NEW CORONAVIRUS INFECTION COVID-2019. ETIOLOGY AND PATHOGENESIS. EPIDEMIOLOGICAL CHARACTERISTICS

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Introduction: the most pressing medical problem today is COVID-19. The infection was first detected in Wuhan, Hubei province, China, on December 31, 2019. To date, 53.7 million people have been infected worldwide, of which 1.31 million have died. Coronavirus infection has spread to all continents of the world, capturing the world's leading countries such as the United States, Canada, France, Germany, Japan, Russia, India, Republic of Korea, Ukraine, Vietnam, Malaysia, Nepal, Taiwan, Singapore, Australia. The leader in the number of cases and deaths is the United States.

The purpose of the study: to analyze the currently available information about the pathogen and characterize the epidemiological situation.

Materials and methods: In the course of our work, we have processed and analyzed domestic and foreign literature sources and statistical data related to this topic.

Results: Covid-2019 is a single-stranded RNA virus belonging to the Coronaviridae family, the beta-Cov B lineage. The genome is packed inside a helical capsid created by the nucleocapsid protein (P) and surrounded by a shell. Three structural proteins are associated with the viral envelope: membrane protein (M), envelope protein (E), and Spike protein (S). On February 11, 2020, the World Health Organization assigned the official name of the infection caused by the new coronavirus—COVID-19 ("coronavirus disease 2019") [1]. On February 11, 2020, the International Committee on virus taxonomy gave its own name to the causative agent of COVID-19 infection—SARS-CoV-2 [1].

The mechanism of transmission of the virus is aerogenic, contact, fecal-oral. The probability of a transplacental pathway is currently being clarified by researchers. Nutrition about how easily this virus is transmitted from person to person is still being studied. It is known that symptomatic, as well as asymptomatic and pre-symptomatic patients can be the source of the virus [2].

Nowadays the pathogenetic mechanisms of the development of coronavirus infection have not been sufficiently studied. The entrance gate for infection is the mucous membrane of the upper respiratory tract. Then there is reproduction in the epithelium of the upper and lower respiratory tracts, diffuse damage to alveolocytes. The severe acute respiratory syndrome (SARS) develops, and the virus causes
increased permeability of cell membranes and increased transport of albumin-rich fluid into the interstitial lung tissue and alveolar lumen-interstitial and alveolar edema develops. At the same time, the surfactant is starting to destroy, which leads to the collapse of the alveoli, and as a result of a sharp violation of gas exchange, acute respiratory distress syndrome develops (40% mortality). With the fecal-oral mechanism of transmission, the disease manifests itself in the form of damage to the gastrointestinal tract, the virus multiplies in intestinal enterocytes. The disease is accompanied by the synthesis of antibodies that do not guarantee protection against re-infection.

Clinical manifestations in people with COVID-19 are insignificant or may even be completely absent, although some of them become seriously ill and die. Symptoms may include fever, cough, breathlessness, chills or recurring bouts of shivering with chills, fatigue, myalgia, headache, sore throat, loss of smell or taste, congestion or runny nose, nausea, vomiting, and diarrhea. According to the latest data, the incubation period varies from 2 to 14 days, on average, it is 5 days. Most of the infected people do not show any symptoms or signs of the disease. The risk of serious illness and death increases with age, as well as in people with pre-existing serious disorders, such as heart, lung, kidney, or liver disease, diabetes, immunodeficiency, or severe obesity (body mass index greater than 40). The severe form of the disease is characterized by shortness of breath, hypoxia and extensive lung damage. It can progress to respiratory failure requiring artificial ventilation, shock, multiple organ failure, and death. In addition to the above symptoms, COVID-19 infection can lead to complications such as arrhythmias, cardiomyopathy, acute heart failure, and coagulation disorders, including thromboembolism, pulmonary embolism, DIC, hemorrhage, and arterial clot formation.

**Conclusion:**
The COVID-19 pandemic has already gone down in history as an international emergency. Despite the massive spread of the virus, the number of recovered patients is growing, which indicates the performers of prevention and treatment measures. Studying the features of coronavirus makes it possible to develop effective treatment, prevention of infection and ensuring the biological safety of the population. One thing is clear: new antigens will appear, this is an unknown part of the evolution of the extracellular life form. Humanity must learn to resist these threats.

**References:**