Drug users' failure to modify alcohol consumption in response to hepatitis C

Angela Noonan, Paul Kavanagh, Brion Sweeney

Abstract

Objective: To measure (a) the prevalence of problem drinking in a population of methadone-treated drug users, (b) independent associations with problem drinking, (c) the effect of hepatitis C status on drinking behaviour, (d) the knowledge of drug users of their hepatitis C status and their perception of their drinking behaviour and (e) the attitude of drug users to the effect of alcohol on hepatitis C virus (HCV) related disease.

Method: A cross sectional survey of 130 drug users in treatment at the National Drug Treatment Centre, Dublin was carried out. A questionnaire incorporated the Alcohol Use Disorders Identification Test (AUDIT), and data were collected on sociodemographics, drug use history, perceived HCV status and drinking behaviour, and attitudes to the impact of drinking on HCV related disease. Hepatitis serology and drug urine data were collected from clinical records.

Results: The prevalence of problem drinking was 41% (95% CI 33-51%). Unstable accommodation, older age, male gender and longer duration of heroin use were independent associations with being a problem drinker. There was no significant difference in the prevalence of problem drinking across HCV status. Knowledge of HCV status was accurate, however 35% of those identified as AUDIT cases failed to recognise their problem drinking.

Conclusion: HCV infection among Irish drug users is compounded by a high prevalence of problem drinking with drug users failing to modify their drinking in response. Incorrect perception of problem drinking status could be a barrier to addressing this potentially remediable risk factor.

Key words: HCV infection; Alcohol; Methadone; Problem drinking.

Introduction

In common with many other countries, in Ireland hepatitis C virus (HCV) infection is endemic among the drug using population. For drug users in contact with treatment services, measures of the prevalence of HCV anti-bodies between 61.8% and 84% have been reported,[1,2] and the incidence has been estimated to be 66/100 person years at risk.[3] Natural history studies of HCV infection have estimated progression to cirrhosis in up to 24% of HCV infected patients after 20 years.[4] Approximately 170 million people are infected with HCV worldwide, comprising approximately 3% of the global population,[5] and currently, HCV is the most common cause of chronic liver disease and liver transplantation in the USA, Australia and most of Europe.[6-8]

Even conservative predictions estimate that the burden of HCV related disease will pose a major challenge for most health systems in the future. For example, based on age-specific prevalence data from the National Health and Nutrition Examination III (NHANES III), it has been estimated that in the period 2010-2019, HCV may lead to 720,700 person years of decompensated cirrhosis and hepatocellular carcinoma, with a loss of 1.83 million years of life in those under 65 years of age and with a societal cost of $21.3 million and $54.2 million respectively.[9] Similar estimates have been produced in France.[10]

In Ireland, extrapolating from a cohort of HCV PCR positive drug users, Kavanagh *et al* estimated that approximately 35 cases of hepatocellular carcinoma, 60 cases of hepatic decompensation and 50 liver related deaths could be expected to occur annually among the Irish opiate dependent population.[11]

Alcohol has been clearly shown to have an independent and multiplicative effect on the progression of HCV related liver disease,[12] even in moderate amounts.[13] Indeed, it has not been established that there is a 'safe' lower limit in those who are infected with HCV. To date there have been no studies published on the drinking response of the Irish drug using population to HCV infection.

The ROSIE (Research Outcome Study in Ireland) study examined one year outcomes of a cohort of opiate users in treatment. At one year participants reported reductions in the use of unprescribed methadone and benzodiazepines, heroin, cocaine and crack cocaine but there was no significant change in the proportion using alcohol, mean alcohol consumption or mean number of days on which alcohol was consumed.[14] A study conducted on a different cohort to the current study, of drug users in treatment in Dublin, used the Alcohol Dependence Scale and found a 56% prevalence rate of alcohol dependence.[15]

Comparison of international data is difficult due to the differing criteria used to evaluate drinking behaviour, however published studies indicate that problem drinking is a common co-morbidity in drug users. Problem drinking prevalence between 12% and 42% was reported in two American studies carried out in the 1970s.[16,17] The Tri-State Ethnographic

