The effect of lockdown on alcohol-related liver disease hospital admissions in the UK: a national service evaluation

Final Report

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Key findings

- There was a 18% increase in the number of admissions of patients with ArLD in 2020 compared to 2019
- Admissions with ArLD had advanced liver disease with mean Child Pugh score of 8 and MELD score of 14 but did not have worse clinical outcomes in 2020 compared with 2019
- More patients with ArLD were actively drinking up to the time of hospital admission in 2020 than 2019 and consumed an average of 27 units a week more

Background

Members of the BASL alcohol-related liver disease (ArLD) SIG have noted an increase in the number of admissions of patients with ArLD to their hospitals since June 2020. Furthermore, there may be higher numbers of patients presenting with manifestations of severe disease such as variceal haemorrhage and alcoholic hepatitis. Some surveys suggest that during the UK lockdown period (24 Mar 2020 – 4 Jul 2020) more people have reduced rather than increased alcohol consumption but approximately 20% report increased alcohol use.[1] Furthermore a single centre survey of patients with a history of alcohol use disorder showed 24% had increased alcohol consumption and 17% relapsed to drinking.[2] Furthermore, surveys have reported that high risk drinkers have increased by between 5 and 13% during lockdown compared to previous years.[3,4] These findings are consistent with increased supermarket alcohol sales of over 30% during the lockdown period. More recent Office of National Statistics data has also demonstrated an increase in alcohol related deaths by

16.4% in January to September 2020 compared to the same period in 2019, with 80% caused by ArLD.[5]

We hypothesise that changes to the drinking behaviour of high-risk alcohol drinkers during the lockdown period has contributed to an increase in the number and severity of hospital admissions with ArLD. To document whether these anecdotes are reflective of a national picture we aimed to conduct a UK-wide service evaluation of ArLD hospital admissions during a one-week period in August 2020 in comparison to the same dates in 2019.

Objectives

To determine the number of patients with a diagnosis of ArLD who had an unplanned hospital admission in a sample of hospitals in the UK including information on severity of disease and complications of cirrhosis during a specified 7-day period in August 2020 and the same 7-day period in August 2019.

Primary outcome

- Number of admissions over 7-day period

Secondary outcomes

- Severity of liver disease
- Number of complications of liver disease
- Quantity of alcohol consumed

Methods

Members of the ArLD SIG were invited to participate in a service evaluation, which was centrally registered with and approved by the Clinical Audit Department at University Hospitals Plymouth NHS Trust. Each participating centre registered this evaluation with their Trust as a service evaluation according to local requirements.

Leads at each site used the following protocol to identify eligible patients and collect data. Patients with a completed unplanned hospital episode in the two periods from 17 Aug 2019 to 23 Aug 2019 and 17 Aug 2020 to 23 Aug 2020 inclusive were identified by application of a previously described coding algorithm.[6] This algorithm is more accurate in correctly identifying ArLD admissions than using only the selection of relevant alcohol-related liver disease codes for the primary diagnosis. In addition to ArLD codes in the primary diagnosis, the algorithm identifies both ArLD codes in non-primary diagnoses together with compatible symptoms and signs as the primary code and non-specific liver disease co-existing with alcohol-specific codes.

Diagnosis codes were populated in a coded Microsoft Excel spreadsheet, which identified eligible cases. These cases were manually reviewed by a member of the clinical team at each site and were eligible for the service evaluation if they met these criteria:

- Age ≥ 18
- Diagnosis of liver disease (clinical/radiological/histological/non-invasive markers)
    - Includes steatosis
- Diagnosis of alcohol-related liver disease on the basis of a history of active or previous harmful alcohol use
- Completed unplanned hospital episode during service evaluation period

The following data were collected into a pre-populated Excel spreadsheet:

- Severity of disease at time of admission (MELD, Child Pugh scores)
- Primary and secondary diagnoses
- Complications of cirrhosis (variceal bleed, hepatic encephalopathy, ascites, spontaneous bacterial peritonitis, hepatorenal syndrome, alcoholic hepatitis as defined in a recent consensus paper[7])
- Demographics
- Postcode (postal district only)
- Active alcohol use within 4 weeks prior to the admission
- Duration of abstinence if not actively consuming alcohol up to admission
- Quantity of alcohol consumed (units/week)
- Type of alcohol consumed
- Referral and admission to high dependency or intensive care units

Anonymised data were transferred by secure email to the service evaluation lead. Data were analysed using IBM SPSS version 25.

