January 2021

# Elevated Liver Enzymes Portends a Higher Rate of Complications and Death In Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)

Emily E. Currier
*Wayne State University*, emily.currier@med.wayne.edu

Mohamed Dabaja DO
*Henry Ford Health System*, Mdabaja1@hfhs.org

Syed-Mohammed Jafri MD
*Henry Ford Health System*, sjafri3@hfhs.org

Background: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), or COVID-19, has infected millions worldwide since its discovery in December 2019, but little is still known about the disease process. Preliminary research in China notes liver function test (LFTs) abnormalities are common in COVID-19 patients, suggesting decreased hepatic function, and that abnormalities in LFTs are related to complicated disease course and negative outcomes. However, there has been limited large-scale data assessing COVID-19's association with liver dysfunction and negative outcomes.

Aim: The significance of this research is to investigate how COVID-19 affects the liver function and disease course in patients infected with the virus treated at Henry Ford Hospital from March to September 2020.

Results: 8,028 COVID-19 patients were identified and included in the study. Data from medical charts on LFTS (namely, AST, ALT, AP, and bilirubin levels), past history of liver disease, and disease course indicators (hospital/ICU admission, intubation, death) were recorded and analyzed. LFTs from 3,937 patients were available for interpretation. 45% were found to have elevated or super-elevated LFT. When compared to COVID-19 patients without elevated LFTs, this cohort was found to have significantly higher odds of hospital admittance, ICU admission, intubation, and death (all $p<0.001$).

Conclusion: The findings from this study suggest that in patients who have tested positive for COVID-19, those with elevated and super elevated liver enzyme levels have significantly higher odds of hospital admittance, ICU admittance, intubation and death in comparison to those COVID-19 patients without elevated liver enzyme levels.