Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to the Editor

Acute hepatitis caused by asymptomatic COVID-19 infection

Dear Editor,

Coronavirus disease (COVID-19) is a novel enveloped RNA betacoronavirus that emerged from Wuhan, China, in December 2019 and rapidly spread across Europe, USA and South America, becoming a worldwide pandemic affecting more than 25 million people.[1–3] The most common clinical presentation included mainly respiratory symptoms such as shortness of breath, dyspnea, fever and cough, associated with radiological findings consistent with interstitial pneumonia.[4] At the moment, there are no antiviral drugs of proven efficacy against COVID-19 and supportive therapy is the only method for the management of symptomatic subjects, many of whom require mechanical ventilation and other intensive care services. Acute liver injury at admission is a quite common finding in subjects affected by COVID-19 pneumonia[5]; although the elevation of aminotransferases is usually mild, it seems associated with disease severity. In particular, it has been demonstrated that SARS-CoV-2 infection in the liver directly contributes to hepatic impairment in patients with COVID-19 pneumonia.[6] A meta-analysis recently published into your Journal by Kunutsor and Laukkanen[7] assessed that liver enzyme abnormalities, acute hepatic injuries and hypoproteinaemia are frequent hepatic complication among patients hospitalized for COVID-19 pneumonia. Further, patients with pre-existing hepatic diseases appear to have worse outcome of COVID-19 pneumonia. Nevertheless, no data are available on liver enzyme abnormalities in asymptomatic subjects with COVID-19 infection. We report here the case of a young woman diagnosed with COVID-19 infection in absence of respiratory symptoms, presenting at the admission with significant elevation of liver function tests compatible with acute hepatitis.

A 30-years old woman was admitted at the emergency department for mild fever, anosmia and dysgeusia from 10 days. She denied cough, sore throat, shortness of breath, diarrhea, nausea, vomiting, or abdominal pain. Her parents and an uncle were diagnosed positive for COVID-19 infection in the previous three days. She did not have any chronic disease and she was not taking any drug at the time of admission. A nasopharyngeal swab was promptly done and RT-PCR resulted positive for COVID-19 infection. Chest X-ray did not show findings compatible with interstitial pneumonia; arterial oxygen saturation was 99% on room air. On presentation, her temperature was 36 °C. There were no cutaneous manifestations, her lung examination was normal, and there was no jaundice, right upper quadrant tenderness, hepatomegaly, or splenomegaly. Laboratory results were as follows: AST 1531 IU/L (normal value < 35), ALT 893 IU/L (normal < 36), serum bilirubin 1.02 mg/dL (normal < 1.2), alkaline phosphatase 106 IU/L (normal 33–98), INR 1, gammaglutamiltransferase 1276 IU/L (normal < 40), white blood cells 4070 cells/mm^3 (normal 4000–10,000), platelets 152,000 cells/mm^3 (normal 150,000–450,000). She denied recent intake of reliever drugs as paracetamol or antibiotics in the previous weeks. The abdominal ultrasound did not show significant abnormalities of liver, gallbladder, kidneys, spleen, pancreas and abdominal vessels. The following serological tests were performed and all were negative: hepatitis A, B, C, E, *Cytomegalovirus*, Epstein-Barr and respiratory viral panel. Blood cultures for bacteria and fungi, and the screening for autoimmune diseases were also negative. She was then treated with infusion of saline solution 0.9% (1500 cc/daily) with progressive reduction of liver abnormalities. In particular, after 3 days laboratory results were: AST 111 IU/L, ALT 89 IU/L, alkaline phosphatase 97 IU/L and gammaglutamiltransferase 246 IU/L. No respiratory symptom occurred during follow-up and the patient was discharged after 5 days of hospitalization, in good clinical condition and asymptomatic from both hepatic and respiratory point of view.

At our knowledge, this is the first report of COVID-19 infection presenting as acute hepatitis in absence of respiratory symptoms. Our patient had very mild symptoms related to COVID-19 infection and was only tested due to her familiar cluster. Other possible causes of liver abnormalities were ruled out, therefore it seems likely that acute hepatitis was directly caused by COVID-19. Recently, Wander et al.[8] described a non-icteric, acute hepatitis in an HIV-infected woman, but their patient developed overt respiratory symptoms in the hours immediately following diagnosis and also had other possible causes of liver tests abnormalities such as the use of concomitant drugs and a fair number of co-morbidities.

Mild-to moderate liver test abnormalities are becoming a frequent finding in subjects admitted to hospital for COVID-19 infection. Patients with known risk factors for COVID-19 infection presenting with acute hepatitis should be rapidly isolated and tested. In our patient, the abnormalities in liver function tests quickly normalized, in absence of specific therapy. The real meaning of liver tests transient alterations has yet to be determined in COVID-19 infected subjects. With the future evolution of the pandemic, prospective observations could provide further information on this specific clinical issue.

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