Results

Data were obtained from 26 acute hospitals in England and 2 in Scotland (figure 1). Of these 12 were tertiary centres, 9 district general hospitals and 7 transplant centres.

Figure 1. Locations of participating sites (inset shows Greater London)

Numbers of unplanned admissions

During the evaluation period in 2019 in all participating sites there were 223 unplanned admissions for patients with ArLD compared to 263 in 2020, an absolute increase of 18%.

Median number of admissions per site was 6 (range 1-29) in 2019 and 6 (2-35) in 2020. Fifteen sites had higher numbers of admissions in 2020 than 2019, 6 had the same and 7 fewer numbers of admissions. There was no statistically significant difference in number of admissions per site between 2019 and 2020 (p=0.25, Wilcoxon matched pairs test; figure 2)

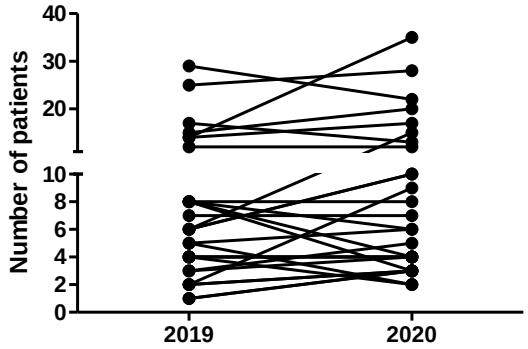

Figure 2: Number of unplanned admissions during evaluation periods per site in 2019 and 2020

Diagnoses

An alcohol-related primary diagnosis was present in 146 (65%) in 2019 and 164 (62%) in 2020, the commonest presentation being decompensation of ArLD. Primary diagnoses were similar between 2019 and 2020 (table 1).

Primary diagnosis	2019	2020
Alcohol withdrawal	24	38
Alcohol-related pancreatitis	9	8
Alcohol-related trauma	9	3
Alcoholic hepatitis	11	22
Decompensation of ArLD	69	72
GI bleed (non-variceal)	11	10
GI bleed (variceal)	10	11
Infection	15	10
Other (alcohol-related)	25	35
Other (not alcohol-related)	40	54

Table 1. Primary diagnosis of patients during evaluation period

Clinical outcomes

Comparing 2019 and 2020, there were no statistically significant differences in age (56 v 54; p=0.12), gender (both 37% female) or death during admission (9.0% v 7.2%; p=0.51). There were also no differences between patients with variceal bleeding, hepatic encephalopathy, ascites, spontaneous bacterial peritonitis, hepatorenal syndrome, alcoholic hepatitis, any decompensation or referral and admissions to critical care units (table 2). When only cases with a primary alcohol-related diagnosis

were considered there were no statistical differences in any severity score or clinical outcome comparing 2019 and 2020.

	2019	2020	p value
Total admissions	223	263	
Variceal bleed	14	15	0.85
Hepatic encephalopathy	54	44	0.05
Ascites	85	105	0.71
SBP	13	9	0.27
Hepatorenal syndrome	15	13	0.44
Alcoholic hepatitis	34	51	0.28
Any decompensation	120	135	0.64
Referral to critical care	18	31	0.23
Admission to critical care	17	28	0.28

Table 2. Number of patients with complications of ArLD during evaluation periods.

