

Deranged Liver Function in Pregnant Women with and without COVID-19

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C COVID-19 infection had been proclaimed as an international public health emergency by January 2020. As the COVID-19 pandemic continued to affect the global population, information regarding the virus and its effects are highlighted on daily basis. Although the specific molecular pathogenetic process is unknown, some researchers believe that the virus might cause an overactive immune response with aberrant cytokine production and, as a result and damage the tissues severely tissue damage.¹ The fact that the people who contract with coronavirus infection have deadly outcomes. The pregnant women are on the major risk because of the physiological changes during pregnancy involving cardiorespiratory and immune systems that may result in an altered response to severe acute respiratory syndrome.² The virus has been associated with significantly worse outcomes in pregnant women with COVID-19. Literature reported the association of a higher risk of intubation in pregnant women with COVID-19.³ Pregnant women with COVID-19 have an advanced likelihood of the negative outcomes including premature rupture of membrane (PROM), premature delivery, and compromised blood circulation of fetus.⁴ The infection can harm both the mother and the unborn child, resulting in devastating consequences.

There may also be increased risk of end-organ damage which is often observed in patients suffering from COVID-19.² Aside from the pulmonary system, the virus can affect the kidneys, heart, gastrointestinal tract, and the liver. If common pregnancy complications such as pre-eclampsia are associated with COVID19 infection, the virus has

been shown to exacerbate the effects of such complications on liver function and the patient's overall prognosis. Therefore, the complications are more worsened.⁵ The deranged liver function often occurs in pregnancy due to pre-eclampsia (PE). Because COVID-19 and pre-eclampsia have similar clinical symptoms, some of these instances may have been misdiagnosed, such as pro-inflammatory cytokines, and increased serum ferritin and thrombocytopenia.⁶ Abnormal liver function tests (LFTs) were seen in 3–5% in pregnant women with the reported prevalence of 29.7 percent of liver injury in COVID positive pregnant women.⁷ To prevent errors in the diagnosis, LFTs must be properly interpreted. Certain liver function tests can become deranged as a physiological aspect of pregnancy, such as increased clotting factors and the elevation of alkaline phosphatase. Liver pathologies specifically related to pregnancy include hyperemesis gravidarum, pre-eclampsia and eclampsia, HELLP syndrome (Hemolysis, elevated liver enzymes, low platelets), acute fatty liver of pregnancy, and intrahepatic cholestasis of pregnancy.⁸

Current GI and liver society consensus statements support a comprehensive investigation for other etiologies of increased liver enzymes in COVID-19 patients, as well as consideration of liver enzyme monitoring throughout hospitalization.⁹ Certain infections can also lead to hepatic complications in pregnancy, and recent studies have shown that COVID-19 may be one of them.^{8,10} Liver dysfunction is a common feature in hospitalized patients affected by COVID-19, with over 40% of patients showing elevated AST and around 30% of patients showing raised ALT, according to a recent review. Raised Liver Function Tests (LFTs) usually occur in patients with a more severe form of the disease, and liver failure is rarely a cause of death in COVID-19 patients.¹¹

Given the above findings, it is important to determine the prevalence of acute liver failure in pregnant women who have contracted the COVID-19 infection. The study would take into account the

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different enzymes which can be deranged in LFTs and whether that differs from derangements in non-COVID patients, the extent of the derangement, and how frequently deranged LFTs were observed in the COVID positive pregnant women. It would also take into account the adverse outcomes related to the aforementioned liver damage and how they differ from patients with liver dysfunction who are COVID negative.

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