Clinical Characteristics and Outcomes of COVID-19 in Patients With Autoimmune Hepatitis: A Population-Based Matched Cohort Study

SUPPLEMENTARY METHODS

Data source

TriNetX (Cambridge, MA) Research Network uses electronic health record(EHR) data collected from member healthcare organizations (HCOs) in the United States[1]. HCO is a large academic health center with data from most of its affiliates. TriNetX cloud-based feature allows real-time access to de-identified clinical data and analytical tools. Act-compliant, longitudinal clinical data to member HCOs is provided on a cloud-based platform. All clinical data is de-identified and aggregated directly from the EHR of participating HCOs. A typical organization has a complex enterprise architecture where the data flow through several different databases, such as a data warehouse and a research data repository, in addition to EHR data available in a structured fashion (e.g., demographics, diagnoses, vital signs procedures, laboratory test results, and medications). The study data were de-identified, and both the patients and HCOs as data sources remain anonymous. Institutional review board approval was not required for the de-identified data. In addition, The Western Institutional Review Board has granted a waiver to TriNetX as a federated network. Only aggregate counts and statistical summaries of the de-identified information without any protected health information were received from participating HCOs. The institute for clinical and translational research manages the TriNetX platform at Johns Hopkins University.

Standardizing the terminology (mapping codes) and data quality check:

TriNetX has production capabilities that have been tested that map data extensively from each of these structures to the standard model within TriNetX and can extract facts of interest from the narrative text of clinical documents using natural language processing. TriNetX maps the data to a standard and controlled set of clinical terminologies, enforces a list of required fields (e.g., patient identifier), and rejects those records where the required information is missing. As the data are refreshed, the software monitors changes in volumes of data over time to ensure data validity.

Clinical fact and coding system to present Data:

TriNetX has a team of informaticists who map data from the data provider's local codes to master terminology within TriNetX. TriNetX map the provider's medication codes to RxNorm medication codes and is organized by National Drug File - Reference Terminology therapeutic classes. Laboratory test results, vitals, and findings are coded to logical observation identifiers names and codes (LOINC). Demographics are health level 7 (HL7), version 3 (administrative standards), and Diagnoses are represented by the International Classification of Diseases, Ninth and 10th Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM), and diagnoses data are enriched with the chronic condition indicator. Depending on the coding system used by an HCO, procedure data are coded in current procedural terminology (CPT) or ICD-10 Procedure Coding System.

Definition of study variables:

Index event was defined as either the time of COVID-19 diagnosis or the first COVID-19 positive test result date, whichever occurred first. Severe disease was defined as a composite outcome of having required intensive care, or death within 30 days of COVID-19 diagnosis.

Selection of patients with COVID-19

The presented data were queried on December 30, 2020, following the criteria provided by TriNetX (following CDC guidelines) to identify adult patients with SARS-CoV-2. These codes included U07.1 (COVID-19, virus identified, based on WHO), B97.29 (Other coronaviruses as the cause of diseases classified elsewhere), B34.2 (Coronavirus infection, unspecified), J12.81 (Pneumonia due to SARS-associated coronavirus). COVID-19–related diagnostic tests: CPT 87635, Infectious agent detection by nucleic acid (DNA or RNA); severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]), amplified probe technique; U0001-2019 novel coronavirus real-time RT-PCR diagnostic test panel–CDC and U0002-2019 novel coronavirus real-time RT-PCR diagnostic test panel–non-CDC. TNX:LAB:9008 is a

