RESEARCH LETTER

The Impact of the COVID-19 Epidemic on Hospital Admissions for Alcohol-related Liver Disease and Pancreatitis in Western Sydney

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is an RNA virus first reported in humans in Wuhan, China's Hubei province, in December 2019.[1] The virus has since rapidly spread around the world, representing the deadliest pandemic since the outbreak of Spanish influenza in 1918, having killed more than 6 million people worldwide as of December 2022. In Australia, drastic public health measures were used to try to slow the spread of COVID-19 including lockdowns, stay at home orders, and imposing contact tracing policies and intermittent closure of international and state borders. Low socioeconomic areas of New South Wales (NSW) such as Western Sydney were subject to tight restrictions and harsher lockdowns due to the high COVID-19 cases numbers.[2]

Throughout the COVID-19 pandemic, anxiety, stress, and social isolation were commonplace among residents of NSW.[3] Consequently, numerous health concerns became evident related to increased risk of alcohol use, weight gain, mental health issues, and violence.[4] In fact, alcohol sales and consumption increased in tandem with the start of COVID-19 pandemic.[5] Numerous reports from around the world described similar trends. Studies from the United Kingdom reported a record rise in the number of deaths caused by alcohol misuse with 8974 people having died of alcohol-specific causes in 2020, representing an 18.6% increase as compared to 2019.[6] Similarly, in Canada, British Columbian's alcohol consumption was the highest in 2 decades during the first year of COVID-19, and the number of Albertans hospitalized for an alcohol-related liver disease (ALD) almost doubled during the pandemics first wave.[7] In Japan, the COVID-19 epidemic was associated with an increase inhospital admissions for ALD and acute pancreatitis.[8] In Australia, a survey in 2020 by the Australian Drug Foundation found that 29% of parents increased their alcohol consumption, with 14% reporting alcohol consumption daily.

This study aimed to examine whether the COVID-19 pandemic and its lockdowns were associated with a population-level change in ALD and pancreatitis requiring emergency admission during the COVID-19 epidemic in the Western suburbs of Sydney. Patient data were obtained from 4 participating public hospitals in Western Sydney: Auburn Hospital, Blacktown Hospital, Mount Druitt Hospital, and Westmead Hospital. Information gathered includes medical record number, demographic data (including age, gender, and ethnicity), admission and discharge status, cause of admission, and primary diagnosis. Patients aged 18 years or older who were hospitalized between January 1, 2018, and December 31, 2021 were included in this study. Only admissions whose primary diagnoses were either ALD or pancreatitis were examined (Table S1).

The first case of COVID-19 in NSW was recorded on January 25, 2020, marking the start of COVID-19 outbreak. Most public health restrictions were lifted by the end of December 2021, after 90% of the Australian population was vaccinated. Overall, hospital admissions totaled 135,494 cases in years 2018 and 2019 (pre-COVID-19 epidemic period) and 121,055 admissions between 2020 and 2021 (during the COVID-19 epidemic period). Of the total admissions, 4103 cases for the years 2018 and 2019 and 4256 cases for 2020 and 2021, respectively, were admitted to participating hospital gastroenterology departments. The rate per 1000 admissions to the gastroenterology department during the epidemic period was 5.48% higher compared to the pre-epidemic period (Table S2). Table 1. summarizes baseline characteristics of the study population. A total of 849 ALD or pancreatitis cases requiring admissions were identified between January 2018 and end of December 2021. We observed lower number of admissions of ALD and pancreatitis during the pre-COVID-19 epidemic period with 388 admissions. In contrast, the number of admissions of ALD and to lesser extent pancreatitis has increased to 461 during the epidemic period (an increase of 15.8%). Of note, a significant increase in total admissions of ALD was documented during the epidemic period compared to the pre-epidemic period (224 vs 168 patients, $P = .003$).

Our study is consistent with previous works demonstrating that COVID-19 fueled alcohol misuse.[3,4] Isolation, changing eating habits, psychological stress, unemployment, and hopelessness associated with COVID-19, have been suggested as drivers of the dramatic rise in admissions for critical disease like alcoholic acute pancreatitis.[9] Unlike ALD, acute pancreatitis cases always require hospitalization, and therefore represent an accurate marker of changes in alcohol misuse during the COVID-19 epidemic.

