



Liver injury after SARS-CoV-2 vaccination: Features of immune-mediated hepatitis, role of corticosteroid therapy and outcome

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Staffan Wahlin and Thomas D. Schiano share senior authorship.

[Correction added August 22, 2022 after first online publication: author Albert Friedrich Stättermayer's name was updated to "Albert Stättermayer"]

Abstract

Background and Aims

A few case reports of autoimmune hepatitis–like liver injury have been reported after severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) vaccination. We evaluated clinical features, treatment response and outcomes of liver injury following SARS-CoV-2 vaccination in a large case series.

Approach and Results

We collected data from cases in 18 countries. The type of liver injury was assessed with the R-value. The study population was categorized according to features of immune-mediated hepatitis (positive autoantibodies and elevated immunoglobulin G levels) and corticosteroid therapy for the liver injury. We identified 87 patients (63%, female), median age 48 (range: 18–79) years at presentation. Liver injury was diagnosed a median 15 (range: 3–65) days after vaccination. Fifty-one cases (59%) were attributed to the Pfizer-BioNTech (BNT162b2) vaccine, 20 (23%) cases to the Oxford-AstraZeneca (ChAdOX1 nCoV-19) vaccine and 16 (18%) cases to the Moderna (mRNA-1273) vaccine. The liver injury was predominantly hepatocellular (84%) and 57% of patients showed features of immune-mediated hepatitis. Corticosteroids were given to 46 (53%) patients, more often for grade 3–4 liver injury than for grade 1–2 liver injury (88.9% vs. 43.5%, $p = 0.001$) and more often for patients with than without immune-mediated hepatitis (71.1% vs. 38.2%, $p = 0.003$). All patients showed resolution of liver injury except for one man (1.1%) who developed liver failure and underwent liver transplantation. Steroid therapy was

withdrawn during the observation period in 12 (26%) patients after complete biochemical resolution. None had a relapse during follow-up.

Conclusions

SARS-CoV-2 vaccination can be associated with liver injury. Corticosteroid therapy may be beneficial in those with immune-mediated features or severe hepatitis. Outcome was generally favorable, but vaccine-associated liver injury led to fulminant liver failure in one patient.

CONFLICTS OF INTEREST

Eric M. Yoshida received grants and honoraria from Intercept. He received grants from Gilead, Merck, AbbVie, Intercept, Genfit, Madrigal, Allergan, Celgene, Pfizer, Paladin Laboratories, and Novodisk. He received honoraria from Lupin. Stefano Faggioli advises and is on the speaker's bureau for AbbVie, Gilead, Novartis, and Kedrion. He is on the speakers' bureau for Intercept.

Open Research



DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Citing Literature



Supporting Information



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