composite code derived by TriNetX, which includes all positive laboratory test for SARS coronavirus 2 and related RNA (LOINC: 94307-6, SARS coronavirus 2 N gene (presence) in unspecified specimen by nucleic acid amplification using CDC primer-probe set N1; 94307-6, SARS coronavirus 2 N (presence) in unspecified specimen by nucleic acid amplification using CDC primer-probe set N2; 94309-2, SARS coronavirus 2 RNA (presence) in unspecified specimen by NAA with probe detection; 94310-0, SARS-like coronavirus N gene (presence) in unspecified specimen by NAA with probe detection; 94314-2, SARS coronavirus 2 RdRp gene (presence) in unspecified specimen by NAA with probe detection; 94315-9,SARS coronavirus 2 E gene (presence) in unspecified specimen by NAA with probe detection; 94316-7, SARS coronavirus 2 N gene (presence) in unspecified specimen by NAA with probe detection; 94500-6, SARS coronavirus 2 RNA (presence) in respiratory specimen by NAA with probe detection; 94502-2, SARS-related coronavirus RNA (presence) in respiratory specimen by NAA with probe detection; 94533-7, SARS coronavirus 2 N gene (presence) in respiratory specimen by NAA with probe detection ; 94534-5, SARS coronavirus 2 RdRp gene (presence) in respiratory specimen by NAA with probe detection; 94559-2,SARS coronavirus 2 ORF1ab region (presence) in respiratory specimen by NAA with probe detection; 94565-9, SARS coronavirus 2 RNA (presence) in nasopharynx by NAA with nonprobe detection; 94639-2, SARS coronavirus 2 ORF1ab region (presence) in unspecified specimen by NAA with probe detection;94640-0, SARS coronavirus 2 S gene (presence) in respiratory specimen by NAA with probe detection; 94641-8, SARS coronavirus 2 S gene (presence) in unspecified specimen by NAA with probe detection; 94647-5, SARS-related coronavirus RNA (presence) in unspecified specimen by NAA with probe detection; 94660-8, SARS coronavirus 2 RNA (presence) in serum or plasma by NAA with probe detection; 94756-4, SARS coronavirus 2 N gene (presence) in respiratory specimen by nucleic acid amplification using CDC primer-probe set N1; 94757-2, SARS coronavirus 2 N gene (presence) in respiratory specimen by nucleic acid amplification using CDC primer-probe set N2; 94758-0, SARS coronavirus 2 E gene (presence) in respiratory specimen by NAA with probe detection; 94759-8, SARS

coronavirus 2 RNA (presence) in nasopharynx by NAA with probe detection; 94765-5, SARS coronavirus 2 E gene (presence) in serum or plasma by NAA with probe detection; 94766-3, SARS coronavirus 2 N gene (presence) in serum or plasma by NAA with probe detection; 94767-1, SARS coronavirus 2 S gene (presence) in serum or plasma by NAA with probe detection. Patients with ICD-9 code 079.89 were excluded to reduce any false positive SARS-CoV-2. Patients with the above criteria present after January 20, 2020 (the first confirmed case of COVID-19 in the USA) were included in the analyses.

Selection of patients with AIH:

Patients with the ICD-10 code of autoimmune hepatitis K76.89 were included in the cohort. Patients with AIH and coexisting other liver diseases, variant syndromes of AIH with primary biliary cholangitis, and primary sclerosing were excluded from the analysis.

Selection of patients with Non-AIH CLD cohort :

