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Correspondence

Liver injury caused by SARS-CoV-2 Delta and Omicron-variant in Taiwan

Dear editor:

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) Omicron variant has recently emerged and spread globally. An outbreak of coronavirus disease 2019 (COVID-19) caused by the Delta variant occurred in Southern Taiwan in June 2021 and has been eliminated.¹ However, in April 2022, there was an outbreak of the Omicron variant in Taiwan. Fifteen patients with Omicron variant were admitted to our hospital from April 26 to May 1, 2022. We compared the clinical characteristics of the patients with the Delta variant in June 2021 and the Omicron variant in April 2022 (Table 1). *These laboratory data were the first laboratory data at admission, and no anti-COVID-19 therapy was prescribed before these data.* There were no differences in age (59.9 vs. 57.1 years, $P = 0.96$), male gender (63.6 vs. 60.0%, $P = 1.00$), diabetes ratio (27.3 vs. 35.7%, $P = 1.00$), body mass index (25.0 vs. 26.0 kg/m², $P = 1.00$), pneumonia ratio (18.2 vs. 40.0%, $P = 0.40$) between the Delta and Omicron variants. There were also no differences in serum levels of aspartate aminotransferase (AST) (40.1 vs. 25.8 IU/L, $P = 0.24$) and alanine aminotransferase (ALT) (26.3 vs. 27.2 IU/L, $P = 0.64$) between the two groups. *All the patients with the Omicron variant were symptomatic. The most common symptoms were upper respiratory tract infections (60.0%) (Supplementary Table 1). Six patients developed pneumonia without mechanical ventilator support requirement during admission (40.0%). Remdesivir, Paxlovid, or Molnupiravir were prescribed to patients according to their clinical conditions. Among the patients with the O. variant, nine (60.0%) had past medical history of diabetes, four (26.7%) had hypertension, three had chronic kidney disease (20.0%), and three had malignancy history (20.0%).*

COVID-19 might cause liver injury and lead to a more unfavorable prognosis.² In this study, about one-fifth of the patients suffered from liver injury, which was similar to previous studies.³ There was no difference in liver injury between the Delta and Omicron variants in our study, which echoes previous research.⁴ COVID-19 vaccination might

Table 1 Characteristics of the 11 Delta-variant and Omicron-variant COVID-19 patients.

	Delta-variant (n = 11)	Omicron-variant (n = 15)	P value
Age (years, mean (SD))	59.9 (19.9)	57.1 (23.3)	0.96
Male, n (%)	7 (63.6)	9 (60.0)	1.00
Diabetes history, n (%)	3 (27.3)	5 (35.7)	1.00
AST (IU/L, mean (SD))	40.1 (55.1)	25.8 (21.2)	0.24
ALT (IU/L, mean (SD))	26.3 (22.4)	27.2 (28.3)	0.64
AST or ALT >40 IU/L, n (%)	2 (18.2)	3 (25.0)	1.00
Bilirubin (mg/dL, mean (SD))	0.8 (0.2)	0.6 (0.4)	0.03
Bilirubin >2 mg/dL	0 (0)	0 (0)	—
LDH (IU/L, mean (SD))	191.5 (114.6)	138 (30.9)	0.12
CRP (mg/L, mean (SD))	28.4 (54.8)	25.4 (53.8)	0.78
Platelet count (×10 ³ /L, mean (SD))	200.0 (73.3)	198.1 (62.6)	0.87
Creatinine (mg/dL, mean (SD))	1.0 (0.4)	1.3 (0.6)	0.19
HBsAg seropositivity, n/N (%)	0/7 (0)	0/5	—
Anti-HCV seropositivity, n/N (%)	0/7 (0)	0/5	—
D-dimer (mg/L, mean (SD))	1.2 (1.3)	0.6 (0.2)	1.00
Ferritin (mg/L, mean (SD))	0.6 (0.9)	0.4 (0.1)	0.31
FIB-4 (mean (SD))	2.3 (2.2)	1.7 (1.3)	0.42
BMI (kg/m ² , mean [SD])	25.0 (2.8)	26.0 (4.3)	0.48

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Table 1 (continued)

	Delta-variant (n = 11)	Omicron-variant (n = 15)	P value
At least two-dose vaccination, n (%)	0 (0)	14 (93.3)	<0.001
Pneumonia, n (%)	2 (18.2)	6 (40.0)	0.40

Note: SD: standard deviation; COVID-19: coronavirus disease 2019; LDH: Lactate dehydrogenase; CRP: C-reactive protein; AST: aspartate aminotransferase; ALT: alanine aminotransferase; HBsAg: Hepatitis B surface antigen; HCV: hepatitis C virus; FIB-4: fibrosis-4 index; BMI: body mass index.

protect against symptomatic diseases caused by the Omicron variant.⁵ Vaccination rates have increased since 2021. In the study, over ninety percent of the patients have received at least two doses of vaccination. In conclusion, we demonstrated no difference in liver injury ratio between the Delta and Omicron variants. To our knowledge, this is the first report that compares the Delta and Omicron variants in Taiwan.

Declaration of competing interest

The authors declare that they have no conflict of interest.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jfma.2022.06.004>.

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