There was an increase in the number of patients who were actively drinking at the time of presentation from 151 to 196 (p=0.09). Among the active drinkers there were no statistical differences in any of the outcomes. However, the mean amount of alcohol consumed per active drinker was significantly higher in 2020 than 2019 (127 v 154 units per week; p=0.02; figure 3). Females consumed an average of 120 units per week in 2019 and 138 units in 2020 (p=0.32) and males, 130 units in 2019 and 164 in 2020 (p=0.045).

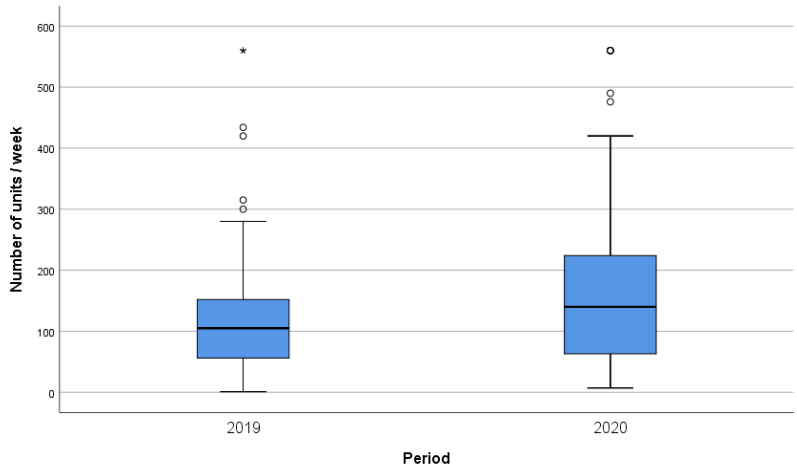

Figure 3. Number of units of alcohol consumed per patient per week within the 4 weeks prior to hospital admission during evaluation periods.

In active alcohol consumers, the most common type of alcohol consumed was spirits (38%) followed by beer, cider and wine. There were no significant differences in types of alcohol between 2019 and 2020 but there was a trend to more spirit consumption (figure 4).

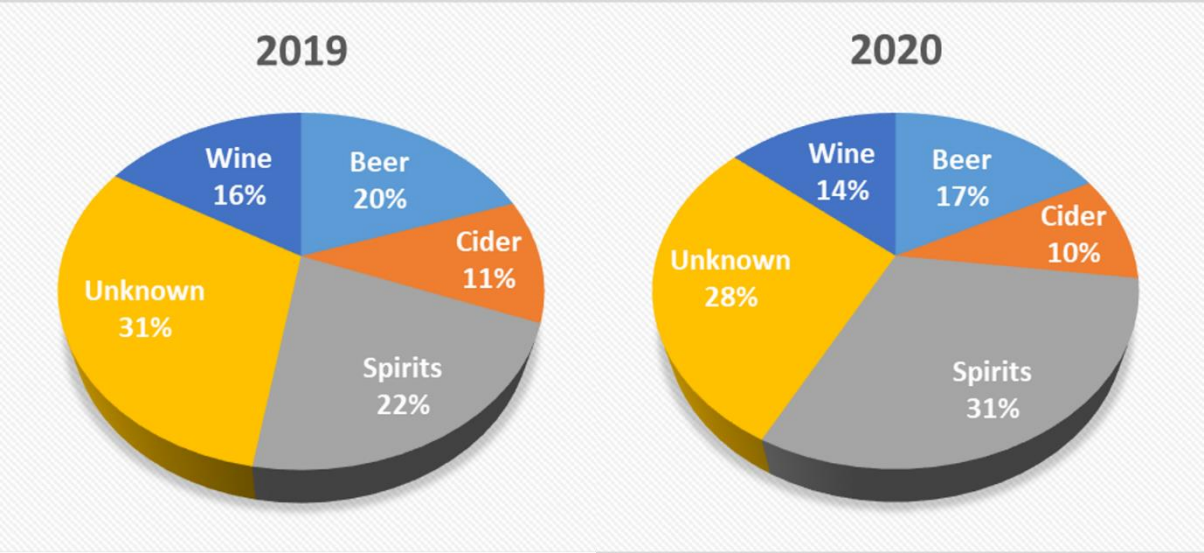

Figure 4. Type of alcohol consumed in patients who were actively drinking within 4 weeks of hospital admission in 2019 and 2020.