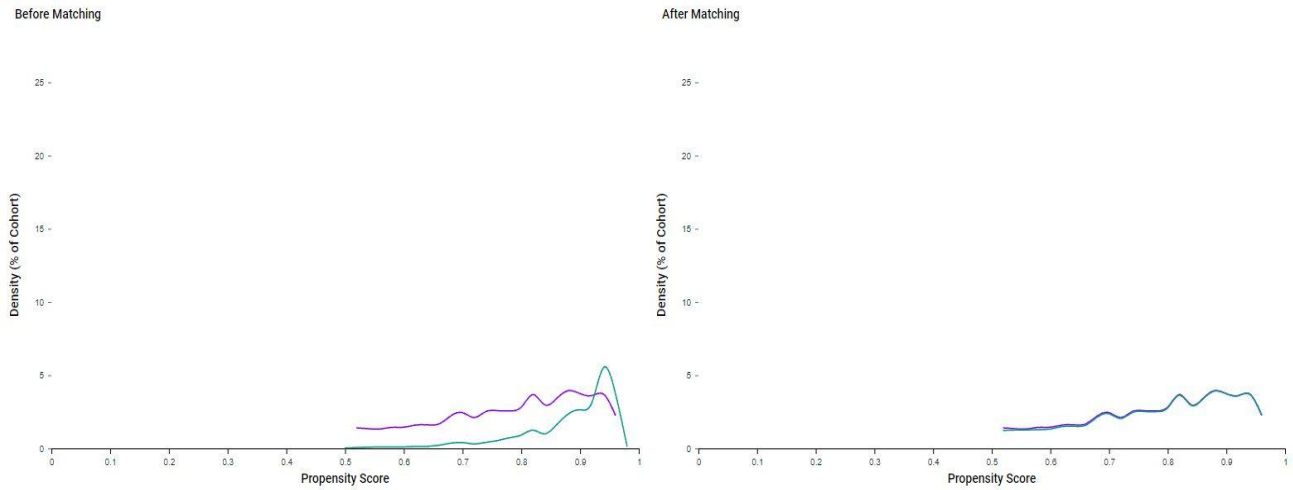
We included the patients if they had a diagnosis of another defined cause of liver disease other than AIH. Diagnosis codes based on the inclusion criteria for other chronic liver diseases are listed below. K72 Acute and subacute hepatic failure without coma necrosis; K76.2 Central hemorrhagic necrosis of liver necrosis; K700 Alcoholic fatty liver hepatitis; K7010 Alcoholic hepatitis without ascites hepatitis; K7030 Alcoholic cirrhosis. Of liver without ascites cirrhosis. K709 Alcoholic liver disease, unspecified cirrhosis; K730 Chronic persistent hepatitis, not elsewhere classified hepatitis; K732 Chronic active hepatitis, not elsewhere classified hepatitis; K738 Other chronic hepatitis, not elsewhere classified hepatitis; K739 Chronic hepatitis, unspecified hepatitis; K740 Hepatic fibrosis; K74.1; NAFLD based on K76.0, K75.8, K74.6, Hepatic sclerosis cirrhosis; K743 Primary biliary cirrhosis;K74.4 Secondary biliary cirrhosis;K74.5 Biliary cirrhosis, unspecified cirrhosis;K74.60 Unspecified cirrhosis of liver cirrhosis;K74.69 Other cirrhosis of liver cirrhosis;K75.4 Other specified diseases of liver cirrhosis;K76.9

Liver disease, unspecified cirrhosis;K76.7 Hepatorenal syndrome cirrhosis;K77 Liver disorders in diseases classified elsewhere hepatitis;K71.6 Toxic liver disease with hepatitis, not elsewhere classified hepatitis;B17.0 Acute delta-(super) infection of hepatitis B carrier hepatitis;B1710 Acute hepatitis C without hepatic coma hepatitis;B17.2 Acute hepatitis E hepatitis;B17.8 Other specified acute viral hepatitis;B18.2 Chronic viral hepatitis C hepatitis;B18.8 Other chronic viral hepatitis;B18.9 Chronic viral hepatitis, unspecified hepatitis;B0081 Herpes viral hepatitis hepatitis;B15.0 Hepatitis A with hepatic coma hepatitis;B15.9 Hepatitis A without hepatic coma hepatitis;B16.0 Acute hepatitis B with delta-agent with hepatic coma hepatitis;B16.1 Acute hepatitis B with delta-agent without hepatic coma hepatitis;B16.2 Acute hepatitis B without delta-agent with hepatic coma hepatitis;B16.9 Acute hepatitis B without delta-agent and without hepatic coma hepatitis;B17.11 Acute hepatitis C with hepatic coma hepatitis;B17.2 Acute hepatitis E hepatitis;B17.8 Other specified acute viral hepatitis;B179 Acute viral hepatitis, unspecified hepatitis;B18.0 Chronic viral hepatitis B with delta-agent hepatitis;B18.1 Chronic viral hepatitis B without delta-agent hepatitis;B18.2 Chronic viral hepatitis C hepatitis;B19.0 Unspecified viral hepatitis with hepatic coma hepatitis;B19.10 Unspecified viral hepatitis B without hepatic coma hepatitis;B19.11 Unspecified viral hepatitis B with hepatic coma hepatitis; B19.20 Unspecified viral hepatitis C without hepatic coma hepatitis; B19.21 Unspecified viral hepatitis C with hepatic coma hepatitis; B19.9 Unspecified viral hepatitis without hepatic coma hepatitis; B25.1 Cytomegaloviral hepatitis; B25.1 Cytomegaloviral hepatitis; B26.81 Mumps hepatitis; B58.1 Toxoplasma hepatitis; B942 Sequelae of viral hepatitis; K70.11 Alcoholic hepatitis with ascites hepatitis; E83.01, Wilson's disease; K76.9 Liver disease, unspecified hepatitis; K72.90 Hepatic failure, unspecified without coma cirrhosis; K73.1 Chronic lobular hepatitis, not elsewhere classified hepatitis; K75.2 Nonspecific reactive hepatitis; K75.3 Granulomatous hepatitis, not elsewhere classified hepatitis; K75.89 Other specified inflammatory liver diseases hepatitis; K70.31 Alcoholic cirrhosis of liver with ascites cirrhosis; F10.2 Alcohol dependence; K71.7 Toxic liver disease with fibrosis and cirrhosis of the liver.

