INHALED CORTICOSTEROIDS IN THE TREATMENT OF PATIENTS WITH COVID-19

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Abstract. Theoretically, patients with bronchial asthma (BA) should have an increased susceptibility to SARS-CoV-2 infection, its more severe course and a high risk of exacerbation of asthma due to a lack of antiviral protection. However, a number of studies have shown that asthma not only does not cause a severe course of new coronavirus infection, but can also have a certain protective effect. Thus, people with asthma have a lower susceptibility to COVID-19, a less severe course and a lower risk of hospitalization due to COVID-19. But more recent reports from the United States, several European countries, including the United Kingdom, and South Korea report a higher prevalence of asthma in patients with COVID-19, and suggest that asthma is more common in patients with COVID-19 than in other patients. A joint study by OpenSAFELY (UK) noted a significant increase in the risk of severe COVID-19 disease and mortality among patients with asthma, especially those with recent illnesses who required oral corticosteroids. Therefore, further research is needed in this direction to improve our understanding of the relationship between asthma and the severity of COVID-19. At present, however, it seems logical to include patients with asthma in the risk groups for COVID-19. Experts from international asthma groups stress that in a COVID-19 pandemic, patients with asthma should continue to receive basic therapy, including inhaled corticosteroids (ICS). There is also evidence that allergic asthma or its eosinophilic phenotype, taking ICS have a positive effect on the course of COVID-19, because in such patients the level of expression of angiotensin-converting enzyme 2 (ACE-2) in the upper and lower respiratory tract, which is the entrance receptors for SARS-CoV-2 virus is lower. ICS, such as budesonide or ciclesonide, are able to inhibit the replication of SARS-CoV-2 genomic RNA through exposure to viral endonuclease NSP15 and TMPRSS-2 (serine 2 transmembrane protease), a protease involved in the virus entry into the cell. Some ICS (including budesonide) reduce or block SARS-CoV-2 replication *in vitro*. And according to the results of current studies, the appointment of ICS, in particular budesonide, in patients with COVID-19 reduces the risk of hospitalization or the need for emergency care by 91 % and significantly accelerates clinical recovery. Unfortunately, there are currently no specific etiotropic therapies for SARS-CoV-2 infection, but physicians should use all potential measures to reduce the risk of severe disease. One of such measures is the use of ICS, which may be promising drugs for COVID-19. However, this issue needs further study.

Key words: inhaled corticosteroids, COVID-19, bronchial asthma.

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