Published in final edited form as:

Am J Drug Alcohol Abuse. 2012 May ; 38(3): 228–232. doi:10.3109/00952990.2011.643974.

Hepatitis C knowledge and alcohol consumption among patients receiving Methadone Maintenance Treatment in Shanghai, China

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Abstract

Objectives—To investigate Hepatitis C Virus (HCV) knowledge and alcohol consumption among patients (N=114) in a Methadone Maintenance Treatment (MMT) clinic in Shanghai.

Methods—A cross-sectional survey was carried out in an MMT clinic. Structured questionnaires (HCV Knowledge Scale, Alcohol Use Disorders Identification Test (AUDIT)) and some open-ended questions were used to assess (1) HCV knowledge; (2) HCV treatment received, (3) awareness of HCV status; and (4) alcohol consumption.

Results—Findings revealed the HCV-positive rate was 57.0%. There were significant gaps in knowledge about HCV and HCV treatment received. The group mean score of HCV knowledge was 11.3 out of 20 (SD=2.1) and the mean score on the AUDIT was 3.2 (SD=5.4). Most participants (68.4%) reported not knowing their HCV status. Among HCV-positive participants, only 15.3% had received HCV anti-virus treatment, and 18.4% expressed a need for counseling about HCV infection.

Conclusions—Considering the limited HCV knowledge and low level of HCV treatment received, effective HCV education and intervention strategies should be developed to target patients in China's MMT clinics. Moreover, alcohol screening also should be part of the routine assessments within MMT programs. Scientific Significance: The current study reveals the importance of HCV testing and education among drug users in MMT clinics.

Keywords

Methadone Maintenance Treatment; Heroin users; alcohol; Hepatitis C

INTRODUCTION

In China, the prevalence of Hepatitis C Virus (HCV) infection has been steadily increasing over time, as reported by the Chinese Ministry of Health as well as the World Health Organization (WHO) (1). According to the WHO, at least 3–5% of the Chinese population is HCV positive. With an estimated population of 1.3 billion, the number of HCV-infected people in China could exceed 50 million (1). Increasing HCV infection in China poses a serious public health threat since there is no vaccine for HCV at present. Thus, educating

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Declaration of Interest

This work was supported by grants from Shanghai Health Bureau (2008093) to Dr. Jiang Du and the US National Institute of Health (R01TW00727) to Dr. Min Zhao. The authors have no conflicts of interest to disclose. The authors alone are responsible for the content and writing of the paper.

health providers, patients, as well as the general public, is urgently needed to prevent further HCV transmission.

HCV is transmitted primarily by direct contact with human blood. In China, blood donation used to be the major route of HCV transmission (2). At present, donated blood is tested for HCV antibodies in China to prevent transmission. Now, the major route of transmission has shifted to injection drug use (IDU). The rate of HCV among IDUs in China ranges from 15.6% to 98.7% and varies by geographic region (3). Despite the high rates of HCV infection among IDUs, little attention has been paid to containing this epidemic. Specifically, there is no prevention or intervention program to manage HCV or prevent further HCV transmission among injection drug users.

Due to the absence of a vaccine for HCV infection, it is important to educate HCV-negative injection drug users about HCV infection and prevent them from contracting the virus. For example, alcohol consumption is an important factor in HCV infection prevention and treatment (5). On one hand, alcohol use may increase the risk of engaging in unprotected sex behaviors. More importantly, alcohol can exacerbate steatosis (which commonly occurs among HCV patients), resulting in more rapid fibrosis progression. Therefore, it is critical that health care providers assess alcohol consumption, especially for HCV positive patients and provide targeted interventions for drug users.

Further, many studies have reported that HCV knowledge is fairly poor among injection drug users (4). Also, HCV positive patients are less likely to seek HCV treatment and support if they don't have sufficient knowledge about HCV transmission, progression and treatment. Methadone Maintenance Treatment (MMT) clinics may provide a window for health care providers to educate HCV positive patients about HCV transmission and treatment.

However, no study has ever reported on HCV-related knowledge, HCV treatment, and alcohol consumption among drug users in China. Also it is unknown how drug users in China obtain HCV-related education and prevention information in treatment settings. The purposes of the current study are to assess HCV knowledge and current status of HCV-related education, treatment, and alcohol consumption among heroin addicts in a MMT clinic in Shanghai. These data are intended to support the development of culturally relevant prevention strategies for this high risk population.