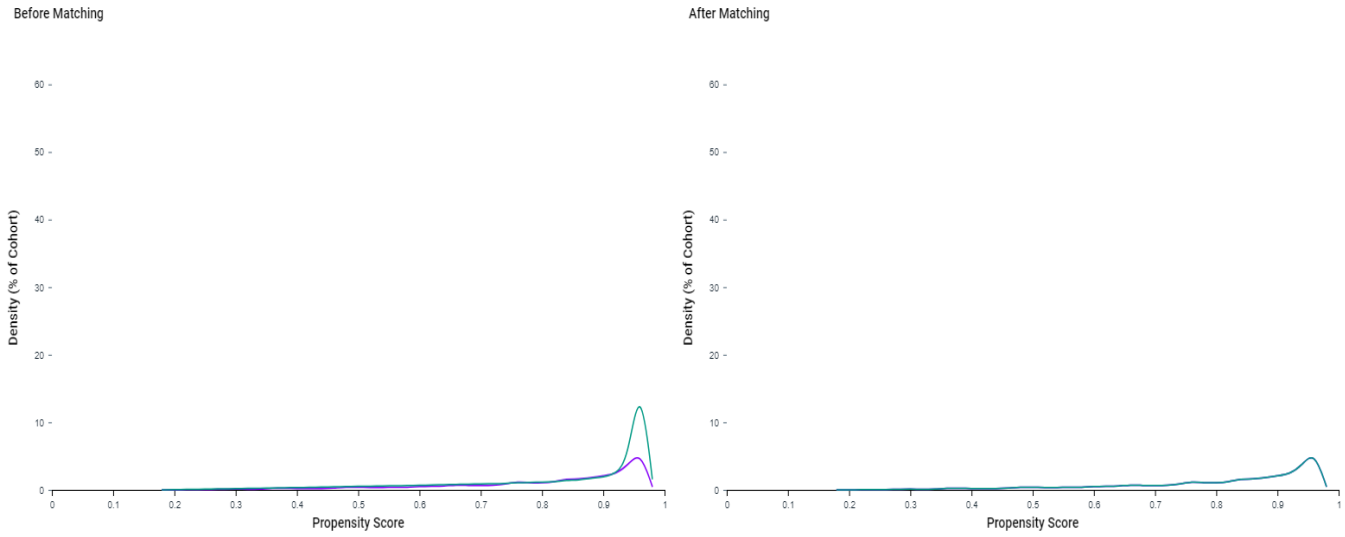
Selection of patients with non-CLD cohort:

We excluded the patients if they had a diagnosis of any liver disease, including AIH and other CLD diseases, based on the above-mentioned codes that we used to select patients in the CLD cohort.

