



Correlation of clinical severity criteria of coronavirus infection with laboratory changes in patients vaccinated against Covid 19

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ABSTRACT

The pandemic caused by coronavirus infection remains one of the major health problems and poses a serious threat to the entire planet. Currently, active vaccination against the new type of coronavirus infection continues in the Russian Federation, as in all countries. Vaccination is an important component of a comprehensive program for the prevention and control of COVID-19. Mass vaccination of the population can prevent both access to care and hospitalization in high-incidence settings with COVID-19, thereby reducing the burden on the health care system. Despite the ongoing challenges in the fight against the pandemic caused by SARS-[^]V-2, to date vaccination is the most effective way to protect against this infection. In the context of the urgent approval of the use of vaccines against the new coronavirus infection, the changing epidemiological situation and the wide variety of different types of vaccines used, clinical trials of the effectiveness of various preventive vaccines in different regions of the world are very large. according to As the pandemic progresses, all countries will need to address new challenges, such as the weakening of vaccine protection, the emergence of new strains of SARS-CoV-2, and the need for other preventive measures to prevent disease. will need updated information. the impact of the pandemic.

Keywords:

Coronavirus infection, COVID-19, vaccination, peptide vaccine, prevention Efficacy and safety of immunization with peptide vaccine to prevent infection with COVID-19: a prospective study in healthcare workers. Contemporary questions of pediatrics.

COVID-19 is a spherical enveloped virus with three structural proteins in its lipid bilayer: a spike glycoprotein, a membrane protein, and an envelope protein. The nucleocapsid protein is associated with the viral RNA genome in a membrane protein complex. SARS-CoV-2 affects many organs. The role of the SARS-CoV-2 receptor is performed by type 2 angiotensin-converting ACE2 receptors expressed by tissue cells of various organs and systems - lungs, intestines, kidneys, blood vessels, as well as the oral cavity. mucosa. This explains the multidirectional effect of the virus and the fact that the immune inflammation induced by it

affects different target organs (not just the lungs).It also explains the wide range of possible scenarios of the new coronavirus disease, from completely asymptomatic carriage to a severe course with damage to various organs and systems and death.

Characteristics of an individual's genome contribute to susceptibility and response to viral infection. The results of an international collaboration of a global network of researchers studying the role of human genetics in the pathogenesis of COVID-19 infection and the severity of COVID-19 allowed the identification of 13 important genomics.

Loci associated with increased susceptibility to infection with COVID-19 or severe manifestations of COVID-19. Some of these loci correspond to previously documented associations with mild or autoimmune and inflammatory diseases. One of these overlaps with SLC6A20, which encodes an amino acid transporter that interacts with ACE2 and is associated with susceptibility to COVID-19. Mendelian randomization analysis confirms causal role of smoking and body mass index (BMI) with severe COVID-19 but not type 2 diabetes

The lack of correlation between the level of neutralizing antibodies and the severity of the disease may indicate an underestimated effect of cellular immunity, and the rapid disappearance of antibodies within 2-4 months after the end of the disease indicates the need for vaccination. highlights, including. those who are sick. We must not forget that not all antibodies play the role of neutralization. Furthermore, in this issue, as well as in discussions of other aspects of COVID-19, age-sex, inter-ethnic, and inter-racial differences, including individuals with different BMIs and smoking status, are evident [6].

Risk factors for severe COVID-19, hospitalization, and death are age, male gender, and high risk of death due to COVID-19. evaluated the factors. Diabetes mellitus is recognized as the greatest risk factor for the rapid development and poor prognosis of COVID-19. One important mechanism of this phenomenon is chronic inflammation, which may contribute to the cytokine storm that causes severe cases of pneumonia in COVID-19 and the death of patients. Some of the most frequently elevated markers of chronic inflammation are biomarkers such as interleukin-6 (IL-6), C-reactive protein, ferritin, coagulation index, and serum D-dimer.

This pandemic has created an urgent task for public health in all countries of the world - the task of creating effective therapeutic and preventive measures against the new coronavirus infection. The whole world was eagerly waiting for effective protection against the new coronavirus infection in the form of modern vaccines.

On January 12, 2021, development began from the first days of the discovery of the genome of the SARS-CoV-2 pathogen, and a few months later, depending on the innovative and production capabilities, the first release of preventive vaccines from country to country began. . At the time of writing, 10 vaccines with proven safety and efficacy have been approved for use by the World Health Organization (WHO) and are on the Emergency Use Listing (EUL), and 33 more vaccines have been received. approval of emergency use by national regulatory authorities in various countries of the world. Currently, 17.5 billion doses of the COVID-19 vaccine have been administered worldwide [11]. Various types of vaccines are actively used: vector vaccines, mRNA-based vaccines, activated and peptide vaccines, etc.

In November 2020, the European Technical Advisory Board on Immunization created a roadmap to identify priority populations for vaccination against COVID-19. The goals of this strategy are to directly reduce morbidity and mortality from COVID-19 and reduce the spread of infection, and to ensure the functioning of health authorities and other life support services. Populations at significantly higher risk of severe illness and death, as well as workers in certain occupations at higher risk of contracting and spreading COVID-19, have become priorities for prevention in the face of vaccine shortages. First of all, elderly people should be vaccinated 60 years and older; employees of medical, educational organizations, social services and multi-functional centers; patients with chronic diseases, including diseases of the bronchopulmonary system, cardiovascular diseases, diabetes mellitus and obesity. The COVID-19 Severe Risk Stratification Tool in Vaccinated Populations identifies patients at high risk of insufficient vaccine efficacy to adjust the vaccination schedule and highlights the particular importance of additional safety measures in high-risk settings. Outbreak of SARS-CoV-2. Strategies such as prioritizing timely booster vaccinations and special infection control measures should be considered for high-risk individuals. Research is also needed on how to boost vaccine immunity in people at high risk for SARS-CoV-2

infection. In addition, special attention should be paid to physical distance and other personal protection measures in the post-vaccination period. The high safety profile of the peptide vaccine demonstrated during the study is characterized by short-term, moderate pain at the injection site, less fever, and the absence of serious adverse events. Good tolerance is also characteristic of the elderly, patients suffering from chronic pathology, high risk of infection, and patients with a severe course of COVID-19.

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