

# Infectious complications of the respiratory tract and lungs in patients with post-COVID syndrome

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**Conflict of interest:** none

**BACKGROUND.** The mechanism of development of post-COVID syndrome is not fully understood. Long-term retention of complaints in patients is associated with long-term persistence of the virus, hyperinflammatory response of the body, as well as with the peculiarities of the patient’s cellular and humoral immunity. Secondary infectious complications in the post-COVID period are due not only to the ability of the SARS-CoV-2 virus to damage erythrocytes and attack the red bone marrow in the acute phase of the disease. It has been proven that the SARS-CoV-2 virus leads to the disappearance of white pulp cells in the spleen, the tissue where cells of the immune response, in particular T- and B-lymphocytes responsible for infectious immunity, mature.

**OBJECTIVE.** To investigate the frequency of secondary infectious complications of the respiratory tract and lungs in patients with post-COVID syndrome who underwent inpatient treatment.

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**MATERIALS AND METHODS.** Clinical, laboratory and radiological data of 90 patients with post-COVID syndrome who were undergoing inpatient treatment in the clinical departments of the SI “National institute of phthisiology and pulmonology named after F.G. Yanovsky of the NAMS of Ukraine”. The diagnosis of coronavirus disease (COVID-19) was established in accordance with the current national protocol for the treatment. Computed tomography (CT) of the chest organs was performed on the Aquilion TSX-101A scanner (Toshiba, Japan).

**RESULTS AND DISCUSSION.** Complications of COVID-19 were determined according to the clinical and functional, laboratory examination and CT scan of the chest. Some patients had two or more complications at the same time. Patients with post-COVID syndrome were most often hospitalized for progression or slight positive dynamics of the pathological process of the respiratory tract and lungs, disappearing lung syndrome, fibrotic changes in the lungs, exacerbation of broncho-obstructive lung diseases and infectious complications. The latter were observed most often – in 53,3 % of patients. Fungal and bacterial complications occurred secondarily, mainly in patients with disappearing lung syndrome, in places where cyst-like cavities were formed. The most common concomitant diseases in patients with post-COVID syndrome were cardiovascular diseases and diabetes.

**CONCLUSIONS.** The proportion of infectious complications of the respiratory tract and lungs in patients with post-COVID syndrome, who are indicated for inpatient treatment in the pulmonology department, is 53.3 %. The most frequent causes of infectious complications of the respiratory tract and lungs in patients with post-COVID syndrome are the reactivation of the Epstein – Barr virus infection – in 30.0 %, which in 2.2 % of patients is combined with the reactivation of the hepatitis C virus, and bacterial infections – in 15.6 %. Aspergillosis and mucormycosis occur in 1.1 and 3.3 % of patients respectively.

**KEY WORDS:** COVID-19, SARS-CoV-2, diagnostics, post-COVID syndrome, infectious complications, computed tomography.