Supplementary Figure 1:



Supplementary Figure 1A Propensity score density graph before and after matching after COVID-19 among patients living with AIH and Non-CLD(blue)



Supplementary Figure 1B. Propensity score density graph before and after matching after COVID-19 among patients living with AIH and Non- AIH CLD(blue)

Supplementary Tables:

Supplementary Table 1 Etiologies of chronic liver diseases:

Etiology	**Non-AIH CLD (*n* = 15790)**
Alcoholic liver disease	4159 (26.3)
Viral hepatitis	1093 (6.9)
NAFLD	3085 (19.5)
Other specified diseases of the liver	3456 (21.8)

AIH: Autoimmune hepatitis; CLD: Chronic liver disease; NAFLD: Nonalcoholic fatty liver disease.

Supplementary Table 2 Clinical characteristics of AIH patients with COVID-19

Variables	Study population, (n = 375)
Coexistence of other immune-mediated disorders, n (%)	
Ulcerative colitis	27 (7.2)
Crohn's disease	23 (6.1)
Primary sclerosing cholangitis	14 (3.7)
Autoimmune thyroiditis	22 (5.8)
Autoimmune lymphoproliferative syndrome	10 (2.6)
autoimmune hemolytic anemias	11 (2.9)
Rheumatoid arthritis	57 (15.2)
Systemic lupus erythematosus	61 (16.2)
Celiac disease	10 (2.6)
Sjögren syndrome	45 (12.0)
Antiphospholipid syndrome	11 (2.9)
Ankylosing spondylitis	10 (2.6)
Autoimmune panel, n (%)	
Antinuclear antibodies (ANA)	122 (32.5)
Liver kidney microsome type	45 (12.0)
Smooth muscle antibody	61 (16.2)
Immunosuppressive therapy, n (%)	
Azathioprine	170 (45.3)
Mycophenolate mofetil	68 (18.1)
Budesonide	80 (21.3)
Prednisone	313 (83.4)
Vedolizumab	10 (2.6)
Sirolimus	10 (2.6)
Mercaptopurine	21 (5.6)
Methotrexate	22 (5.8)

AIH: Autoimmune hepatitis; COVID-19: Coronavirus disease 2019.

Supplementary Table 3 Comparison of vital signs, symptoms, and laboratory findings of patients with AIH and Non-CLD following a positive test for severe acute respiratory syndrome coronavirus-2

Variables	Before propensity score matching			After propensity score matching		
	AIH (*n* = 375)	Non-CLD (*n* = 1647915)	*P* value	AIH (*n* = 375)	Non-CLD (*n* = 375)	*P* value
Vital signs, mean ± SD						
Temperature (°C)	86.6 ± 23.8	86.4 ± 23.9	0.93	86.6 ± 23.8	89.4 ± 21.1	0.31
SBP (mm Hg)	125 ± 19.4	127 ± 18	0.04	125 ± 19.4	128 ± 19.8	0.02
DBP (mm Hg)	74.1 ± 12.8	75.5 ± 11.5	0.04	74.1 ± 12.8	74.2 ± 11.8	0.89
Heart rate (beats/min)	75.3 ± 17.9	78.6 ± 15.7	0.01	75.3 ± 17.9	76.9 ± 14.3	0.39
Oxygen saturation, %	93.5 ± 12.3	91.9 ± 16.5	0.34	93.5 ± 12.3	91.7 ± 16.3	0.41
Respiratory rate (breaths/min)	13 ± 6.72	13 ± 7.27	0.98	13 ± 6.72	13.4 ± 6.99	0.73
Symptoms at presentation, *n* (%)						
Difficulty in breathing	94(25.1)	178916(10.8)	< 0.01	84(22.4)	79(21.1)	0.61
Cough	78(20.8)	169255(10.2)	< 0.01	78(20.8)	68(18.1)	0.27
Nausea and vomiting	92(24.5)	138138(8.3)	< 0.01	92(24.5)	45(12.0)	< 0.01
Headache	85(22.6)	131244(7.9)	< 0.01	85(22.6)	58(15.4)	0.05
Malaise and fatigue	89(23.7)	158610(9.6)	< 0.01	99(26.4)	67(17.8)	0.02
Diarrhea	89(23.7)	84246(5.1)	< 0.01	89(23.7)	51(13.6)	0.01
Fever (≥ 100.4° F)	78(20.8)	83633(5.1)	< 0.01	78(20.8)	39(10.4)	0.02
Disturbance of smell and taste	30(8.0)	9261(0.5)	< 0.01	30(8.0)	30(8.0)	1.00
Liver chemistries, mean ± SD						
ALT, U/L	65.3 ± 155	26.7 ± 68.6	< 0.01	65.3 ± 155	23.6 ± 31.2	< 0.01
AST, U/L	54.9 ± 138	25.3 ± 49.7	< 0.01	54.9 ± 138	23.7 ± 15	0.01
T.Bil, U/L	0.868 ± 1.83	0.557 ± 0.687	< 0.01	0.868 ± 1.83	0.53 ± 0.312	0.01
ALP, U/L	105 ± 86.4	81.3 ± 46.6	< 0.01	105 ± 86.4	88.3 ± 58.1	0.01
GGT, U/L	135 ± 238	49.8 ± 114	< 0.01	135 ± 238	46.5 ± 49.9	0.09

