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## FEATURES OF CLINICAL PARAMETERS IN PATIENTS WITH ISCHEMIC STROKE WHO UNDERWENT COVID-19

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**ABSTRACT:** According to experts, cardiovascular diseases (CVD) are one of the key risk factors for severe course and serious complications in case of infection with coronavirus: a previous stroke increases the risk of resuscitation and mechanical ventilation by 2.5 times. CVD is the most common comorbidity in coronavirus infection: it occurs in 1/3 of patients with COVID-19, increases the risk of hospitalization by 6 times and the risk of death by 12 times. In 67% of patients with concomitant diseases who died from COVID, they suffered from heart and vascular problems (1, 2, 3).

**KEYWORDS:** experts, cardiovascular diseases, risk factors, severe course, serious complications, infection, coronavirus, previous stroke, resuscitation, mechanical ventilation, comorbidity, hospitalization, concomitant, heart problems, vascular problems.

### INTRODUCTION

We examined 280 patients with a history of ischemic stroke who had undergone COVID-19 (mean age  $53.9 \pm 8.1$  years; gender index 1.37: 1.0 (162 men and 118 women each)). A clinical examination method, pulse oximetry, visual analogue scale of headache (VAS) were used, the intensity of Asthenia was assessed on a five-point scale in points. The severity of the main clinical symptoms (shortness of breath, cough) was assessed according to the developed point scale from 0 to 3 points. In this section, statistical material is presented as arithmetic mean + standard deviation ( $M + \sigma$ ). To assess the reliability of the difference in percentages, Fisher's angular transformation criterion was used.

### THE MAIN FINDINGS AND RESULTS

Symptoms of patients who underwent COVID-19 at the onset of the disease were characterized by a subacute onset with a temperature reaction in all patients from subfebrile numbers to severe fever. According to many authors, among the first symptoms of COVID-19, an increase in body temperature was recorded in 90% of cases [2].

The average temperature on admission was  $38.1 \pm 0.90^{\circ}\text{C}$  in men; in women, it was slightly higher -  $38.9 \pm 1.20^{\circ}\text{C}$ . According to the data in table 1 catarrhal syndromes and gastroenteritis in general were rare, but in women these symptoms were detected significantly more often than in men.

This disease is characterized by a subacute course, although in women in 22.9% of cases there was an acute course - with a sharp rise in temperature and symptoms of intoxication.

Headache and general weakness are an obligatory condition of the new coronavirus infection [3]. Our data also showed that headache was in 85% of cases in all examined patients; in the study of this syndrome, depending on gender, it was found that women more often complained of headache, in contrast to men - 94.9% and 71.0 % respectively.

An increase in pulse and respiratory movements was recorded in all the subjects; there were no significant intergender differences in these indicators.

Table 1

Symptomatic picture of patients

Symptoms of defeat		Men, n=162	Women, n=118
General infectious symptoms	$t^{\circ}\text{C}$ on admission (M±σ)	38,1±0,9	38,9±1,2
	Cattarhal syndrome (n/%)	39/24,1%	42/35,6%
	Gastroentiritis (n/%)	26/16,0%	38/32,2% *
Flow	Spicy (n/%)	14/8,6%	20/16,9% *
	Subacute (n/%)	148/91,4%	98/83,1%*
General cerebral symptoms	Headache (n/%)	115/71,0%	112/94,9%*
	Weakness (n/%)	125/77,2%	112/94,9%*
The state of respiratory and cardiovascular system	RR in 1 min (M±σ)	23,7±1,4	23,3±1,8
	Systolic pressure (M±σ)	122,5±11,7	98,6±12,3
	Diastolic pressure (M±σ)	74,2±8,9	61,4±9,5
	R s in 1 m (M±σ)	77,3±12,7	76,9±10,2

Note: hereinafter \* - reliability of differences,  $p < 0.005$ .

All patients had symptoms of intoxication, so diffuse headache was characterized as “pressing” in 221 (78.9%), “bursting” in 21.9% of patients. (% was calculated from the total number of studied patients, if the total indicator is considered, if the indicator is considered within a group, then% is calculated in relation to the number of patients in the corresponding group). Figure 1 shows the intensity of headache in points according to VAS in men and women.

