

STATE OF SPECIFIC IMMUNITY IN COVID-19 PATIENTS TREATED IN AMBULATORY CONDITIONS

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Relevance: The COVID-19 pandemic caused by the SARS-CoV-2 coronavirus poses a threat to human health around the world. Great hopes in the fight against the disease are now pinned on the production of specific antibodies. Meanwhile, their characteristics and relationship with the clinical manifestations of COVID-19, the relationship with the detection of SARS-CoV-2 RNA has not yet been well studied. (FanWu, AojieWang, MeiLiu, QiminWang, JunChen, ShuaiXia, YunLing, YulingZhang, JingnaXun, LuLu, Shibojiang, HongzhouLu, YumeiWen, JingheHuang) «Neutralizing antibodies to SARS-CoV-2 in recovered COVID-19 patients»).

The aim of work. To study the state of specific immunity in patients with COVID-19 treated on an outpatient basis.

Materials and methods. 720 people who have had COVID-19 on an outpatient basis (in a primary health care setting). After signing an informed consent for the study, venous blood was taken to determine specific antibodies to SARS-CoV-2 (JgM and JgG) by enzyme-linked immunosorbent assay (ELISA). For descriptive analysis of the data, frequencies,%, arithmetic mean were used.

This study was carried out in the laboratory of the INVITRO + polyclinic in Semey. The work was carried out within the framework of the project of the Akim of the East Kazakhstan region "Epidemiology in the region and the state of specific immunity to SARS-CoV-2 in the population of the East Kazakhstan region during the COVID-19 pandemic".

Results.

Among the surveyed, 73.9% were female patients, respectively, men - 26.1%. At the same time, persons under 44 years old made up 66%, from 44 to 60 years old - 34%. According to the clinical protocol for the diagnosis and treatment of COVID-19 in the Republic of Kazakhstan, patients with asymptomatic and mild forms, as well as with moderate severity (in the absence of comorbid conditions), receive therapy at the outpatient level. Among the examined patients with asymptomatic forms accounted for 27.4%, with a mild form - 32.6% and with a moderate form - 40%. In all patients, the diagnosis of COVID-19 was confirmed by the detection of SARS-CoV-2 RNA in a nasopharyngeal smear by PCR.

A study for the presence of class M and G antibodies to SARS-CoV-2 in the serum of patients showed their absence in 14.8%, anti-SARS-CoV-2 Jg M and G were found in 41.3%, and in 43.9% - JgG only.

The examination of persons who did not develop antibodies (14.8%) was carried out early, on average 11-15 days from the onset of the disease. Among individuals with negative antibodies (14.8%), asymptomatic forms were in 9.9%, while mild and moderate forms were in 4.2% and 0.7%, respectively. In dynamics, after 2 months, re-determination for the presence of antibodies to SARS-CoV-2 showed the presence of JgG in all individuals with mild and moderate severity and in 5.6% with asymptomatic forms.

The concentration of class G antibodies to SARS-CoV-2 (positive result - optical density above 0.231) was in asymptomatic forms: up to 1.5 - in 23.5%, from 1.5 to 3.0 - in 10.2% and above 3.0 - 66.3%; in milder forms: up to 1.5 - in 13.6%, from 1.5 to 3.0 - in 15.3% and more than 3.0 - in 71.1%; with moderate forms: up to 1.5 - in 7.6%, 1.5 - 3.0 - in 4.9% and more than 3.0 - in 87.5%.



The average concentration of class G antibodies in persons under 44 years old was 3.174, in patients over 44 years old - 3.168.

In 27.8% of individuals with positive anti-SARS-CoV-2 JgG, the JgG concentration was re-measured after 2 months. In the dynamics of 27.8% of patients, 20.9% of the concentration of antibodies was determined at the same level, and 6.9% showed their increase.

Conclusions:

1. In the first month of the disease, antibodies to SARS-CoV-2 were not detected in 14.8% of patients, after 2 months - only in 0.4%.
2. The concentration of JgG to SARS-CoV-2 depends on the clinical form of COVID-19 and does not depend on age.
3. Antibody levels are maintained for at least 6 months.