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Table 1: The distribution of characteristics across sample stratified by AUDIT status				
		AUDIT		
Characteristic	**Total n (%)**	**Case n (%)**	**Non-Case n (%)**	**p-value†**
Gender				
Male	67 (65.0%)	35 (81.4%)	32 (53.3%)	0.0032
Female	36 (35.0%)	8 (18.4%)	28 (46.7%)	
Age (years)*	28 (23-32)	33 (25-38)	27 (23-29)	< 0.0001
Age first drug use (years)*	14 (13-16)	14(12-16)	15 (13-16)	0.41
Age first main drug use (years)*	17 (15-22)	16 (15-19)	17 (15-22)	0.14
Years main drug use*	9 (6-15)	16 (8-20)	8 (5-10)	< 0.0001
Years any drug use*	12 (9-18)	19 (11-23)	11 (8-15)	< 0.0001
Age left school (years)*	15 (14-16)	14 (13-16)	15 (14-16)	0.02
Accommodation				
Roofless sleeper	9 (8.7%)	7 (16.3%)	2 (3.3%)	0.04
Stable	75 (72.9%)	27 (62.3%)	48 (80.0%)	
Unstable	19 (18.4%)	9 (20.9%)	10 (16.7%)	
No. of drugs used				
1	1 (1.0%)	0 (0%)	1 (1.7%)	0.20
2	3 (2.9%)	3 (7.0%)	0 (0.0%)	
3	5 (4.8%)	3 (7.0%)	2 (3.3%)	
4	25 (24.3%)	9 (21.0%)	16(26.7%)	
> 4	69 (67.0%)	28 (65.0%)	41 (68.3%)	

*median (interquartile range) †test characteristic across AUDIT case status

Project subsequently reported a prevalence of 16% of 'abusive pattern drinkers'.[18] In the UK 39.1% of clients undergoing methadone maintenance were reported to have 'actual or potential drinking problems' measured by the self-administered alcohol screening test (mSAAST).[19] Another UK study found that 41% of a sample of clients receiving methadone maintenance met DSM IV criteria for alcohol dependence.[20] A review of alcohol abuse among people on methadone, by Ottomanelli, found that rates ranged from 13-25%.[21]

Given that alcohol has a detrimental effect on the health of those with HCV infection, their drinking behaviour and its determinants have an important impact on their HCV-related prognosis. Clinicians involved in the treatment of those with HCV infection would be keen that those positive for HCV would modify their alcohol intake. In the UK McCusker examined the influence of HCV status on alcohol consumption in opiate users in treatment.[22] It was found that perceived HCV positive status had some impact on drinking behaviour with fewer HCV positive than HCV negative clients consuming any alcohol in the previous year and more HCV positive clients reducing their consumption in the year after diagnosis.

In order to make a decision to modify drinking, drug users must be armed with accurate information regarding their HCV status. Though they may be aware of the risks of infection associated with their drug use they may not be as certain of their own status. Best *et al* reported that 13.3% of opiate users in treatment incorrectly ascertained their HCV status and 8.9% were unaware of their status.[23]

This study aimed to measure the prevalence of problem drinking, defined as an AUDIT score of eight or more in an Irish, opiate dependent sample receiving methadone maintenance. Awareness of HCV status and the impact of alcohol consumption on HCV related liver disease were also evaluated.

Methods

The sampling frame was clients from one of the three sectors attending the National Drug Treatment Centre. This is the longest established and largest drug treatment service in Ireland and is located in the city centre in Dublin. All current clients of the sector in the period September to December 2002 were verbally invited to participate. All participants were receiving oral methadone maintenance treatment.

A questionnaire was designed incorporating the AUDIT questionnaire, perceived HCV status, perceived drinking behaviour and knowledge of the interaction of alcohol with HCV liver disease. From clinical records most recent HCV, HIV and hepatitis B serology was obtained, and a measure of polydrug misuse was constructed by counting the number of drug varieties used in the previous year based on urine drug screening.

Clients were also questioned about the age at which they first used any drug, the age at which they first used opiates, the age they left school and their current accommodation status. Accommodation status was classified as roofless (ie. sleeping outdoors), unstable (ie. sleeping indoors, but no continued tenure over the last month) or stable (ie. sleeping indoors with continued tenure for at least one month).

