

## THE SYMPTOM COMPLEX OF “POST-COVID SYNDROME”

**Khikmatillo Khamaevich Musulmonov**Student of 3<sup>rd</sup> of master degree, the department of  
Otorhinolaryngology and Dentistry**Khaydarova Gavkhar Saidakhmatovna**

Docent, Doctor of medical sciences

**Introduction:** The symptom complex that develops after the acute period of the disease is called “post-Covid syndrome”, and takes its place in the International Classification of Diseases, 10th revision - “Condition after COVID-19” (U09). Currently, post-Covid syndrome is defined as a symptom complex that developed during or after an illness caused by a new coronavirus infection, lasting more than 12 weeks and not resulting from an alternative diagnosis [2]. However, some patients who have had COVID-19 still have symptoms that are observed after 4 weeks. from the onset of the acute period of COVID-19 and affect the quality of life. A number of researchers distinguish post-acute COVID-19, dividing it [3]: 1) into subacute or ongoing symptomatic COVID-19, which includes symptoms lasting for 4–12 weeks. after acute COVID-19; 2) chronic or post-COVID-19 syndrome, lasting more than 12 weeks. from the onset of acute COVID-19 and not explained by an alternative diagnosis. Perhaps, in the case of clinical manifestations observed within 4–12 weeks, we are talking about residual effects after a viral infection that occur after the infectious process.

**Purpose of the research:** to study the frequency of various clinical manifestations in patients who have had COVID-19, depending on the period of time elapsed after the disease, the severity of the course and the presence of multimorbid pathology.

**Material and methods:** the study included 253 patients (187 women, 66 men) aged 18 to 85 years who had COVID-19. Depending on the severity of the disease during the acute period, patients were divided into 2 groups: Group 1 consisted of patients who had mild COVID-19 (n=133); Group 2 consisted of patients who had moderate to severe COVID-19 (n=120). Next, patients in each group were divided into 2 subgroups depending on the time elapsed after the acute period of COVID-19: in subgroup A, patients were examined for up to 3 months. (12 weeks) after the acute period of the disease, in subgroups B - after 3 months. (12 weeks) after the disease, i.e. from 3 months. up to a year after COVID-19. A multi-stage telephone survey was conducted among patients to identify the presence of symptoms, and outpatient records of patients who visited general practitioners or specialized specialists were also studied.

A multi-stage telephone survey of patients was conducted, and outpatient records of all those who contacted general practitioners or specialized specialists - cardiologists, pulmonologists, gastroenterologists, endocrinologists, etc. were studied. The survey was conducted using a questionnaire that included the following data: gender; age; time elapsed since coronavirus infection; diagnosis in the acute period of the disease; what method was used to confirm the diagnosis of coronavirus infection during the acute period; treatment provided (antiviral drugs, antibiotics, glucocorticosteroid hormones, anticoagulants); presence of comorbid pathology; patient complaints lasting up to 3 months. and more after illness, including complaints of general weakness, memory problems, headache, insomnia, shortness of breath, cough, chest pain, temperature, palpitations, increased blood pressure, heart pain, myalgia, arthralgia, problems with the liver, kidneys, alopecia, anosmia/dysgeusia, etc.

**Research results:** symptoms were detected both in patients from subgroup 1A (45/52 (86.5%)) and in patients from subgroup 2A (42/45 (93.3%)), i.e. they had no symptoms 7 (13.5%) and 3 (6.7%) patients, respectively. At follow-up after 3 months. after COVID-19, 34 (42%) patients from subgroup 1B and 13 (17.3%) patients from subgroup 2B were asymptomatic ( $p < 0.001$ ),

while at least 1 symptom persisted in 47/81 (58%) patients from subgroup 1B and in 62/75 (82%) patients from subgroup 2B. The most common symptoms observed in patients from both groups were general weakness, shortness of breath, and cough. In patients from group 2, consequences of damage to the central nervous system, cardiovascular system, and arthralgia were also common. Comorbid pathology was statistically significantly more often observed in patients from group 2 ( $p < 0.01$ ).