Although the collective burden of alcohol liver disease and alcohol use disorder was heavy even before the COVID-19 pandemic, it is presumed that lockdowns could have provided a catalyst for negative behavioral change. Our findings are consistent with a similar report from Victoria, Australia where a higher proportion of alcohol-related acute pancreatitis was noticed during the lockdown period.[10] There are numerous explanations for this increase in ALD admissions. In addition to potential relapse or increased alcohol consumption, patients may have had a delayed presentation due to fear of attending hospital at the height of the COVID-19 epidemic. The redeployment of medical staffing and cancellation of face-to-face consultations during the COVID-19

Table. Alcohol-related Liver Disease and Pancreatitis in Western Sydney

Characteristic	Pre-epidemic period (January 2018 to January 2020)	Epidemic period (January 2020 to January 2022)	*P* value
Age			
Median (IQR)	49	47	
Sex			
Males	75.2%	77.6%	
Females	24.8%	22.4%	
Total admissions for alcohol-related liver disease or pancreatitis	388	461	
Alcohol-related liver disease (K70.1,K70.3,K70.4,K70.7,K70.9)	168	224	*.003*
Alcoholic acute pancreatitis (K85.2)	182	202	*.32*
Alcohol-induced chronic pancreatitis (K86.0)	38	35	*.77*
Acute pancreatitis (others – K85.0,K85.1, K85.3, K85.8, K85.9)	907	859	*.34*
Chronic pancreatitis (other-K86.1)	109	76	*.026*
Inhospital mortality	19	22	
Re-admission (30 d)	99	86	

P value <.05 was considered statistically significant.
IQR, interquartile range.

pandemic may have led to difficulties in maintaining linkage to care. Moreover, fewer patients may have received comprehensive etiological diagnosis during the COVID-19 pandemic, resulting in fewer admissions of diagnosed acute pancreatitis, for example, as compared to the broad category of ALD.

There are number of limitations to our study. First, this data set focuses on individual alcohol consumption during the COVID-19 epidemic and clinical outcome such as ALD or pancreatitis, but this relationship could not be explained herein since only a few drinkers develop overt disease. Moreover, our data set collected records from admission and did not include detailed medical history of recruited patients, nor longer-term outcome data. Finally, our data set did not incorporate psychosocial and environmental factors that can considerably influence drinking habits.

In conclusion, the COVID-19 pandemic and resulting governmental restrictions may have caused unintended societal consequences with unknown long-term impacts. Attention should be focused on heavy alcohol consumption that contributes to all the leading causes of death in Australia. Strategies to mitigate alcohol use should focus on primary care-based counseling for high-risk groups, regulation of alcohol promotion activities, and elaboration of specific policies in the aftermath of the pandemic.

ERIC KALO[1,2]
SCOTT READ[1,2,3]
MICHAEL MELLER[4]
GOLO AHLENSTIEL[1,2,3]

[1]Blacktown Clinical School, Western Sydney University, Sydney, New South Wales, Australia
[2]Blacktown Hospital, Sydney, New South Wales, Australia
[3]Storr Liver Centre, Westmead Institute for Medical Research, Sydney, New South Wales, Australia
[4]Clinical Analytics, Western Sydney Local Health District, Sydney, New South Wales, Australia

Correspondence:
Address correspondence to: Golo Ahlenstiel, MD, PhD, FRACP, Blacktown Clinical School, Marcel Crescent, Blacktown, New South Wales 2148, Australia. e-mail: g.ahlenstiel@westernsydney.edu.au.

Supplementary Materials

Material associated with this article can be found in the online version at https://doi.org/10.1016/j.gastha.2022.12.008.

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Abbreviations used in this paper: **ALD, alcohol-related liver disease; NSW, New South Wales**

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2772-5723
https://doi.org/10.1016/j.gastha.2022.12.008

Received October 31, 2022. Accepted December 19, 2022.

Conflicts of Interest:
The authors disclose no conflicts.

Funding:
The authors report no funding.

Ethical Statement:
The corresponding author, on behalf of all authors, jointly and severally, certifies that their institution has approved the protocol for any investigation involving humans or animals and that all experimentation was conducted in conformity with ethical and humane principles of research.

Data Transparency Statement:
The data presented in this study are available on request from the corresponding author.

Reporting Guidelines:
Declaration of Helsinki, STROBE.