Poster # 558

Treatment Readiness for Hepatitis C Virus Infection Among PWID in Chennai, India

EU Patel,[1] SS Solomon,[1] A McFall,[1] AK Srikrishnan,[2] A Pradeep,[2] J Yi,[1] O Laeyendecker,[1,3] DL Thomas,[1] MS Sulkowski,[1] SH Mehta[1]

[1]Johns Hopkins University, Baltimore, MD, USA; [2]Y.R. Gaitonde Centre for AIDS Research and Education, Chennai, India; [3]Division of Intramural Research, NIAID, Baltimore, MD, USA

Correspondence to:
Shruti H. Mehta, PhD MPH
615 N Wolfe St, E6546
Baltimore, MD 21205
P: 443.287.3837
E: smehta@jhu.edu

ABSTRACT (revised)

Background. Global hepatitis C virus (HCV) elimination will require widespread treatment of people who inject drugs (PWID). PWID have historically had limited HCV treatment uptake. Little is known, however, about residual barriers in the direct acting antiviral (DAA) era, particularly in low resource settings, some of which are implementing elimination programs. We examined barriers to HCV treatment among PWID in India, where treatment access is expanding through generic DAAs (current cost: $600 USD per course).

Methods. From 3/15-8/16, participants enrolled in an ongoing community-based cohort of current and former PWID in Chennai, India (n=541) completed a one-time questionnaire on HCV treatment barriers. At biannual follow-up visits, participants underwent a survey and lab testing including HCV & HIV antibody and RNA levels. Descriptive statistics were used to compare characteristics and survey responses.

Results. Of 541 participants, 213 (39.4%) were HCV-infected, 151(27.9%) were HCV RNA positive, and 61(28.5%) were HIV/HCV co-infected. In a 13-item survey, we found moderate knowledge about HCV disease and treatment among HCV uninfected (median=7 [interquartile range (IQR), 6-7]), HCV mono-infected (median=7 [IQR, 6-8]) and HCV/HIV co-infected participants (median=6 [IQR, 6-7]). Only 30% of HIV/HCV co-infected patients knew HCV was curable (compared to 57% of HCV mono-infected). Only 17 participants reported seeing a doctor and 2 a specialist who could treat HCV, and an additional 10 participants were co-enrolled in a clinical trial of HCV treatment. In total, 11 (5.1%) initiated treatment and 10 (4.7%) completed treatment. The primary barriers for not being linked to care were worries/fears about treatment (related to interferon) and competing financial priorities. Willingness to take weekly interferon injections improved with decreasing duration of treatment (66.7% for 12 weeks vs. 19.2% for 52 weeks) among mono-infected participants. Factors that improved willingness were pills (vs. injections), perceived efficacy, cost and location with a higher proportion preferring daily visits to a clinic vs. receiving a month's supply.

Conclusions. These data highlight residual gaps in knowledge and continuing perceptions related to interferon-based therapy among PWID in India. Treatment rollouts need to incorporate educational initiatives and should consider a directly observed therapy (DOT), analogous to what is done for TB.

BACKGROUND

- Global hepatitis C virus (HCV) elimination will require widespread treatment of people who inject drugs (PWID).
- Historically, PWID have had limited uptake of HCV treatment. However, little is known about residual barriers in the era of direct acting antivirals (DAA), particularly in low-resource settings, some of which are implementing HCV elimination programs.
- We examined barriers to HCV treatment among PWID in Chennai, India, where treatment access is rapidly expanding through generic DAAs (current cost of treatment course: $600 USD).

METHODS

STUDY POPULATION

- From March 2015 to August 2016, participants enrolled in an ongoing community-based cohort of current and former PWID in Chennai, India completed a one-time questionnaire on HCV treatment barriers at Y.R. Gaitonde Centre for AIDS Research and Education (YRGCARE). The questionnaire was administered by trained interviewers.
- At biannual follow-up visits, participants underwent a survey and lab testing including HCV & HIV antibody and RNA levels. These data were ascertained from the visit closest to the date the barriers questionnaire was administered. "Recent" behaviors refers to "in the past 6 months".
- All persons had to be ≥18 years of age, report a history of drug injection, and provide informed consent.

STATISTICAL ANALYSIS

- A 13-item knowledge score was calculated by summing the total number of correct responses. Comparisons by HCV and HIV status were made by Fisher's exact tests and Kruskall-Wallis rank tests for proportions and knowledge scores, respectively.
- Among treatment-naïve HCV-infected participants, we explored self-reported barriers to specialist care and willingness to undergo treatment. Data are stratified by HIV status.

ETHICAL CLEARANCES

- This study was approved by the JHSPH, and the YRGCARE IRBs.