Participants were asked to respond to the following statements. (a) 'Alcohol may worsen HCV related liver disease' and (b) 'Reducing alcohol consumption can help HCV related liver disease'. Without prompting, respondents were asked to

Table 2: Logistic regression model to determine independent associations with being identified as a problem drinker

Characteristic	AUDIT n (%)	OR (95% CI)	p-value
Gender			
Female	8 (22.2%)	1	
Male	35 (53.3%)	3.9 (1.4-12.1)	0.01
Accommodation			
Stable	27 (36.6%)	1	
Other than stable	16 (57.1%)	6.1 (1.9-23.0)	0.005
Age (years)			
< 29	12 (22.6%)	1	
≥ 29	29 (63.0%)	4.3 (1.1-17.4)	0.03
Main drug use (years)			
< 10	12 (22.6%)	1	
≥ 10	31 (62.0%)	4.9 (1.2-22.9)	0.03
Any drug use (years)			
< 12	11 (25.6%)	1	
≥ 12	32 (53.3%)	0.6 (0.2-2.5)	0.52
Age left school (years)			
< 15	24 (52.1%)	1	
≥ 15	19 (33.3%)	0.8 (0.3-2.3)	0.70

Model parameters: df 6; χ^2 38.0; p < 0.001; R square 0.27

Table 3: The distribution of virological results across the sample stratified by AUDIT case status

	Audit			
Characteristic	Total n (%)	Case n (%)	Non-Case n (%)	p-value†
HCV Ab				
Negative	16 (15.6)	6 (13.9)	10 (16.6)	0.64
Positive	84 (81.6)	35 (81.4)	49 (81.7)	
Untested	3 (2.8)	2 (4.7)	1 (1.7)	
HCV PCR				
Not applicable	16 (15.6)	6 (13.9)	10 (16.6)	0.57
Negative	4 (3.9)	1 (2.3)	3 (5.0)	
Positive	16 (15.6)	9 (20.9)	7 (11.7)	
Untested	67 (65.0)	27 (62.8)	40 (66.7)	
HBsAg				
Negative	92 (89.3)	37 (86.0)	55 (91.7)	0.66
Positive	9 (8.7)	5 (11.6)	4 (6.7)	
Untested	2 (1.9)	1 (2.3)	1 (1.7)	
HIV				
Negative	84 (81.6)	33 (76.7)	51 (85.0)	0.37
Positive	12 (11.7)	5 (11.6)	7 (11.7)	
Refused	1 (1.0)	1 (2.3)	2 (3.3)	
Untested	6 (5.8)	4 (9.3)		

†test characteristic across AUDIT status

self-report their HCV and problem drinker status; this report was collected prior to application of the AUDIT tool. The same investigator (AN) interviewed all participants.

The Alcohol Use Disorders Identification Test (AUDIT) was used to screen for problem drinking. An AUDIT score of eight or more was used to define a case. The AUDIT was developed from a six-country WHO collaborative project as a screening instrument for hazardous and harmful alcohol consumption. Eight is taken as the cut off point, as during the development of the AUDIT questionnaire, 92% of those diagnosed as having hazardous or harmful alcohol use, had a score of eight or more, and 94% of those with non-hazardous consumption had a score of less than eight.[24] The AUDIT has been validated for use in a drug dependent population.[25]

Data were analysed using the Chi-squared and Kruskall Wallis tests. Using a reverse elimination strategy beginning with all significant (p < 0.05) associations on bivariate analysis, logistic regression was carried out to determine independent associations with problem drinking.

Results

Of the 130 clients in the study population, 103 (79%) agreed to participate in the study. The sample consisted of 67 (65%) men and 36 (35%) women. The median age was 28 years. *Table 1* presents the distribution of sociodemographic, personal history and drug use history characteristics across the group.

Forty-three clients were identified as audit cases indicating

a problem drinking prevalence in the population of 41% (95% CI 33-51%). Bivariate analysis was used to identify those characteristics that varied significantly across problem drinker status *(Table 1)*.

Male gender, older age, longer duration of drug use and being in accommodation that was not stable, were all significant and independent associations with the likelihood of being a problem drinker *(Table 2)*.

Eighty-four participants (82% of those surveyed), were HCV antibody positive. The prevalence of HCV antibodies was not significantly different across problem drinker status (81.4% for problem drinkers versus 81.7% for non-problem drinkers, p = 0.64). Most of those who were HCV positive had no available HCV PCR test results. (Another study of Irish drug users in treatment found the prevalence of HCV PCR to be 55.7%.[11]) *Table 3* presents these results along with the distribution of other viral markers across the study group.