METHODS

Sample

This is a cross-sectional study conducted between October and December 2008 at one Methadone Maintenance Treatment (MMT) clinic in Shanghai, China. Via advertisement, 114 out of 150 patients at this MMT clinic who met National Regulations criteria for methadone treatment were recruited for the study after informed consent was signed. Participants were interviewed for about 30 minutes by trained interviewers. Referrals to HCV treatment were provided to all HCV positive patients at the completion of each interview. This research protocol was approved by the Ethics Committee of the Shanghai Mental Health Center, Shanghai, China.

Measures

Demographic Characteristics—Information was collected on age (in years), education level and marital status. Data were also collected on patients' treatment and drug use histories.

HCV Related History—HCV related history included HCV treatment service utilization and history of alcohol use. HCV treatment service utilization included two open ended questions. First was what HCV-related care a participant received since being admitted to drug abuse treatment, and second, what HCV-related services he or she wished to receive in drug abuse treatment. Further, participants were also asked about alcohol use and knowledge of liver disease. Questions included “What do you know about the dangers of heavy alcohol use on liver disease?” and “What do you know about alcohol’s effect on HCV treatment?” Patients who did not use any alcohol during their lifetime were asked “Could you explain why you did not use alcohol?”

The Alcohol Use Disorder Identification Test (AUDIT)—AUDIT was developed by the WHO to identify hazardous and harmful alcohol use, as well as dependence, and is specifically designed for international use (6). The AUDIT consists of 10 items to measure the quantity and frequency of alcohol use, possible dependence symptoms, and recent and lifetime problems associated with alcohol use. Responses are scored on a point system, a total score of eight or greater indicates an alcohol problem. The AUDIT was translated and validated in Chinese (7). The Chronbach alpha coefficient for the Chinese version of AUDIT was 0.87, and ICCs for total score and individual items were over 0.9. In the Chinese version, the cut-off score of harmful drinking was seven (8).

Levels of HCV knowledge—The HCV knowledge questionnaire includes 20 items concerning HCV transmission risk and risk behaviors, HCV diagnosis and disease progression, current HCV treatment options and treatment outcomes (9). One point is given for each correct answer with a possible score ranging from 0 to 20. The instrument was translated into Chinese by one psychiatrist and back-translated by another psychiatrist. The instrument was pilot tested in 10 drug abuse patients. Some items were slightly revised based on the responses of these patients.

HCV test results—HCV tests are part of the routine procedure in MMT clinics in China. Patients provide 3 ml blood samples to the Shanghai Center for Disease Control (CDC) for HIV, HBV, and HCV antibody testing at intake and once a year thereafter. In the current study, we obtained HCV antibody test results from the MMT clinic records with the permission of participants and the clinic.

Analyses

The Chi-square test was used for categorical variables and the t-test for continuous variables with statistical significance of $p < 0.05$. The Statistical Package for the Social Science (SPSS) version 17.0 for Windows was used for all data analyses.

RESULTS

The demographic characteristics and drug use histories of the study sample are summarized in Table 1. Participants were predominantly male, unmarried, and with less than high school education. There was no difference between HCV positive and HCV negative patients on demographic characteristics and drug use histories.

The overall HCV infection rate is 57% (Table 2). More than half of participants reported having attended voluntary drug abuse treatment, rehabilitation through labor treatment (labor camp), and compulsory treatment in the past, but few of them had received HCV-related education when they were in those treatment programs. The majority (68.4%) of the sample did not know their HCV status, and 57.7% of those who reported not knowing their HCV status were HCV positive. 52.8% of those who reported they were HCV negative were

HCV positive. Only 15.3% of HCV-positive participants reported receiving anti-virus treatment for HCV. Only about one-in-ten reported having received Hepatitis A (HAV) or Hepatitis B (HBV) vaccines in the past.

Regarding HCV knowledge and alcohol consumption, the mean HCV knowledge score was 11.3 (SD=2.1), and the mean AUDIT score was 3.2 (SD=5.4). A substantial proportion of the participants held misconceptions about various aspects of HCV transmission and treatment. There was no difference between HCV positive and HCV negative patients on HCV related knowledge and alcohol consumption. (Table 3).

DISCUSSION

The results of this study reveal some key issues that relate to HCV prevention and intervention in China. In this study, the HCV positive rate was lower (57%) compared to other reports (10). HCV-related knowledge was limited among drug users in this study and is similar to levels found in other studies in the US. using the same instrument (11). Furthermore, because the HCV test was conducted at treatment admission and most patients did not know their HCV status before the assessment, we did not find the differences on HCV knowledge level and alcohol consumption between HCV positive and negative groups. Most participants knew very little about HCV transmission and treatment, and the majority of HCV positive participants did not know their HCV infection status, thereby preventing them from seeking HCV related treatment and reducing liver damage. Because of their limited HCV-related knowledge, patients could not use effective measures to reduce their risk of HCV infection. For HCV seropositive patients, they did not know how to get HCV treatment using existing resources. In addition, although more than three-fifths of participants gave correct answers to the HCV knowledge statement “Hepatitis C infected clients should get vaccinated for Hepatitis A and Hepatitis B”, only about 10% of participants reported getting vaccinated for HAV or HBV. This finding highlights the importance of not only helping patients obtain HCV-related knowledge, but also assisting them in translating this knowledge into actual behaviors.