Patients in this evaluation had advanced liver disease with a mean Child Pugh Score of 8 (standard deviation 2.4) and MELD of 14 (SD 7.1). Comparing 2019 and 2020, there was no difference in severity of liver disease measured by Child Pugh Score (8.3 v 8.3 p=0.93) or MELD (14.1 v 13.9; p=0.16)

In patients with a diagnosis of alcoholic hepatitis, mean Child Pugh score was 10 (SD 2.3), MELD 20 (7.5) and discriminant function 90.4 (SD 69.6). These patients consumed a mean of 148 units of alcohol per week immediately prior to hospital admission.

Discussion

This national service evaluation sampled a representative cross section of acute hospitals within England and Scotland and collected detailed clinical data on a total of 486 unplanned hospital episodes, which were identified using a systematic and reproducible method. The total number of episodes was 18% higher in the 2020 evaluation period compared to 2019. The majority of patients were admitted to hospital with an alcohol-related primary diagnosis and had advanced liver disease. Patients in the 2020 evaluation period consumed more units of alcohol per week immediately prior to hospital admission compared to the same period in 2019. They were also more likely to be drinking spirits in 2020 than 2019. However, severity of liver disease and clinical outcomes were similar between years.

These data support the hypothesis that patients with ArLD were drinking more heavily during and after the first COVID-19 lockdown compared to before. It concurs with survey reports of greater numbers of high risk drinkers[3,4] and Public Health England survey data, which demonstrated that the lockdown disproportionately affected higher risk drinkers who were consuming more alcohol compared to lower risk drinkers who were more likely to decrease or stop alcohol use.

This service evaluation highlights the lack of resilience of UK alcohol services to provide support to high risk drinkers to prevent them reaching crisis requiring unplanned hospital admissions. It also demonstrates the need for ongoing investment in hospital based alcohol teams, which will be

needed to address greater numbers of patients with advanced ArLD and alcohol misuse resulting from the long-term impact of drinking behaviour during lockdown.

This study could not assess whether there were changes in numbers of admissions from more deprived areas after lockdown as data protection laws did not permit collection of each individual's full postcode. The study is also limited by the duration of the evaluation, which was restricted to a 7 day period in each year to reduce data burden on already overstretched clinical staff. Although it samples a range of locations and hospital types, transplant centres were over-represented and smaller district general hospital under-represented. Pairing these data with national hospital episode statistics would strengthen our understanding of the current burden of ArLD and the effect of lockdown on it and ensure generalisability of findings to the whole of the UK.

Recommendations

Workforce planning
There continues to be a heavy burden of ArLD in many areas of the UK which requires an appropriately trained and resourced workforce. This must include adequate numbers of alcohol liaison workers who can work outside the bounds of gastroenterology and hepatology, who are supported by Alcohol Clinical Leads at each trust. Alcohol Care Teams, which exist or are being developed in some regions, are integral for the management of ArLD patients and bridge the gap between hospital and community settings.

Alcohol cessation in community
There is a population of patients with ArLD that continue to drink harmful amounts of alcohol. It is a priority to identify and support treatment of these patients who are at high risk of decompensation and death from ongoing alcohol consumption. Methods to reduce alcohol consumption in this patient group in a community setting are urgently needed.

Ongoing service evaluation
This service evaluation should be repeated on an annual basis to obtain detailed information on the drinking behaviour, severity of liver disease and clinical outcomes of patients with ArLD. This will help future workforce planning and may be useful to determine the effect of future public health interventions such as minimum unit pricing.

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