FEATURES OF LIVER DAMAGE IN COVID-19 INFECTION

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In the context of the COVID-19 pandemic, studying the peculiarities of organ and system damage in patients is of utmost importance. Currently, COVID-19 is considered a systemic disease that disrupts the immune system and primarily affects the lungs, as well as the heart, kidneys, and intestines. Severe cases are characterized by hyperimmune inflammation, renin-angiotensin-aldosterone system imbalance, endothelial dysfunction, and specific vasculopathies such as thrombotic microangiopathy and intravascular coagulopathy. This condition, referred to by some experts as a thromboinflammatory process or COVID-19-associated coagulopathy, represents a critical area of research [1,2].

Liver dysfunction in patients with COVID-19 may result from the hepatotropic effects of the virus or other factors, including systemic inflammatory response, hypoxia (associated with lung damage), multiorgan failure, microcirculation disturbances, and the use of hepatotoxic medications [3]. SARS-CoV-2's direct action can damage liver cells, as evidenced by the increased expression of ACE2 receptors in cholangiocytes [4]. Elevated transaminase levels (usually two times the normal range) have been observed in 43–57% of COVID-19 patients. Furthermore, transaminase levels may increase during treatment with lopinavir and ritonavir but typically normalize after discontinuation, potentially indicating reactive hepatitis.

Studies have shown that elevated alanine aminotransferase (ALT) levels, reduced platelet counts, and low serum albumin levels upon hospital admission are associated with higher mortality rates. As of March 10, 2020, seven relatively large-scale studies reported clinical characteristics of COVID-19 patients with liver damage [5]. These studies identified increased ALT and aspartate aminotransferase (AST) levels in 14–53% of patients, indicating liver dysfunction.

One of the liver's critical functions is detoxification, including the metabolism of medications. Treatments such as hydroxychloroquine, antibiotics, and antiviral drugs can exacerbate liver damage due to their potential hepatotoxicity.

Thus, the mechanisms of SARS-CoV-2's hepatotropic effects and the indirect impact of autoimmune inflammation on the liver remain poorly understood. All patients who have recovered from COVID-19 require ongoing monitoring to assess the long-term consequences for liver function.

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