Serum Albumin, g/dL	3.88 ± 0.66	4.11 ± 0.544	< 0.01	3.88 ± 0.66	4.04 ± 0.556	0.04
Coagulation profile, mean ± SD						
PT (sec)	13.3 ± 3.28	13 ± 5.29	0.42	13.3 ± 3.28	13.6 ± 5.21	0.62
INR	1.48 ± 4.75	1.31 ± 2.32	0.28	1.48 ± 4.75	1.13 ± 0.429	0.43
APTT (sec)	33.6 ± 18.7	31.4 ± 13.8	0.04	33.6 ± 18.7	33.4 ± 20	0.94
Complete blood count, mean ± SD						
Hemoglobin (g/dL)	12.6 ± 1.98	13.2 ± 1.97	< 0.01	12.6 ± 1.98	13 ± 1.63	0.01
Leukocytes(/mcL)	7.21 ± 4.35	8.27 ± 41.8	0.66	7.21 ± 4.35	7.56 ± 2.75	0.29
RBC (/mcL)	90.2 ± 6.96	88.8 ± 6.28	0.01	90.2 ± 6.96	88.5 ± 7.16	0.02
Platelets (/mcL)	238 ± 86.1	254 ± 78.5	0.03	238 ± 86.1	261 ± 80.2	0.00
Neutrophils(/mcL)	798 ± 2091	323 ± 1433	< 0.01	798 ± 2091	593 ± 1921	0.36
Lymphocytes (/mcL)	23.3 ± 12.7	25.9 ± 11.2	0.01	23.3 ± 12.7	25.2 ± 10.8	0.09
HCT, (%)	38.3 ± 5.54	39.9 ± 5.35	< 0.01	38.3 ± 5.54	39.4 ± 4.46	0.01
Metabolic panel, mean ± SD						
HbA1C	6.0± 1.33	6.13 ± 1.52	0.33	6.0 ± 1.33	6.14 ± 1.46	0.41
Blood Glucose mg/dL	108 ± 39.3	109 ± 52.3	0.86	108 ± 39.3	104 ± 33.1	0.24
Creatinine (mg/dL)	0.933 ± 0.88	0.985 ± 1.56	0.56	0.933 ± 0.88	1.04 ± 1.08	0.21
GFR (mL/min/1.73 m^2)	85.9 ± 30	86 ± 29.3	0.96	85.9 ± 30	80.1 ± 27.7	0.02
Total protein (g/L)	7.17 ± 1.71	6.98 ± 1.27	0.01	7.17 ± 1.71	6.92 ± 1.2	0.08
BUN, (mmol/L)	16.1 ± 9.62	15.1 ± 8.98	0.05	16.1 ± 9.62	15.7 ± 8.54	0.57
Sodium (mEq/L)	139 ± 3.28	139 ± 2.87	0.02	139 ± 3.28	139 ± 3.25	0.13
Potassium (mEq/L)	4.11 ± 0.47	4.14 ± 0.648	0.54	4.11 ± 0.47	4.1 ± 0.444	0.65
Bicarbonate(mEq/L)	23.2 ± 3.57	24 ± 5.4	0.43	23.2 ± 3.57	24.7 ± 4.94	0.21
Inflammatory markers, mean ± SD						
Ferritin (ng/mL)	336 ± 630	192 ± 528	0.01	336 ± 630	118 ± 167	0.01
D-dimer	85.9 ± 268	109 ± 535	0.79	85.9 ± 268	59 ± 146	0.66
CRP (mg/L)	15.2 ± 32.3	22.5 ± 47.1	0.07	15.2 ± 32.3	20.3 ± 46.8	0.42
Fibrinogen (mg/dL)	303 ± 105	389 ± 163	0.04	303 ± 105	436 ± 178	0.03