**Table 1. Number of patients without COVID-19 symptoms or with the presence of COVID-19 symptoms in various time periods after illness, depending on the disease severity, n (%)**

Number of symptoms	Group 1 (n=133)		Group 2 (n=120)	
	Subgroup 1A (n=52)	Subgroup 1B (n=81)	Subgroup 2A (n=45)	Subgroup 2B (n=75)
No symptoms	7(13,5)	34(42)	3(6,7)	13(17,3) **
1 symptom	22(42,3)	18(22,2)	7(15,6) *	19(25,3)
2 symptoms	10(19,2)	11(13,6)	11(24,4)	17(22,7)
3 and more symptoms	13(25)	18(22,2)	24(53,3) *	26(34,7)

Note. \* -  $p < 0.01$ , when compared with the value in the group 1; \*\* -  $p < 0.001$ , when compared with the value in the group 1

**Table 2. Most frequent symptoms experienced by COVID-19 survivors in different time points of follow-up, n (%)**

Clinical symptom	Group 1 (n=133)		Group 2 (n=120)	
	Subgroup 1A (n=52)	Subgroup 1B (n=81)	Subgroup 2A (n=45)	Subgroup 2B (n=75)
Fatigue	22(42,3)	32(39,5)	34(75,6) **	48(64)
Cognitive disorders	4(7,7)	11(13,6)	16(35,6) **	13(17,3) +
Headache	2(3,8)	5(6,2)	9(20) *	7(9,3)
Insomnia	3(5,8)	3(3,7)	7(15,6)	8(10,7)
Shortness of breath	8(15,4)	9(11,1)	23(51,1) **	24(32)
Cough	8(15,4)	28(9,9)	15(33,3)	16(21,3)
Fever	3(5,8)	7(8,6)	4(8,9)	6(8)
Arterial hypertension	3(5,8)	6(7,4)	7(15,6)	5(5,9)
Tachycardia	4(7,7)	2(2,5)	11(24,4) *	14(18,7)
Arthralgia	3(5,8)	9(11,1)	8(17,8)	15(20)
Liver disorder	0	3(3,7)	1(2,2)	2(2,7)
Intestinal disorder	1(1,9)	4(4,9)	2(4,4)	0
Kidney disorder	0	1(1,2)	2(4,4)	1(1,3)
Anosmia/Dysgeusia	4(7,7)	9(11,1)	3(6,7)	6(8)

<b>Alopecia</b>	3(5,8)	1(1,2)	4(8,9)	2(2,7)
<b>Other symptoms</b>	1(1,9)	0	2(4,4)	1(1,3)

Note. + -  $p < 0.05$ , when compared with the value of subgroup 2A patients; \* -  $p < 0.05$ , when when compared with the value of subgroup 1A patients; \*\* -  $p < 0.001$ , when when compared with the value of subgroup 1A patients.

**Conclusions:** the development of post-Covid syndrome does not depend on the severity of the coronavirus infection in the acute period and can be observed in both mild, moderate and severe cases, however, the number of symptoms in the latter case is more numerous. After recovery from COVID-19, the central nervous system, bronchopulmonary and cardiovascular systems are most often affected. Comorbid pathology determines the severity of coronavirus infection in the acute period. Patients who have had coronavirus infection, as in the first 3 months. after an acute period, they continue to need observation from specialists in various fields to fully restore health and improve the quality of life.