The challenges raised by HCV infection have been recognized in China. As a response to the rapid spread of HCV, in 2004 the “HCV Prevention Guideline in China” was issued. But for drug users, no effective effort has been taken to control this problem. For example, even though the US National Institutes of Health (NIH) Hepatitis C Consensus Conference in 2002 recommended treatment for HCV for injection drug users, as determined on a case-by-case basis (12), this recommendation has not been followed by China. According to the Hepatitis C Prevention Guideline in China (13), active drug users are excluded from anti-virus treatment.

The government requires drug abuse treatment programs, including MMT sites, voluntary drug abuse treatment centers, and compulsory drug abuse treatment centers, to test patients for HCV. However, very little is known about HCV intervention for patients beyond HCV testing. Based on some open-ended questions, participants said “Blood was drawn before I entered the treatment site, but I did not know why, and nobody told me the test results.” “Actually, I did not care about the results since I know I was HIV negative. HIV positive patients will be dead soon, but HCV is ok.” It is well documented that drug treatment systems are uniquely situated to educate, counsel, and facilitate patient access to HCV related medical treatment (10). In China, voluntary treatment centers, compulsory treatment centers, and labor camps are the three main places for drug abuse treatment, but our results showed that although more than half of participants had attended at least one of these sites for treatment, few of them received HCV-related education. This indicates that there are gaps in treatment programs’ provision of HCV services.

In terms of alcohol consumption, studies in both China and western countries have shown that there is a high prevalence of alcohol use, abuse and dependence in MMT patients (14, 15). For example, Liu investigated alcohol consumption among MMT patients in Xi'an province, located in central China. The results showed that compared to baseline, alcohol use/abuse increased at 3 months follow up since being admitted to MMT. Interestingly, we did not find severe alcohol abuse among this sample. The mean score of AUDIT is 3.2. According to the cut-off point of Chinese version of AUDIT, only 17 participants (14.9%) meet the criteria for harmful drinking. In China, alcohol consumption is impacted by local customs. Compared to the east of China, the south of China has relatively low rates of alcohol use/abuse, which may explain the difference in our findings. Also, from our qualitative research we found that most drug users at our MMT clinic believe that it is unsafe to use alcohol in combination with heroin. For example, one participant said "all heroin users know that if they use heroin and alcohol together, they will die", "One of my friends died of using heroin combined with alcohol. It is very dangerous." Both alcohol and heroin can inhibit respiration, so using heroin combined with alcohol may enhance drug-induced respiratory arrest. In the current study sample, we could not identify the reason why they did not use both heroin and alcohol together. Further qualitative study should be done to explore this issue in the future. Although alcohol consumption was not severe in this sample, it does not mean that drug users understand the harm that alcohol consumption can cause to liver function. Another plausible explanation is that the abstinence time is not long enough in this sample. The average treatment time for MMT is 3.2 (2.1) months in this study sample. Alcohol consumption might increase with the passage of time. Future studies should explore alcohol consumption among long-time abstinent drug users.

Experience with the treatment of other chronic illnesses in IDUs suggests that their complex medical needs can be effectively addressed by linking delivery of medical care with services for treatment of substance abuse (13, 14). MMT participation requires adherence with clinic visits and regular contact with treatment staff, which potentially could facilitate adherence to an HCV intervention. In China, MMT clinics began operation in 2004, and by the end of 2010 there were 696 MMT clinics serving 300,000 heroin users. There is therefore a unique opportunity for China's MMT clinics to serve as platforms for delivering HCV-related interventions and education programs to large numbers of drug users.

A few limitations of the study should be mentioned. The results of this study may not be representative of drug users in other areas of China. Future research should be conducted in different MMT clinics in different regions of China. Another limitation is that the responses in the original HCV knowledge questionnaire include Yes, No, and Don't Know, but in the pilot study, we found patients were likely to response "don't know" without thinking carefully. In order to avoid this issue, we revised the questionnaire and provided two choices (true or false). This maybe lead to overestimating patients' HCV knowledge levels, but overall, the score still demonstrated the limited HCV knowledge among this population. Finally, HCV serostatus was only based on antibody tests in the current study, and no confirmatory test was conducted, which may decrease the accuracy of HCV diagnosis.

