympathetic nervous system [5,11].

In patients with arterial hypertension depression was associated with the risk of stroke (2.3-2.7 times) and cardiovascular mortality [15]. There were no significant differences of psychological factors — anxiety, depression, anger, personal features — in groups of patients with normal BP and mild hypertension [3]. The awareness of patients on the presence of arterial hypertension did not influence frequency of affective, anxious disorders [13].

Table 1

Sex-age characteristic of respondents

Age	20-29	30-39	40-49	50-59	60-69	70 and over	Total
Men							
Group of patients with AH	30	43	69	92	95	82	411
Control group	135	100	85	52	37	19	428
Total	165	143	154	144	132	101	839
Woman							
Group of patients with AH	23	44	126	159	159	146	657
Control group	286	151	188	89	51	25	790
Total	309	195	314	248	210	171	1447
Total							2286

In NHANES I study anxiety, as well as depressions, was associated with 1.8 times increased risk of hypertension within 7-16 years of observation [4]. Unlike women, in men of middle age with anxiety risk of arterial hypertension was 2.2 times increased according to the data of 20 yearlong observation in Fremingemsky research [6]. Later in Finnish 9 yearlong observation in women of middle age high level of anxiety, anger and low social support were associated with increased risk of hypertension [10]. At the same time in two epidemiological studies no association between anxiety and risk of arterial hypertension was found [14].

There fore *the aim of the present research* was studying of prevalence of anxiety and depression in the population of the Northwest Russian Federation and patients with arterial hypertension, and also determination of expression of combination of chances of anxiety and depression in patients with arterial hypertension of different degree considering age-sex features.

Materials and methods

Selective, epidemiological study (cross-sectional study) for revealing arterial hypertension (AH) and its

separate risk factors (RF) among adult population of the Novgorod and Pskov areas was carried out. Single random sample based on the number of a general totality was used in the study (Table 1).

AH evaluation was done according to classification JNC VII «the Seventh report of Incorporated national committee of the USA on prevention, revealing, evaluation and hypertension treatment» and ESH-ESC, 2003 «References of the European Society on hypertension and the European society of cardiologists on AH treatment» [2].

For psychometric screening hospital anxiety and depression scale HADS-A and HADS-D was used. Considering that the data obtained are characterized by asymptomatic normal distribution the Mantel-Henzel factor of disagreement or the relation of chances (Odds ratio) was used.

Results of the study

The study under the scheme «case — control» showed that in women the index of the relation of chances stresses significant interrelation of anxiety and arterial hypertension (Table 2).

Table 2
Characteristic of the value of the relation of chances (Rc) taking into account a confidential interval of manifestation of anxiety with arterial hypertension

AH degree	Clinical forms	Relation of chances	CI ($\pm 95\%$)	P
Women				
AH 1 degree	Subclinical	2,19	1,44÷3,32	0,000
	Clinical	1,87	1,16÷3,03	0,01
AH 2 degree	Subclinical	0,6	0,34÷1,04	0,000
	Clinical	2,08	1,44÷3,32	0,02
AH 3 degree	Subclinical	3,26	1,78÷5,92	0,000
	Clinical	2,25	1,09÷4,62	0,014
ISAH	Subclinical	1,39	0,72÷2,8	0,233
	Clinical	2,27	1,17÷4,39	0,023
Men				
AH 1 degree	Subclinical	1,42	0,81÷2,49	0,258
	Clinical	1,59	0,85÷2,97	0,181
AH 2 degree	Subclinical	0,99	0,43÷2,56	0,422
	Clinical	2,76	1,32÷5,82	0,01
AH 3 degree	Subclinical	1,66	0,59÷5,38	0,36
	Clinical	3,45	1,33÷9,57	0,033
ISAH	Subclinical	9,81	3,77÷24,93	0,000
	Clinical	3,27	0,81÷2,49	0,047

Table 3

Characteristic of the relation of chances (Rc) considering confidential interval of manifestation of depression with arterial hypertension