Lactate(mmol/L)	1.42 ± 0.953	1.51 ± 2.62	0.76	1.42 ± 0.953	1.39 ± 0.717	0.83
ESR (mm/hr)	24.1 ± 22.1	21.7 ± 23	0.21	24.1 ± 22.1	25.5 ± 29	0.71
Creatine kinase	7.23 ± 8.9	4.49 ± 16.5	0.53	7.23 ± 8.9	4.42 ± 10.3	0.41
LDH (U/L)	337 ± 333	254 ± 305	0.01	337 ± 333	239 ± 214	0.13

AIH: Autoimmune hepatitis; CLD: Chronic liver diseases; SD: Standard deviation; ALT: Alanine aminotransferases; AST: Aspartate aminotransferase; ALP: Alkaline phosphatase; GGT: γ-glutamyl transpeptidase; T-Bil: Total bilirubin; PT: Prothrombin time; INR: International normalized ratio; APTT: Activated partial thromboplastin time; RBC: Red blood cells; HCT: Hematocrit; HbA1C: Hemoglobin A1C; GFR: Glomerular filtration rate; BUN: Blood urea nitrogen; CRP: C-reactive protein; ESR: Erythrocyte sedimentation rate; LDH: Lactate dehydrogenase.

Supplementary Table 4 Comparison of vital signs, symptoms, and laboratory findings of patients with AIH and Non-AIH-CLD following a positive test for severe acute respiratory syndrome coronavirus-2