RESULTS

No. with Correct Response (%)	Correct Answer	Total (n=541)	HCV uninfected (n=328)	HCV mono-infected (n=152)	HCV/HIV co-infected (n=61)	P
General Knowledge Items						
1. Someone with HCV can look and feel fine	True	517 (95.1)	310 (94.5)	149 (98.0)	58 (95.1)	0.219
2. If someone is infected with HCV, they will carry the virus all their lives	False	11 (2.0)	5 (1.5)	4 (2.6)	2 (3.3)	0.433
3. Infection with HCV can cause the liver to stop working	True	476 (88.0)	279 (85.1)	140 (92.1)	57 (93.4)	**0.037**
4. Someone with a positive HCV Ab result today can test negative in the future	False	440 (81.2)	266 (81.1)	117 (77.0)	57 (93.4)	**0.014**
5. PWID should get the hepatitis A and B vaccine regardless of HCV status	True	134 (24.8)	84 (25.6)	38 (25.0)	12 (19.7)	0.644
6. Everyone with chronic HCV infection will develop liver failure or liver cancer	False	117 (21.6)	69 (21.0)	33 (21.7)	15 (24.6)	0.830
7. A vaccine is available for HCV	False	492 (90.9)	298 (90.9)	140 (92.1)	54 (88.5)	0.682
8. People with HCV should avoiding drinking alcohol	True	535 (98.9)	324 (98.8)	151 (99.3)	60 (98.4)	0.702
Treatment Knowledge Items						
9. HCV infection can be cured	True	289 (53.4)	185 (56.4)	86 (56.6)	18 (29.5)	**<0.001**
10. HCV can be cured with just a couple of pills a day taken for 12 weeks	True	97 (17.9)	54 (16.5)	34 (22.4)	8 (13.1)	0.183
11. HCV treatment causes bad side effects in a lot of people who take them	False	96 (17.7)	135 (41.2)	25 (16.5)	3 (4.9)	**<0.001**
12. Some people's bodies can naturally remove (clear) HCV without taking medication or undergoing treatment	True	63 (11.7)	36 (11.0)	22 (14.5)	5 (8.2)	0.373
13. Once somebody has completely been treated and cleared of HCV, they cannot get re-infected with HCV	False	226 (41.8)	103 (31.4)	87 (57.2)	36 (59.0)	**<0.001**
Total Hepatitis C Knowledge						
Median General Knowledge subscore of 8 items (IQR)	–	5 (5 – 6)	5 (5 – 6)	5 (5 – 5)	5 (5 – 6)	0.410
Median Treatment Knowledge subscore of 5 items (IQR)	–	1 (1 – 2)	1 (1 – 2)	1 (1 – 3)	1 (1 – 1)	**0.013**
Median Overall Knowledge score of 13 items (IQR)	–	6 (6 – 7)	7 (6 – 7)	7 (6 – 8)	6 (6 – 7)	0.100

TABLE 1. Knowledge of HCV disease and treatment stratified by HCV and HIV status.
Data are n (%) unless otherwise specified.

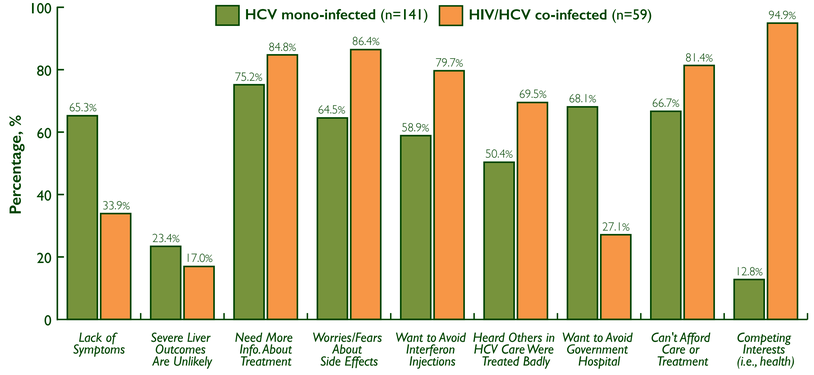

FIGURE 1. Self-reported reasons for not seeing a liver specialist who can treat hepatitis C infection.
Participants were allowed to provide multiple responses.

- All participants were male and the median age was 41 (IQR, 34-46). Only 44 (8.1%) participants identified as being unemployed, however, the median monthly income was only $90 U.S. dollars (IQR, 60-120).
- Of the 541 participants, 328 (60.6%) were HCV uninfected, 152 (28.1%) were HCV mono-infected, and 61 (11.3%) were HIV/HCV co-infected.
- Of the 213 HCV-infected participants, 151 (70.9%) were chronically infected.
- Of the 61 HCV/HIV co-infected participants, only 26 (42.6%) participants were on anti-retroviral therapy.
- 23 participants (4.3%) reported recent injection drug use (~past 6 mo.). However, 206 (70.0%) reported recent marijuana use, 156 (52.7%) reported recent intoxicating tobacco use, 273 (50.5%) smoked ≥10 cigarettes per day, and 73 (13.5%) were dependent on alcohol use.