AH degrees	Clinical forms	Relation of chances	CI ($\pm 95\%$)	P
Women				
AH 1 degree	Subclinical	1,87	1,17÷3,01	0,008
	Clinical	2,54	1,54÷4,21	0,000
AH 2 degree	Subclinical	3,96	2,3÷6,82	0,000
	Clinical	4,72	2,62÷8,52	0,000
AH 3 degree	Subclinical	1,67	0,76÷3,73	0,017
	Clinical	6,19	3,33÷11,4	0,000
ISAH	Subclinical	3,81	1,95÷7,44	0,000
	Clinical	5,2	1,17÷3,01	0,000
Men				
AH 1 degree	Subclinical	1,71	0,95÷3,12	0,09
	Clinical	2,02	1,1÷3,73	0,033
AH 2 degree	Subclinical	1,82	0,83÷4,29	0,166
	Clinical	2,96	1,37÷6,39	0,009
AH 3 degree	Subclinical	3,23	1,17÷9,69	0,056
	Clinical	5,34	2,05÷14,34	0,002
ISAH	Subclinical	4,2	1,71÷10,33	0,005
	Clinical	4,88	1,93÷12,37	0,002

Thus, the subclinical anxiety at 1 degrees AH was according to $R_c = 2.19$ (CI 95% 1.44÷3.32), $p = 0,000$. At AH 2 degrees $R_c = 0.6$ (CI 95% 0.34÷1.04), $p = 0,000$. This shows possible association of anxiety and AH at the upper border of the confidential interval.

At AH 3 degrees R_c is 3.26 (CI of 95% 1.78÷5.92), $p = 0,000$. At ISAP R_c is 1.39 (CI 95% 0.72÷2.8), $p = 0,233$. Thereby, it was shown, that subclinical anxiety has the highest chances to be associated with AH 3 degrees. Clinical anxiety is associated with AH degree due to the index of the relation of chances in the form of linear dependence, « p » is of high degree of reliability.

Maximum size of the upper border of a confidential interval is 4.62 at AH 3 degrees, the lower border — 1.09. So it is obvious that the clinical form of anxiety is comorbid with AH.

In men subclinical and clinical anxiety is also associated with arterial hypertension, however « p » value shows reliability only in an estimation of clinical anxiety and AH 3 degrees at $R_c = 3.45$ (CI of 95% 1.33÷9.57), $p = 0,033$. The most significant association, both subclinical and clinical anxiety, was noticed at ISAH. So, R_c in subclinical anxiety was 9.81 (CI 95% 3.77÷24.93), $p = 0,000$ and for clinical anxiety $R_c = 3.27$ (CI 95% 0.81÷2.49), $p = 0,047$.

Thus, it was proved, that in men the highest association of anxiety and ISAP is possible. At AH 3 degrees the same pattern is noted by the index of clinical anxiety (Table 3).

Estimating the value of the relation of chances by association of depression and degree of arterial hypertension in women, it is possible to notice complete comorbidity of depression and arterial hypertension irrespective of their forms and degree at statistically reliable « p » value. The highest R_c values are noted at estimation of the clinical form of depressions within R_c values from 2.54 at AH 1 degrees to 6.19 at AH of 3 degree. The maximum value

of the upper border of a confidential interval in clinical depression in patients with AH 3 degree was 11.4.

Thereby, it was proved, that possibility of depression in women with AH is very high, providing high comorbidity clinical picture.

In men association of depression and various clinical degrees of arterial hypertension has its own features. Thus, at high value of the relation of chances reaching maximum at the clinical form of depression in patients with AH 3 degrees equaling 5.34 (CI 95% 2.05÷14.34), $p = 0,002$, subclinical form at $R_c = 3.23$ (CI 95% 1.17÷9.69) is doubtful, as $p = 0.056$. Indices for subclinical form of depression are also doubtful at AH 1 and 2 degrees.

So it was proved that in men with AH there are strong chances of association of clinical form of depression and AH irrespective of its clinical degree. Also like at estimation of the clinical form of anxiety in men with ISAP, its combination with clinical form of depression is quite common.

Thus, it was proved, that in the Northwest Russian Federation in a quartet of the metabolic syndrome it is necessary to introduce the parameter of the presence of anxiety-depressive syndrome in patients with AH in subclinical and clinical forms, accordingly tactics of treating patients with AH 2-3 degrees and ISAG must regard the presence of antidepressants combined with hypotensive preparations in the managing report.

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