Variables	Before propensity score matching			After propensity score matching		
	AIH (*n* = 375)	Non- AIH CLD (*n* = 15790)	*P* value	AIH (*n* = 363)	Non- AIH CLD (*n* = 363)	*P* value
Liver chemistries, mean ± SD						
ALT, U/L	65.6 ± 156	38.3 ± 93.6	< 0.01	65.5 ± 156	54.7 ± 262	0.54
AST, U/L	58.1 ± 129	52.4 ± 239	0.68	58.1 ± 130	107 ± 930	0.38
T.Bil, U/L	0.871 ± 1.83	1.58 ± 3.26	0.01	0.876 ± 1.85	2.09 ± 4.72	< 0.01
ALP, U/L	106 ± 86.7	129 ± 113	0.04	105 ± 85.9	133 ± 138	0.04
GGT, U/L	137 ± 241	157 ± 266	0.49	139 ± 243	167 ± 250	0.43
Serum albumin, g/dL	3.87 ± 0.664	3.61 ± 0.736	< 0.01	3.87 ± 0.669	3.71 ± 0.712	0.01
Coagulation profile, mean ± SD						
PT (sec)	13.3 ± 3.3	14.7 ± 6.21	0.01	13.4 ± 3.29	15.2 ± 5.22	< 0.01
INR	1.48 ± 4.77	1.36 ± 1.93	0.36	1.49 ± 4.82	1.3 ± 0.495	0.52
APTT (sec)	33.6 ± 18.7	33.1 ± 13.3	0.65	33.6 ± 18.8	35.7 ± 18.2	0.28
Complete blood count, mean ± SD						
Hemoglobin (g/dL)	12.6 ± 1.98	11.9 ± 2.53	< 0.01	12.6 ± 1.97	11.9 ± 2.53	0.02
Leukocytes(/mcL)	7.23 ± 4.37	7.15 ± 39.8	0.97	7.25 ± 4.41	9.02 ± 42.1	0.47
RBC (/mcL)	4.28 ± 0.649	3.96 ± 0.895	< 0.01	4.27 ± 0.652	3.92 ± 0.902	< 0.01
Platelets (/mcL)	238 ± 86.4	165 ± 94.4	< 0.01	236 ± 85.1	171 ± 97.9	< 0.01
Neutrophils(/mcL)	781 ± 1979	395 ± 1618	< 0.01	781 ± 1986	613 ± 1993	0.33
Lymphocytes (/mcL)	23.3 ± 12.8	22.3 ± 11.6	0.16	23.3 ± 12.8	24.2 ± 11.5	0.38
HCT, (%)	38.2 ± 5.55	36.1 ± 7.13	< 0.01	38.3 ± 5.56	35.9 ± 7.64	< 0.01
Metabolic panel, mean ± SD						
HbA1C	6.01 ± 1.34	6.36 ± 1.78	0.01	6.01 ± 1.34	5.76 ± 1.41	0.11
Creatinine (mg/dL)	0.933 ± 0.883	1.4 ± 2.53	0.01	0.937 ± 0.891	1.08 ± 1.12	0.08

GFR (mL/min/1.73 m^2)	86 ± 30.1	74.2 ± 36.6	< 0.01	85.5 ± 30	83.8 ± 37.9	0.54
Total protein (g/L)	7.16 ± 1.72	6.82 ± 1.3	< 0.01	7.16 ± 1.74	6.82 ± 1.17	0.01
BUN, (mmol/L)	16.1 ± 9.64	20.2 ± 15.2	< 0.01	16.2 ± 9.71	16.1 ± 13.9	0.93
Inflammatory markers, mean ± SD						
Ferritin (ng/mL)	333 ± 632	391 ± 1111	0.55	340 ± 637	340 ± 680	0.99
D-dimer	85.9 ± 268	256 ± 966	0.31	88.5 ± 271	107 ± 431	0.84
CRP (mg/L)	15.4 ± 32.5	28.4 ± 47.3	0.01	15.5 ± 32.6	16.8 ± 30.5	0.76
Fibrinogen (mg/dL)	303 ± 105	278 ± 147	0.34	307 ± 106	234 ± 129	0.01
Lactate(mmol/L)	162 ± 243	201 ± 629	0.55	162 ± 243	153 ± 293	0.83
ESR (mm/hr)	24.3 ± 22.2	34 ± 28.2	< 0.01	23.9 ± 22.2	26.7 ± 24.1	0.36
Creatine kinase	162 ± 243	201 ± 629	0.55	162 ± 243	153 ± 293	0.83
LDH (U/L)	337 ± 333	283 ± 326	0.13	336 ± 336	326 ± 375	0.84

AIH: Autoimmune hepatitis; CLD: Chronic liver diseases; SD: Standard deviation; ALT: Alanine aminotransferases; AST: Aspartate aminotransferase; ALP: Alkaline phosphatase; GGT: γ-glutamyl transpeptidase; T-Bil: Total bilirubin; PT: Prothrombin time; INR: International normalized ratio; APTT: Activated partial thromboplastin time; RBC: Red blood cells; HCT: Hematocrit; HbA1C: Hemoglobin A1C; GFR: Glomerular filtration rate; BUN: Blood urea nitrogen; CRP: C-reactive protein; ESR: Erythrocyte sedimentation rate; LDH: Lactate dehydrogenase.

Reference:

TriNetX: Longitudinal Real World Data. TriNetX; 2021. Available at: https://www.trinetx.com/trinetx-research.