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Fund “Nauka” Project № 22006 Resume – Competition-based Session 2022:

“Clinical manifestations, functional disorders and computed tomography findings in long COVID-19”

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On 11.03. 2020 the WHO has declared a global pandemic of COVID-19. It has caused more than 777 million confirmed cases and more than 7 million deaths. The consequences of the disease may continue long after the acute phase. A number of studies have shown that a significant proportion of patients with COVID-19 have symptoms long after the acute phase of the infection, defined as long COVID-19. About 10% of patients develop long-term symptoms, varying in severity, involving different organs and systems, and often affecting the patients' quality of life. Life-threatening complications can occur at any stage of the disease. At least 65 million people around the world suffer from long COVID, and the numbers are likely to be much higher due to many unreported cases. Over 200 symptoms from various organs and systems have been described. The manifestations of long COVID are a subject of increased scientific interest worldwide.

Aim of the study: to determine the clinical manifestations of long COVID, functional disorders of the respiratory system and computer tomography findings.

Object of the study: 26 patients who were hospitalized at the University Hospital “St. Marina” with manifestations of severe COVID-19.

Methods: On average 20 months after the acute phase, the patients underwent a clinical examination, completed a questionnaire for the presence of symptoms and a questionnaire for quality of life SF-36, functional studies of the respiratory system were performed – spirometry and determination of diffusion capacity, and a computed tomography of the chest was performed.

Results:

- The most common late symptoms were: fatigue – 17 patients (65.4%), brain fog – 13 patients (50%), weight gain – 12 patients (46.2%), followed by dispnea, joint pain and insomnia. 20 patients (76.9%) had more than one symptom with mean number of symptoms 4.8;
- The number of symptoms correlated with: oxygen saturation – 0.499 (p=0.010); with the highest D-dimer: + 0.463 (p=0.020), with the initial ferritin: – 0.396 (p=0.045), and with BMI: + 0.492 (p=0.013). The more severe respiratory failure and higher inflammatory markers and BMI may serve as predictors of long COVID-19;
- A high frequency of functional disturbances was found. Abnormal spirometry was found in 4 patients (15.4%), as restrictive pattern is more common – 3 patients

(11.5%). 16 patients (61.5%) had a decrease in diffusion capacity with an average value of 71.17%. No significant correlations were found between the number of symptoms and functional tests;

- The frequency and character of CT findings in long-term COVID-19 have been established. 21 patients (80.8) had CT changes with the most common finding reticulations – 20 patients (76.9%), followed by bronchiectasis/ bronchioloectasis – 16 patients (61.5%), subpleural lines – 10 patients (38.5%) and ground glass opacities – 7 patients (26.9%). Overall, CT findings are mild to moderate;
- Using the SF-36 questionnaire, the quality of life of the patients was determined, and it was found that long COVID affected predominantly the energy and general health domains.

The present study covers the problem of long COVID in its various aspects (symptoms, functional and imaging disorders), as well as their long-term impact on the quality of life of patients. The long-term manifestations of long COVID have yet to be fully revealed.