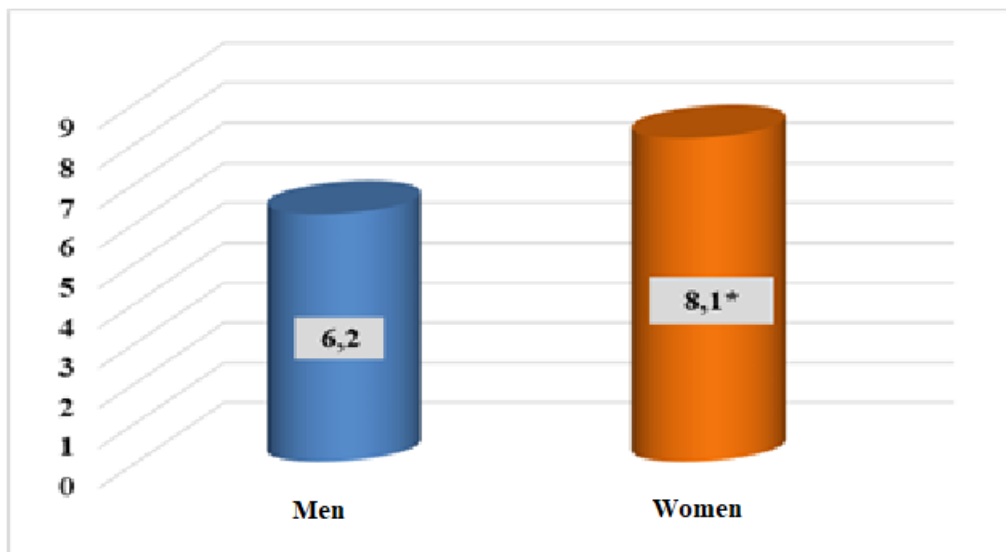


Figure 1 the intensity of the Headache in points according to the VAS

(\* - reliability of differences,  $p < 0.005$ )

Asthenic syndrome was detected in all examined patients in the form of severe weakness. Figure 2 shows the severity of asthenic syndrome in points (0 - no asthenia, 5 - severe asthenia).

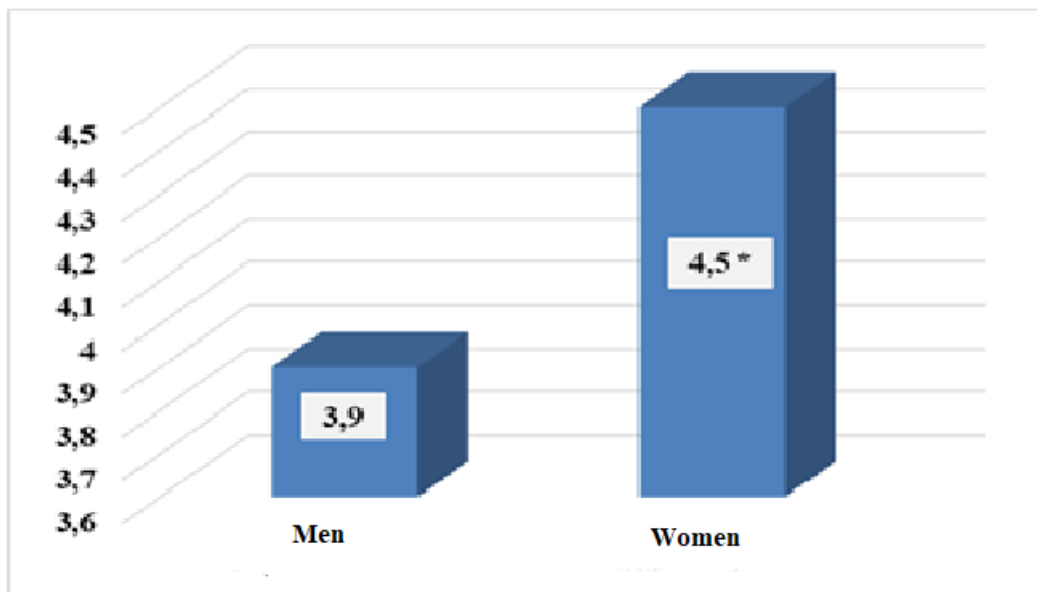


Figure 2 intensity of Asthenia on a five-point scale in points. (\* - reliability of differences,  $p < 0.005$ ).

Based on the literature data at the moment of knowledge about the pathogenesis of COVID-19, it can be assumed that damage to the nervous system in this disease can cause not only direct contact with the virus, but also immune inflammation, hypoxia and hypoxemia against the background of acute respiratory distress syndrome, as well as an increased tendency to thrombus formation and at the same time the risk of hemorrhage against the background of disseminated intravascular coagulation syndrome [1,3].

The structure of clinical manifestations in the acute period of the disease in the examined patients is shown in Table 3. As can be seen from this table, in general, patients more often had mild ARVI and pneumonia without acute respiratory failure (ARF). Mild ARVI and pneumonia without acute respiratory failure (ARF) were more common in men than in female patients. Women were more likely to have more severe manifestations of the disease - ARDS (pneumonia with ARF), sepsis, septic (infectious toxic) shock, disseminated intravascular coagulation syndrome, thrombosis and thromboembolism (Table 3).