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Table 1

Sample characteristics and drug use histories

	Total (n=114)	HCV-Negative (n=49)	HCV-Positive (n=65)
Gender, %			
Male	75.4	71.7	76.9
Female	24.6	28.3	23.1
Age, Mean (SD)	39.7 (8.6)	38.1(8.8)	40.8(8.2)
Marital Status, %			
Married	21.1	18.5	23.5
Widowed/Separated/divorced	36.8	41.2	32.1
Never Married	42.1	40.3	44.4
Education, %			
Less than high school	55.3	46.8	58.9
High school	38.6	45.7	35.3
College/university	6.1	7.5	5.8
Age of first drug use, Mean (SD)	19.8 (8.0)	19.3(8.7)	20.2(7.8)
Years of drug use, Mean (SD)	8.6 (3.7)	8.5(4.4)	8.7(3.1)
How many months have you stay in MMT	3.2(2.1)	3.0(1.8)	3.3(2.2)

Table 2

Drug treatment and HCV treatment histories

	Total (n=114)	HCV-Negative (n=49)	HCV-Positive (n=65)
HCV-infected, %	57.0	NA	NA
HCV status unknown at admission, %	68.4	66.0	70.1
Drug treatment facility, %			
Voluntary	61.4	63.4	58.1
Labor camp	51.8	47.7	53.2
Compulsory	58.8	61.2	55.7
Drug treatment facility where HCV information was received, %			
Voluntary	31.5	31.4	31.6
Labor camp	37.2	35.3	39.2
Compulsory	31.3	33.3	29.2
HCV care utilization, %			
Ever sought care for HCV counseling	18.4	16.2	19.7
Hepatitis treatment/vaccine			
HCV anti-virus therapy	NA	NA	15.3
HAV vaccine	10.5	10.1	10.8
HBV vaccine	11.4	10.6	12.3

Table 3

Proportion of correct responses to questions about Hepatitis C and alcohol consumption by HCV infection status

	Total (n=114)	HCV-Negative (n=49)	HCV-Positive (n=65)
1. If you have Hepatitis C, drinking a few glasses of wine every day won't hurt your liver.(F)	86.0	81.6	89.2
2. You can get the hepatitis C virus by using a hepatitis C infected person's razor.(T)	53.5	61.2	47.7
3. If a person's liver function tests are normal, the person definitely doesn't have hepatitis C.(F)	63.2	65.3	61.5
4. You'll probably get hepatitis C if you eat food from a plate that wasn't cleaned well. (F)	40.4	38.8	41.5
5. The only way a doctor can really know how much the hepatitis C virus has hurt a person's liver is by doing a liver biopsy.(T)	63.2	69.4	58.5
6. Hepatitis C infected clients should get vaccinated for hepatitis A and hepatitis B.(T)	58.8	63.3	55.4
7. All hepatitis C infected people will get rid of the virus if they stay on hepatitis C medications for at least one year.(F)	59.7	59.2	60.0
8. You should never take medications for hepatitis C if you have HIV.(F)	70.2	69.4	70.8
9. Hepatitis C is mostly spread through risky sex.(F)	61.4	59.2	63.1
10. Most new hepatitis C infections are caused by injection drug use.(T)	57.0	59.2	55.4
11. If you take medications for hepatitis C, you need to take them for many years.(T)	69.3	69.4	69.2
12. There is a vaccine that protects against hepatitis C.(F)	37.7	30.6	46.2
13. When people share needles, it's easier to get HIV than hepatitis C.(F)	50.0	46.9	52.3
14. Hepatitis C can be spread when injection drug users share their rinse water.(T)	62.3	57.1	66.2
15. Drug users must stop taking methadone before starting HCV medication.(F)	71.1	67.3	73.8
16. If you take medications for hepatitis C, you need to take them for many years.(F)	22.8	18.4	26.2
17. Although the risk is low, it is possible to get hepatitis C by sharing pipes when smoking drugs.(T)	67.5	69.4	66.2
18. Most people who have hepatitis C will get serious liver disease.(F)	14.0	12.2	15.4
19. Bleaching needles is a good way for injection drug users to avoid getting HCV.(F)	71.1	67.3	73.8
20. Some people infected with HCV can get rid of it without needing to take any medications.(T)	21.9	16.3	26.2
HCV knowledge score, (SD)	11.3(2.1)	11.4(2.2)	11.2(2.1)
AUDIT score, (SD)	3.2 (5.4)	3.4(6.1)	3.1(5.1)
Meet the criteria of harmful drinking, %	14.9	12.2	16.9