

Letter to the Editor: COVID-19–Related Liver Injury: The Interpretation for Aspartate Aminotransferase Needs to Be Cautious

TO THE EDITOR:

We read with great interest the article by Bloom et al.⁽¹⁾ Although the results of their study are interesting and important, we do have some concerns.

First, the authors believed that elevated levels of liver injury markers, particularly aspartate aminotransferase (AST), may reflect true hepatic injury in COVID-19. However, it should be noted that AST is usually considered a less specific marker for liver injury than alanine aminotransferase (ALT).⁽²⁾ In a recent study involving severe COVID-19 cases, the level of AST was discovered to be elevated first, followed by ALT,⁽³⁾ suggesting that changes in AST level may be attributed to other confounders. In fact, AST has two isoforms that cannot be distinguished in a regular liver function test, and the cytosolic isoenzyme is produced by other tissues, such as kidney, cardiac, and skeletal muscle, rather than liver. Furthermore, more obese people were included in the current study, and higher baseline AST levels may also be a factor leading to bias. Therefore, misinterpretation of AST data may lead to an overestimation of the incidence of liver injury in patients with COVID-19.

Second, the authors stated that elevated AST level may be associated with disease severity. In fact, COVID-19-related liver function abnormalities have been reported to be mostly mild in many studies, and liver failure has not been reported.⁽⁴⁾ Although the relationship between AST and disease severity cannot be denied, this association may not result in serious consequences for the liver. On the other hand, the association between liver injury markers and clinical outcomes of COVID-19 may be further confounded by the use of medications such as antibiotics and antiviral drugs during hospitalization. Thus, the actual incidence of liver injury and its contribution to the development of severe illness remain unclear. The association of AST level with disease severity probably involves the development of multiple organ dysfunction.⁽⁵⁾

In conclusion, the role of abnormal AST level in COVID-19 needs to be interpreted cautiously.

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REFERENCES

- 1) Bloom PP, Meyerowitz EA, Reinus Z, Daidone M, Gustafson J, Kim AY, et al. Liver biochemistries in hospitalized patients with COVID-19. *HEPATOLOGY* 2020. <https://doi.org/10.1002/hep.31326>. [Epub ahead of print]
- 2) Kwo PY, Cohen SM, Lim JK. ACG clinical guideline: evaluation of abnormal liver chemistries. *Am J Gastroenterol* 2017;112:18-35.
- 3) **Lei F, Liu YM, Zhou F, Qin JJ**, Zhang P, Zhu LH, et al. Longitudinal association between markers of liver injury and mortality in COVID-19 in China. *HEPATOLOGY* 2020 May 2. <https://doi.org/10.1002/hep.31301>. [Epub ahead of print]
- 4) **Sun J, Aghemo A, Forner A, Valenti L**. COVID-19 and liver disease. *Liver Int* 2020;40:1278-81.
- 5) **Wang D, Hu B**, Hu C, Zhu F, Liu X, Zhang J, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. *JAMA* 2020;323:1061-1069.

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