Most of the study participants had accurate self-reported HCV status; 99% of those who reported their HCV status as negative were correct when compared with their most recent laboratory records. However, the study group did not perform well in correctly self-reporting their problem drinker status. Thirty clients regarded their drinking as problematic and 28 (93%) of these were AUDIT cases. Seventy-three clients believed they were not problem drinkers but 15 (21%) were AUDIT cases. This means that 35% of those identified by the AUDIT tool as having problem drinking did not recognise their drinking as such.

Finally, participants were asked two simple questions to measure their beliefs about the effect of alcohol on HCV disease progression. Most participants agreed that alcohol had a negative effect on disease progression and agreed

that reducing alcohol could be beneficial. Of the participants 101 (98%) agreed that 'alcohol may worsen HCV related liver disease' and 94 (92%) agreed that 'reducing alcohol consumption may help HCV related liver disease'.

Discussion

Given its impact on HCV-related disease progression, moderating or eliminating alcohol consumption is a potentially health-promoting response to a diagnosis of HCV infection. McCusker found that perceived HCV positive status had some influence on alcohol consumption among opiate users in treatment.[22] The prevalence of HCV infection in our study population was high (82%), as was the level of problem drinking (41%).

It is worrying that the prevalence of HCV infection was not lower in the problem drinkers identified in the study population as this suggests that these drug users have not adopted healthier drinking behaviours in response to their infection. There is high awareness of the negative interaction between alcohol and hepatitis C so further education in this area is unlikely to affect behaviour.

Internationally, excessive alcohol use is recognised as a significant co-morbidity for opiate addiction in treatment,[19,20,24,26] with prevalence recorded at between 30% and 50%. A significant finding in this study was that 35% of those who were AUDIT cases failed to identify themselves as problem drinkers. This is an area of possible intervention. Educational advice may not prove effective, however motivational interviewing is an alternative approach.

Motivational interviewing is a well studied method of counselling, developed by Miller and Rollinick.[27] It involves helping people recognise and address problems, especially those who are reluctant to change and are ambivalent about changing. Some of the principles of motivational interviewing include the expression of empathy, the development of discrepancy between current behaviour and goals and involving the client actively in the process of problem solving. It has been found to be effective as a brief intervention for excessive drinking.[28] It has been found to be superior to traditional advice giving in the treatment of a broad range of diseases and behavioural problems.[29]

Motivational interviewing has been found to reduce alcohol use among injection drug users with drinking problems.[30] According to the Mesa Grande project, which reviews clinical trials for the treatment of alcohol disorders, the least supported interventions are those designed to foster insight, educate or confront.[31]

Conclusion

The independent associations with problem drinking of older age, longer duration of drug use, unstable accommodation and male gender are not necessarily causal and some may even be effects, but are still areas of possible intervention. Clinical assessment of drug users should include an alcohol use history as decreased awareness can reduce harm prevention behaviour on the part, both of the drug user and professional.

Ideally primary prevention strategies would successfully prevent people beginning drug use. This remains largely aspirational. Secondary prevention strategies should intervene to prevent drug users progressing to injection drug use and,

if injecting, to prevent sharing injecting equipment. Despite secondary prevention strategies HCV infection continues to spread.[3] Therefore programmes for HCV control in the drug using population need to consider tertiary prevention strategies which aim to ameliorate risk factors, such as alcohol misuse, to reduce disease progression and to improve access to effective treatment for infection.

According to a report produced in 2006, Ireland has the highest proportion of income spend on alcohol and the highest rate of binge drinking in the European Union.[33] The SLÁN Survey of Lifestyles and Nutrition in Ireland in 2003, and more recently in 2007, identified 13% and 8% of respondents respectively as drinking more than the recommended weekly limit.[34,35] A paper on the psychological health and wellbeing of young Irish adults whose average age was 21, found that 22% had a likely diagnosis of alcohol dependence yet none of the participants in this study classified themselves as heavy drinkers and 55% regarded themselves as moderate drinkers.[36]

The Alcohol Aware Practice Pilot was the first national study on alcohol in primary care.[37] It found that 16% of the study population had hazardous drinking and 3% had harmful drinking, based on AUDIT scores.

The problem drinking of those positive for HCV must be considered in the wider societal context. The high level of alcohol consumption in Ireland in general, makes it even more challenging to target this high risk group, however, as problem drinking is a potentially remediable factor for HCV progression it is a worthwhile undertaking.

Declaration of Interest: None

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