Viral load as a marker of the risk of severe course and progression of COVID-19: a review

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BACKGROUND. Clinical course of coronavirus disease (COVID-19) in patients infected by SARS-CoV-2 varies from the absolute absence of symptoms to the extremely severe viral pneumonias with the development of acute respiratory distress syndrome. In this context, investigation of the peculiarities of disease course in dependence of viral load (VL) is very interesting.
OBJECTIVE. The aim of this paper is to analyze the results of novel clinical studies, dedicated to VL estimation in different biological specimens and its correlation with the severity of COVID-19 clinical course.
RESULTS AND DISCUSSION. During the first months of 2020 there were published some scientific studies, which analyzed the association between VL and the severity of COVID-19 clinical course. It was established that VL was high at the beginning of the disease; in the sputum its value was higher than in throat and nasal swabs. In comparison to the mild course of COVID-19, severe course is characterized by higher VL and longer release of the virus into the environment. Apart from that, high VL is associated with the significant increase of proinflammatory cytokines' levels, risk of disease progress and unfavorable prognosis.
CONCLUSIONS. VL can be considered a risk factor and the predictor of severe course of COVID-19. Measures, aimed at the effective decrease of VL on each stage of the disease, and the improvement of antiepidemic control must help to optimize the treatment and prevent the spread of infection.

KEY WORDS: coronavirus disease, COVID-19, SARS-CoV-2, viral load, course severity, progress.