#### BIBLIOGRAPHY:

1. Klitzman R.L. Needs to Prepare for "Post-COVID-19 Syndrome". *Am J Bioeth.* 2020;20(11):4–6. DOI: 10.1080/15265161.2020.1820755.
2. National Institute for Health and Care Excellence. COVID-19 rapid guideline: managing the long-term effects of COVID-19. (Electronic resource.) URL: <https://www.nice.org.uk/guidance/ng188> (access date: 20.11.2021).
3. Nalbandian A., Sehgal K., Gupta A. et al. Post-acute COVID-19 syndrome. *Nat Med.* 2021;27(4):601–615. DOI: 10.1038/s41591-021-01283-z.
4. Amenta E.M., Spallone A., Rodriguez-Barradas M.C. et al. Post-acute COVID-19: an overview and approach to classification. *Open Forum Infect Dis.* 2020;7(12):ofaa509. DOI: 10.1093/ofid/ofaa509.
5. Arnold D.T., Hamilton F.W., Milne A. et al. Patient outcomes after hospitalisation with COVID-19 and implications for follow-up: results from a prospective UK cohort. *Thorax.* 2021;76:399–401. DOI: 10.1136/thoraxjnl-2020-216086.
6. Chopra V., Flanders S.A., O'Malley M. et al. Sixty-Day Outcomes Among Patients Hospitalized With COVID-19. *Ann Intern Med.* 2021;174(4):576–578. DOI: 10.7326/M20-5661.
7. Halpin S.J., McIvor C., Whyatt G. et al Postdischarge symptoms and rehabilitation needs in survivors of COVID-19 infection: A cross-sectional evaluation. *J Med Virol.* 2021;93(2):1013–1022. DOI: 10.1002/jmv.26368.
8. Moreno-Pérez O., Merino E., Leon-Ramirez J-M. et al. Post-acute COVID-19 Syndrome incidence and risk factors: a Mediterranean cohort study. *J Infect.* 2021;82(3):378–383. DOI: 10.1016/j.jinf.2021.01.004.
9. Willi S., Lüthold R., Hunt A. et al. COVID-19 sequelae in adults aged less than 50 years: a systematic review. *Travel Med Infect Dis.* 2021; 40:101995. DOI: 10.1016/j.tmaid.2021.101995.
10. Carfi A., Bernabei R., Landi F.; Gemelli Against COVID-19 Post-Acute Care Study Group. Persistent Symptoms in Patients After Acute COVID-19. *JAMA.* 2020;324(6):603–605. DOI: 10.1001/jama.2020.12603.
11. Carvalho-Schneider C., Laurent E., Lemaigen A. Follow-up of adults with noncritical COVID-19 two months after symptom onset. *Clin Microbiol Infect.* 2021;27(2):258–263. DOI: 10.1016/j.cmi.2020.09.052.
12. Pavli A., Theodoridou M., Maltezou H.C. Post-COVID syndrome: Incidence, clinical spectrum, and challenges for primary healthcare professionals. *Arch Med Res.* 2021;52(6):575–581. DOI: 10.1016/j.arcmed.2021.03.010.
13. Козлов И.А., Тюрин И.Н. Cardiovascular complications of COVID-19. *Bulletin of anesthesiology and resuscitation.* 2020;17(4):14–22. DOI: 10.21292/2078-5658-2020-17-4-14-

22. [Kozlov I.A., Tyurin I.N. Cardiovascular complications of COVID-19. *Messenger of Anesthesiology and Resuscitation*. 2020;17(4):14–22 (in Russ.)]. DOI: 10.21292/2078-5658-2020-17-4-14-22.
14. Смирнова Е.А., Седых Е.В. Acute decompensation of heart failure: current issues of epidemiology, diagnosis, therapy. *Science of the young (Eruditio Juvenium)*. 2021;9(2):289–300. DOI: 10.23888/HMJ202192289-300. [Smirnova E.A., Sedykh E.V. Acute decompensation of heart failure: current issues of epidemiology, diagnostics, therapy. *Science of the young (Eruditio Juvenium)*. 2021; 9(2):289–300 (in Russ.)]. DOI: 10.23888/HMJ202192289-300.
15. Aghagoli G., Gallo Marin B., Soliman L.B., Sellke F.W. Cardiac involvement in COVID-19 patients: Risk factors, predictors, and complications: A review. *J Card Surg*. 2020;35(6):1302–1305. DOI: 10.1111/jocs.14538.