Stage of Care Continuum, no. (%) *(Self-Report)*	HCV mono-infected (n=152)	HIV/HCV co-infected (n=61)
Aware of Curable HCV Treatment	86 (56.6)	18 (29.5)
Total Linked to Care * (Discussion with a doctor about HCV Infection)	22 (14.5)	11 (18.0)
Outside YRGCARE	6 (3.9)	11 (18.0)
Non-Specialist	5 (3.3)	10 (16.4)
Specialist who can treat HCV	1 (0.6)	1 (1.6)
Clinical Trial at YRGCARE	10 (6.6)	0 (0.0)
Initiated Treatment *	11 (7.2)	0 (0.0)
Completed Treatment *	10 (6.6)	0 (0.0)

TABLE 2. HCV Care Continuum by HIV status.
* Includes participants in an on-going clinical trial of HCV treatment at YRGCARE.

- Only one participant initiated and completed treatment outside YRGCARE.
- All trial participants were later confirmed to have achieved SVR (poster #559).

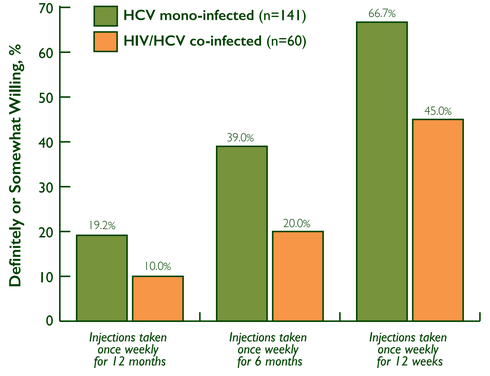

FIGURE 2. Willingness to include interferon injections in their treatment regimen improved with shorter duration of therapy.

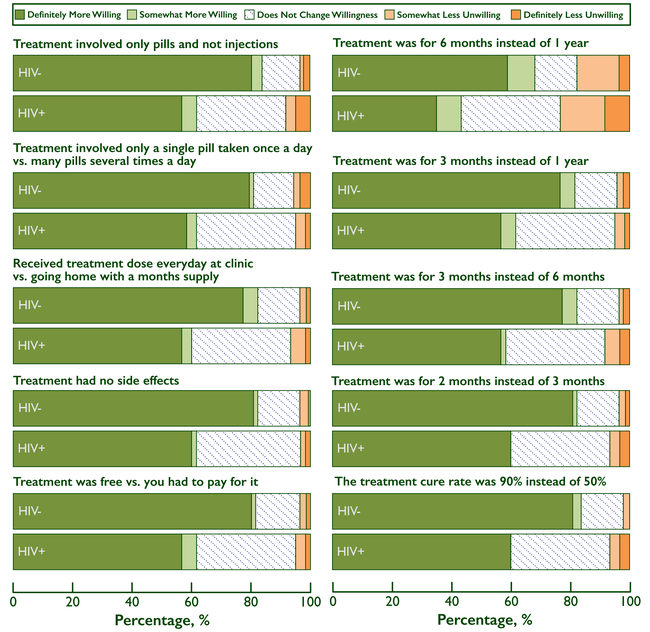

FIGURE 3. Factors associated with improved willingness to undergo hepatitis C treatment.

CONCLUSIONS

- We observed residual gaps in HCV knowledge especially regarding treatment among PWID in India.
- Structural, provider, and patient barriers to HCV treatment uptake were frequently reported but differed by whether participants were co-infected with HIV. For example, competing interests were cited by the majority of HIV co-infected participants but only some HCV mono-infected participants.
- Willingness to undergo HCV treatment improved with decreasing duration, higher perceived efficacy and use of pills vs. interferon, though willingness to use interferon improved with decreasing duration and was higher among participants with HCV mono-infection than HIV/HCV co-infection.
- Interestingly, a higher proportion of participants preferred making daily visits to a clinic to receive therapy vs. receiving a months supply, suggesting that a directly observed therapy (DOT) approach analgous to what is used for TB may be acceptable in this population.
- Despite increased production of generic DAAs in this region, HCV treatment remains out-of-reach for this marginalized group. Efforts should focus on scaling up treatment in combination with educational initiatives.

ACKNOWLEDGEMENTS

This work was supported by the National Institutes of Health, US Grant # 1R01DA026727, the Division of Intramural Research, National Institute of Allergy and Infectious Diseases, and the Johns Hopkins Center for AIDS Research (1P30AI094189). We thank our study staff and participants, without whom this research would not have been possible.