Table 3

Structure of clinical manifestations COVID-19

Clinical variants and manifestations of COVID-19	Men, n=162		Women, n=118	
	n	%	n	%
1. VRI (Viral Respiratory Infections)	72	44,4%	45	38,1%
2. Pneumonia without respiratory failure	41	25,3%	27	22,9%
3. ARDS pneumonia from CHN	21	13,0%	21	17,8%
4. DIC syndrome	12	7,4%	11	9,3%
5. Thrombosis and thromboembolism	16	9,9%	14	11,9%

Note: ARf-acute respiratory failure.

ARDS-acute respiratory distress syndrome

In 62 patients with diagnosed pneumonia, the clinical picture was characterized by shortness of breath, varying degrees of severity, dry, exhausting cough, and weakness. The main clinical manifestations of the disease are presented in table 4.

In almost all of the 62 patients with lung involvement, the main complaint was dyspnea at rest and during exertion, and cough. At the same time, only 17.6% of people had a cough with sputum production.

Table 4

The main clinical manifestations of lung disease

Symptoms	Men, n=38	Women, n=24	r<
Shortness of breath, points	2,5±0,3	3,1±0,3	0,005
Cough, points	2,6±0,9*	3,1±0,7	0,001
Stupum, points	0,7±0,5	0,9±0,2	0,01

Table 4 shows that the level of dyspnea in females was higher than in men ( $3.1 \pm 0.3$  points versus  $2.5 \pm 0.3$  points, respectively), this indicates that women, due to their physiological parameters had less VC. The same situation was observed in terms of points as cough.

The SpO<sub>2</sub> level in group 1 was  $95.2 \pm 2.2\%$ , which was higher than the SpO<sub>2</sub> level in groups 2 and 3.  $95.7 \pm 1.0\%$ , after 6 months  $95.3 \pm 1.1\%$  Saturation level indicators are shown in Figure 3.

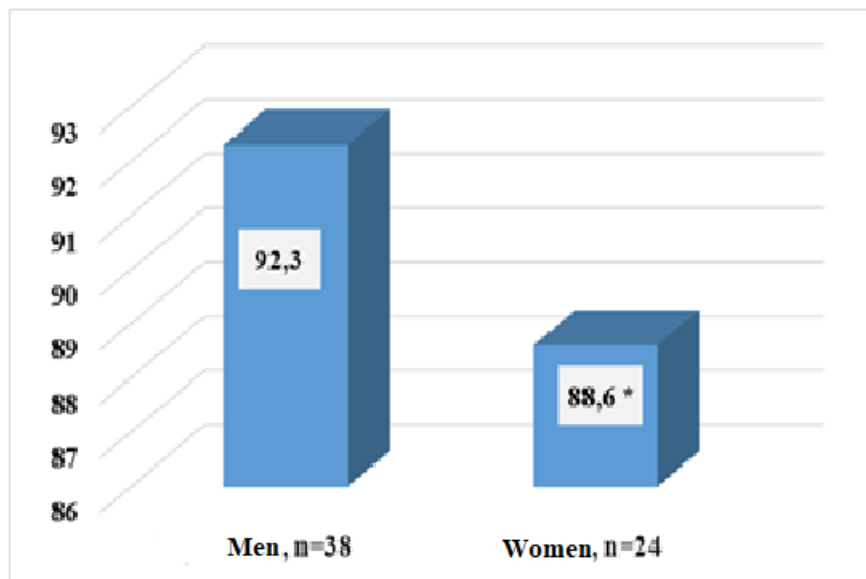


Figure 3.3 Saturation level in patients with lung disease

Depending on gender (\* - reliability of differences,  $p < 0.005$ )

On auscultation at the beginning of the study, hard breathing was heard in 18.3% of people, weakened breathing in 45.0% of people, dry wheezing was heard in 38.3% of people. Among male patients with dry wheezing there were 87.0%, among women - 83.9%.

### CONCLUSION

Thus, in the clinic, gender differences were revealed in the examined patients. Thus, in female patients, the intensity of headache was significantly greater than in men, 8.1 points against 6.2 points on the VAS, respectively. Among female patients, asthenia was more pronounced compared to male patients 4.5 points and 3.9 points, respectively. In men, mild ARVI and pneumonia without acute respiratory failure (ARF) were more common than in female patients. Women were more likely to have more severe manifestations of the disease - ARDS (pneumonia

with ARF), sepsis, septic (infectious toxic) shock, disseminated intravascular coagulation syndrome, thrombosis and thromboembolism.

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